

Deloitte.

2015 Global aerospace and defense
industry outlook

Growth for commercial aerospace;
defense decline continues





Summary

The overall global aerospace and defense (A&D) industry is expected to grow in the 3.0 percent range in 2015.¹ This would be similar to the growth likely in 2014, all of it and more due to the rising fortunes of the commercial aerospace sector.²

The global commercial aerospace sector is expected to sustain its significant revenue and earnings growth in 2015, underlined by extended record-setting production levels both at the platform and in the supplier base.³ This growth is likely to be driven primarily by increased production rates due to the accelerated replacement cycle of obsolete aircraft with next generation fuel-efficient aircraft, as well as the continued increases in passenger travel demand, especially in the Middle East and the Asia-Pacific region.

On the other hand, continued declines in revenues are expected for the global defense sector.⁴ The United

States (U.S.) defense budget is a key driver of this decline, as sales revenues lag outlays, appropriations and budget authorizations, despite calls for increases in defense spending. The cessation of a prolonged period of armed conflict in Iraq and Afghanistan and budget cuts were the key factors over the last three years. It is still uncertain as to how regional tensions in the Middle East, North Korea, and the East and South China Seas will potentially lead to increased defense budgets. The United Arab Emirates (UAE), Saudi Arabia, India, South Korea, Japan, China, Russia, and other affected governments have and are expected to continue to increase purchases of next generation military equipment.



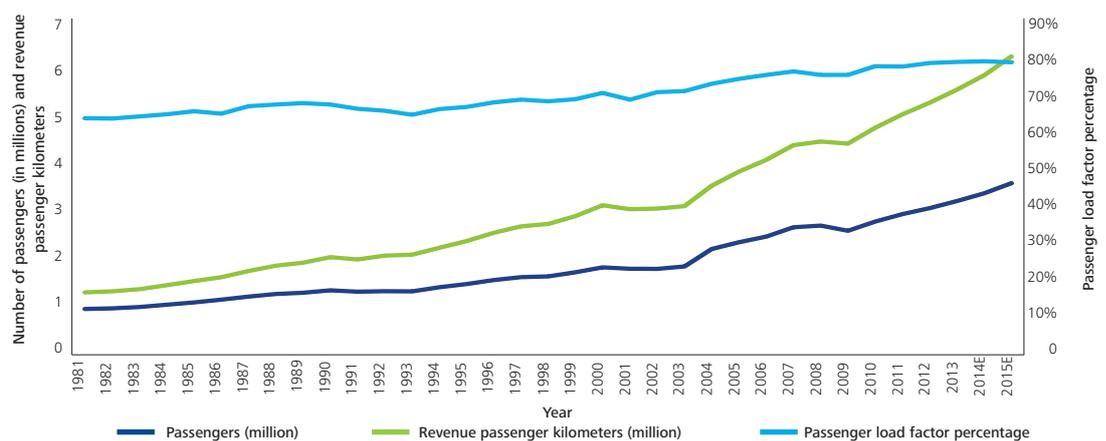
Commercial aerospace outlook

Passenger travel demand in countries experiencing continued wealth creation, primarily in India, China, the Middle East, and other Asia-Pacific region countries, are driving requirements for global passenger leisure and business travel growth, as well as increasing freight transportation requirements. Global revenue passenger kilometers have experienced significant growth over the last 30 plus years, resulting in greater utilization of aircraft and more sold out flights. Passenger travel demand is expected to increase 5.0 percent every year

over the next 20 years, contributing to increases in aircraft production.⁵

As illustrated in Figure 1, passenger travel demand increased 428 percent from 1981 to 2014E, while load factors (utilization of aircraft) have risen 25.4 percent (from 63.7 percent to 79.9 percent) during that same period.⁶ In addition, the number of people flying per year continues to increase, with a 340 percent increase over that time, which is enabled by more affordable ticket pricing and route availability.⁷

Figure 1: Global airline traffic (1981 to 2015F)



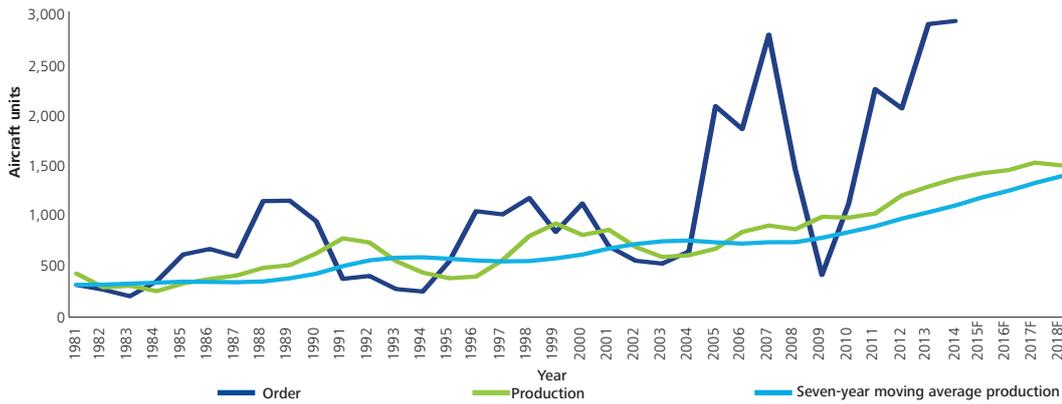
Note: See Figure 1 source on page 21.

As air travel demand is increasing, aircraft equipment continues to improve with enhancements powered by dramatic innovations in jet engine fuel efficiency, navigation technology, and materials science. These improvements, especially in fuel efficiency, are driving demand for aircraft replacement, thus advancing the obsolescence of certain previous generation aircraft. Fuel costs, as a percentage of total operating costs for airlines have risen from an average of 13.6 percent in 2001 to 28.6 percent in 2014.⁸ However, it is still too early to determine what impact the significant reduction in the price of oil since late-2014 may have on orders for next generation fuel-efficient aircraft.⁹ However, despite this trend, the investments in next generation aircraft, which promises to deliver at least an estimated 15 percent better fuel burn rate, has become very attractive for airline operators.¹⁰

Between increases in passenger demand, as well as the need for more fuel-efficient aircraft, the total demand for new aircraft production is expected to reach record highs for the near future. Indeed, aircraft production is expected to be between 31,300 and 34,300 (excluding regional jets) over the next 20 years.¹¹

Figure 2 illustrates sales order and production history of commercial aircraft from 1981 through 2014, showing a 218 percent increase in production between 1981 and 2014.¹² Using a seven-year moving average, production levels over the last 20 years have increased 86.7 percent since 1994.¹³

Figure 2: History and forecast for large commercial aircraft orders and production (1981 to 2018F)



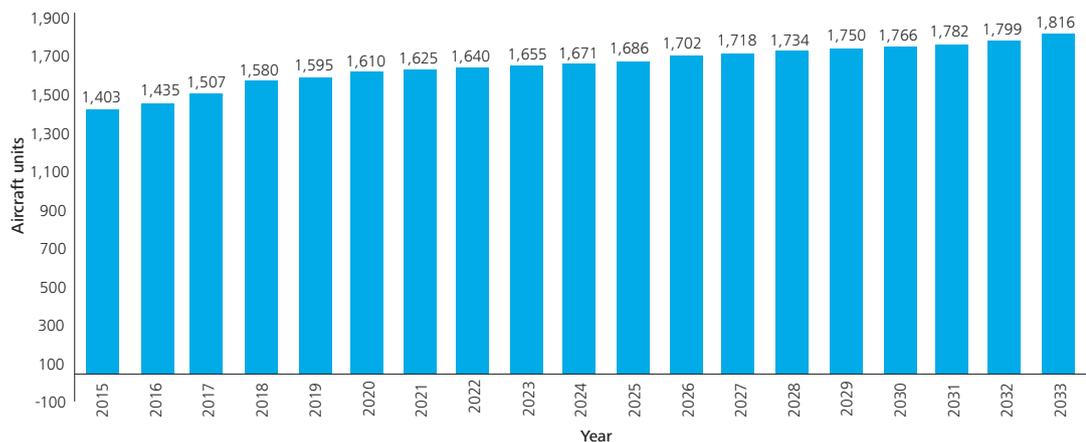
Note: See Figure 2 source on page 21.

Figure 3 illustrates expected production over the next 20 years, assuming no intervening global conflicts, airline operator challenges, or negative economic events that would disrupt the order and production pattern.¹⁴ However as shown in Figure 2 of actual historical sales order and production, it should be noted that a “straight line” pattern of aircraft production has not been demonstrated in the past, thus an irregular line is more likely to occur.

Over the next decade by 2025, commercial aircraft annual production levels are anticipated to increase significantly by an estimated 20 percent.¹⁵ With such growth expected, there are two significant trends and challenges to consider—the entrance of new global competitors to the existing duopoly and the impact on the supply chain.

First, the industry has only been a duopoly since 1997. Prior to that, at least three companies served the industry if not four. Going forward, it is expected that at least one additional competitor may successfully enter this burgeoning market in the next 20 years.¹⁶ This is expected to affect the pace of technology innovation, replacement cycles, and aircraft pricing. In turn, airline operators may have more product choices, requiring original equipment manufacturers (OEMs) and their suppliers, to meet new pricing expectations. Competition will likely increase and premium pricing for aircraft will likely also be impacted by technology innovation creating products which are less expensive to operate (e.g. fuel efficiency, maintenance, and repair), and possessing new and improved technologies that passengers prefer.

Figure 3: Aircraft delivery forecast (2015 to 2033)



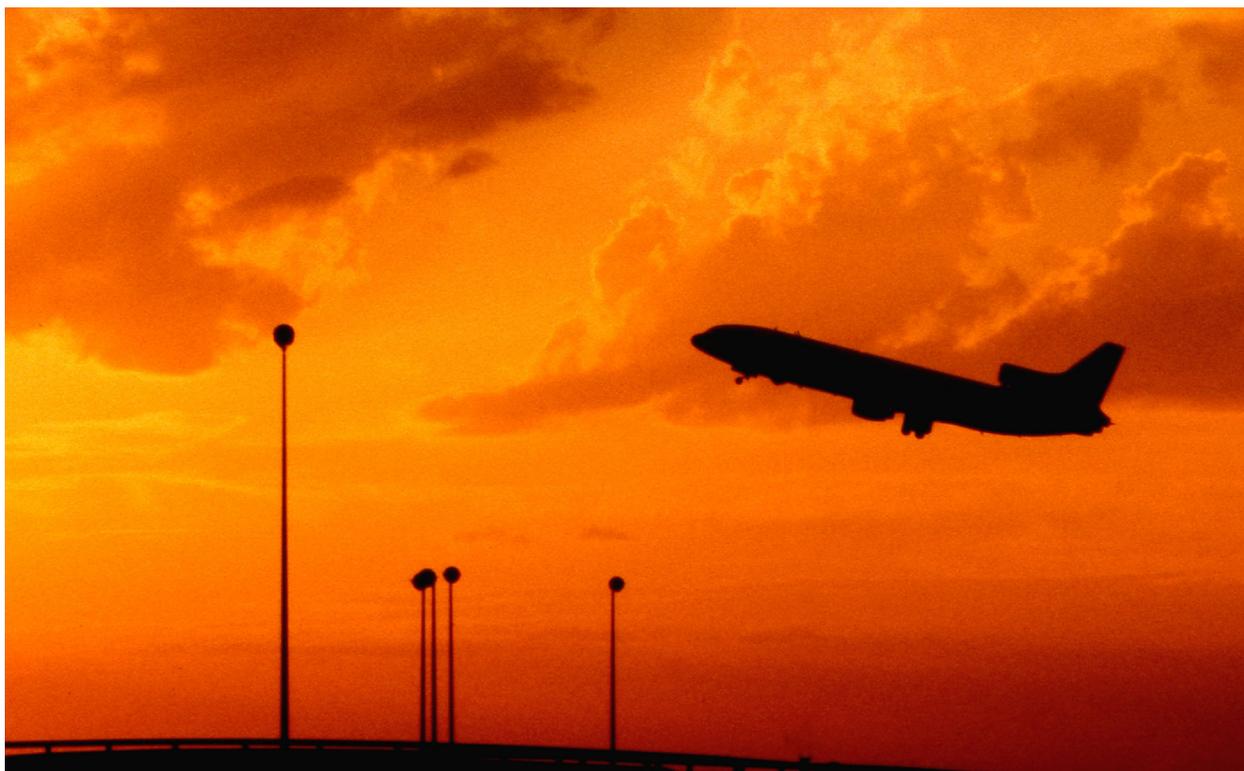
Note: See Figure 3 source on page 21.

It is likely that new aircraft production programs may emerge from non-U.S. and European countries, and that they will face challenges introducing new products due to a lack of a track record. This may result in expected new sales order challenges, possible delays in product development, and difficulty in establishing a track record of reliable, safe, and trouble-free operating history, which takes time. In 1970, the leading European aircraft manufacturer was established and successfully broke into the marketplace, but only after a prolonged period of developing a successful track record. It is anticipated that new entrants into the market may experience some of these same challenges. However, given the demand for new aircraft over the next 20 years, as illustrated in Figure 1, new entrants are likely to eventually experience some level of sales and production success.

Secondly, the aerospace supply chain is challenged to keep pace with OEM customers to dramatically increase the rate of production of components, systems, and services. Over the past decade, many aerospace suppliers have successfully met customers' challenges by changing their business model. Examples include investing in non-recurring research and development (R&D) costs in new aircraft production programs, hiring

design engineering staff to produce detailed designs for parts, investing in tooling for manufacturing, and managing a cadre of lower tier suppliers themselves. However, many aerospace suppliers have struggled to meet the new expectations and investment requirements.

It is expected that the aerospace supply chain will continue to transform, and will likely consolidate further, while some smaller companies may simply not be able to afford to invest in the industry going forward. The trend to consolidate by part family (i.e., components, aero-structures, electronics, interiors, etc.) may continue for the next few years, in order to gain economies of scale, and to provide the required investment in people and tooling. As the continued demand of the flying public for lower airfares ripples through the value chain, from OEM's to tier-one suppliers and on down, competitive pricing in the supply chain is anticipated to be an ongoing challenge in 2015. It is likely that 2015 will bring mid-to-high single digit levels of growth in the commercial aerospace sub-sector, given the rate increases expected and production forecasts of the aircraft manufacturers.¹⁷





Defense outlook

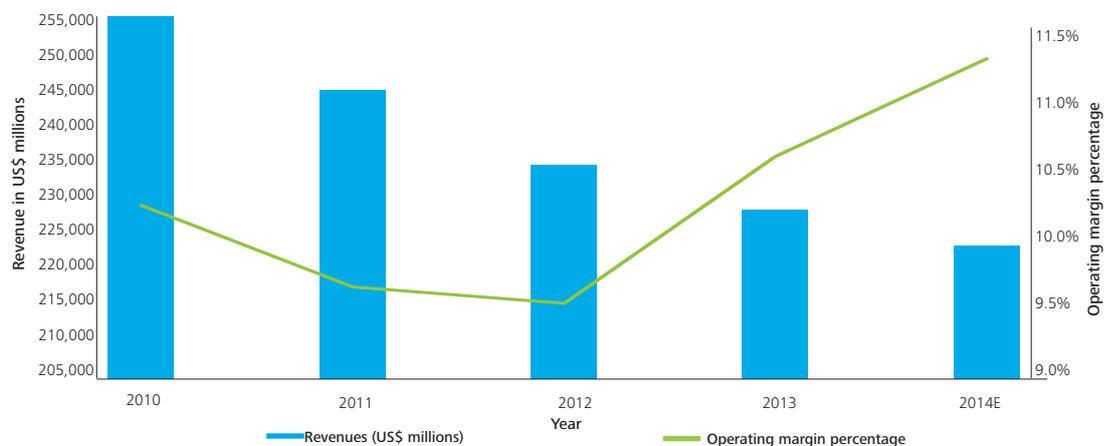
Overall global defense spending is declining, resulting mainly from reduced armed conflict in Iraq and Afghanistan and affordability concerns in many traditional militarily active governments. However, defense spending is increasing in several areas of the globe, especially in UAE, Saudi Arabia, India, South Korea, Japan, China, Russia, and other affected governments.¹⁸ Many of these countries have produced the incremental wealth necessary to equip their militaries with modern defense platforms and technologies. Some of these same countries have threats on their borders or in their geographies, all of which is contributing to an expectation of increased defense spending in those countries. However, these opportunities for sector growth are likely to be diminished with the overall downward trend in global revenues for the top tier defense companies, which declined 0.9 percent in 2013 and 1.3 percent in 2012.¹⁹ Although the final numbers are not yet reported for 2014, it is anticipated that global revenues for defense companies will decline an estimated 1.3 percent.²⁰

The U.S. spends by far the most on defense with 39 percent of the total global spend.²¹ Thus, any reduction in the U.S. defense budget will have a disproportionately higher impact on the global spend. On 1 March 2013 in the U.S., the Budget Control Act took effect including

a US\$37 billion reduction in defense spend, and US\$52 billion of expected reductions annually for the next nine years.²² Subsequently, the Bipartisan Budget Act of 2013 mitigated the first two years of budget cuts with an add back of US\$31.5 billion, mitigating some of the sequestration impacts on military and domestic spending through 30 September 2015.²³

Notwithstanding, defense contractors have experienced the impact of sequestration. Indeed, in 2013, the top 20 U.S. defense contractors experienced a 2.5 percent reduction in revenues.²⁴ Through the first nine months of 2014, the top 20 U.S. defense contractors have experienced a revenue decline of 2.1 percent, a trend expected to continue through the end of 2014.²⁵ The National Defense Authorization Act of 2015 set defense spending at US\$585 billion for fiscal 2015, which is US\$30 billion less than the defense budget for fiscal 2014 and will likely continue to put pressure on the U.S. defense contractor revenues in 2015.²⁶ U.S. President Obama proposed a US\$534 billion base budget along with a US\$51 billion for overseas contingency operations.²⁷ Obama administration's requested base budget exceeded federal spending limits as it is US\$35 billion more than the federal spending cap set at US\$499 billion.²⁸

Figure 4: Defense revenue and operating margin (2010 to 2014E)



Note: See Figure 4 source on page 21.

Figure 4 shows the five-year history of revenues and earnings for the top 20 U.S. defense firms, as an illustration of the challenges the sub-sector faces in the coming years.

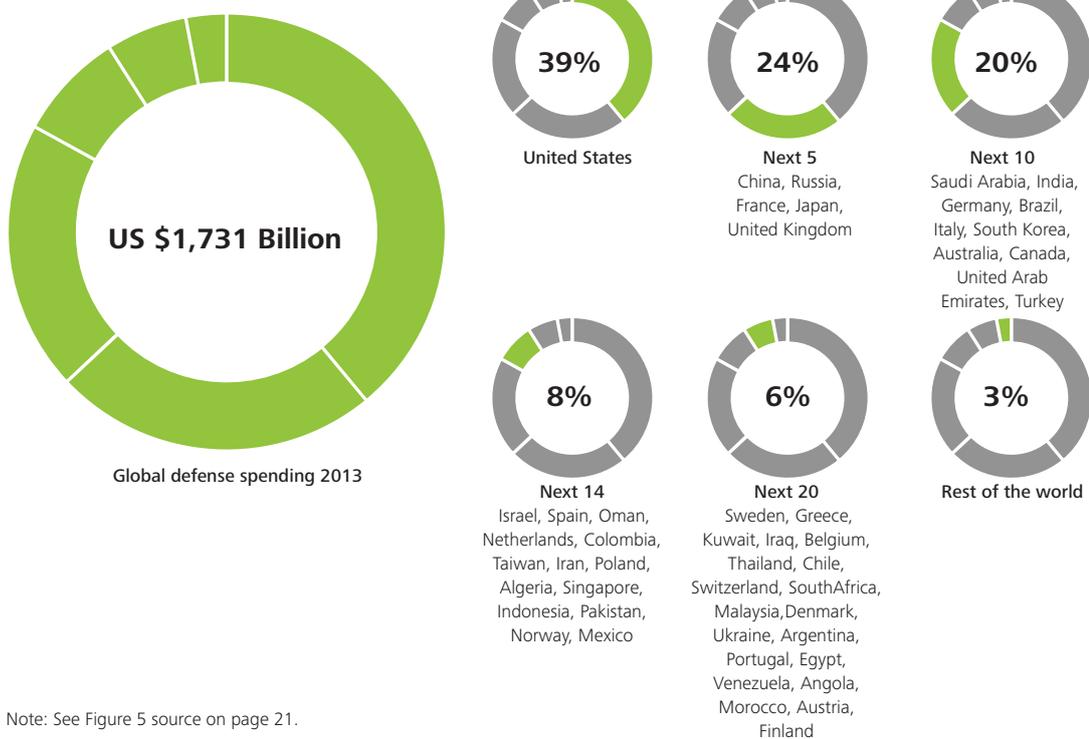
Note that operating margins have increased since 2012, due to anticipatory cost cutting and efficiency initiatives being implemented. This is discussed in further detail later in this outlook.



The government customers of global defense companies continue to be challenged with affordability and

competing domestic priorities. Thus, global defense spending is expected to continue to decline.

Figure 5: Top 50 defense spenders



Note: See Figure 5 source on page 21.

Figure 5 illustrates global government defense spending by country. As shown, the U.S. government is by far the largest spender, accounting for 39 percent of the total global military spend.²⁹

The global defense industry in 2015 and beyond will be challenged in two major ways: how to grow profitably in a declining market and what actions are necessary to cut costs to maintain acceptable financial performance.

Firstly, with declining budgets, there likely will not be sufficient work to sustain current levels of revenues and earnings, requiring global defense companies to find other sources of revenue. Governments are expected to continue to spend on programs of significant value, such as the next generation intelligence, surveillance, and reconnaissance (ISR) technologies. The ability to know, process, react in real time to events on the ground, in the air, and at sea will continue to be a strategic competitive advantage in armed conflict. The ability to process mega- billions of data bits provided by high-

resolution optics, communication sensing, and other multispectral sensors, is key to differentiating friend from foe, or tactical threat versus benign events for example. The use of advanced data analytics to sift through the data and make sense of it will be another strategic advantage in armed conflict. Innovations in these areas represent a source of potential growth for defense companies.

Defense companies will increasingly be required to invest their own funds in potential growth areas, including next generation ISR as indicated above. Other areas of growth that may help fill the revenue gap are foreign military sales to countries that are spending more on defense. Other promising areas of growth are in cybersecurity, adjacent markets, and application of military technology innovations for civilian markets. Lastly, growth is expected to come from inorganic sources via acquisitions. Acquisitions into new markets or consolidation of weaker companies to create economies of scale are expected to accelerate in 2015.



Secondly, in order to maintain margins in a declining revenue environment, costs need to decrease. Successful defense companies have already been anticipating defense budget cuts and have been reducing staff, cutting overhead costs, and getting lean. They are accelerating the substitution of process automation over more expensive labor, resulting in higher operating earnings per employee. Digital product development and computer aided design have been a game changer by creating significant efficiencies in the product development process. Lean manufacturing and six sigma initiatives have significantly cut waste and inefficiency in the production process. It is expected these initiatives and programs will accelerate in 2015 as companies manage their margins and profitability in a declining revenue environment.

What impact will the new “offset” strategy of the U.S. Department of Defense (DOD) have on growth prospects for the global defense industry?

The U.S. Secretary of Defense announced a new strategy in November 2014 for addressing the increasing technology advances of adversaries.³⁰ It involves creating next generation technology innovations to create asymmetric advantages for the war fighter. Just like the atomic innovations that created advantages in the Cold War, as well as the application of micro-processors to create advantage in defense electronics in the 1980's and beyond, the “third offset” strategy is to develop robotics, autonomous systems, big data and advanced manufacturing, and other next generation technologies to provide advantage in national security.

It is expected that the defense industry would have business opportunities to research, develop, and field these technologies should there be a business case and projected return on investment. However, with both the Pentagon, as well as company funded R&D in a long-term decline, the investments and funding required for development may slow down this well-intended strategy. Current discussion regarding ownership of intellectual property rights to these new technology innovations will continue, and global providers of new “offset” solutions will need to rationalize how to contract successfully, while meeting business case requirements for investment.

Is the nine-year backlog of commercial aircraft production at risk of degradation in the case of a potential global recession?

This is a realistic question given the impact of past

recessions on the aircraft production subsector. However, as demonstrated in the global economic downturn of 2009 to 2011, aircraft production did not experience a dramatic decrease, as may have been the case in the previous recessions of 1995 and 1997 and 2002 and 2004 (see Figure 2). This is likely because airline operators have exhibited greater capacity discipline by limiting market saturation with more airplane seats during good times. Indeed, several hundred aircrafts have been taken out of service over the last several years to significantly eliminate excess airline operating system capacity, partly resulting in higher load factors for the industry (see Figure 1).

On the other hand, aircraft sales orders did decrease dramatically during the global economic downturn, but these declines had little impact on production rates, given the high backlog in the industry, and the regional diversification of customers included in the backlog. Indeed, as seen in Figure 2, the production levels increased from 858 in 2008, to 1,189 in 2012, and 1,352 in 2014, a record level, which is expected to be surpassed over the next 20 years.³¹ It appears the sales orders of the past few years are starting to make their way into revenue on the income statements of OEMs and suppliers in a sustainable fashion.³² Any potential future recession may indeed affect sales orders. However, because of the sizable industry backlog and the time it takes between order and delivery, that aircraft production and therefore revenues for the commercial aircraft sub-sector may not be affected materially, if the recent past is any indication.

Will suppliers to the commercial aerospace industry keep up with significant demand for new aircraft over the next 20 years?

Yes, but there may be challenges. Strong suppliers who possess economies of scale in their cost structure and have the balance sheet strength to invest in risk sharing programs will likely succeed and step up the production rate. Weaker competitors may not have the financial resources, human capital strength, or the capacity and experience base to compete. It is expected that OEM's will react to their customers demand for more competitive pricing, by asking for concessions and price reductions from suppliers and from their suppliers. Thus, expect a consolidation period in the commercial supply chain as this process unfolds over the next few years. This is likely to result in fewer but stronger competitors in the supply chain.

Several recent commercial aerospace product introductions have been plagued with cost and schedule overruns, caused in part by weak performance in the supply chain. The industry has generally learned from recent history and is instituting risk reduction and mitigation measures for the most part. These include supplier development programs, supplier surveillance programs, and co-investments for example. Some OEM's are taking control of their suppliers, especially for those that are on the critical path and represent a strategic dependency. Expect these trends to continue in 2015.

What do defense companies need to do to return to growth?

In previous downturns, defense companies have merged with competitors, entered adjacent markets, entered entirely different markets, and concentrated on R&D to create next generation technologies. Selling more defense and military technologies to existing government customers will be difficult in a declining budget environment, thus competition for fewer programs is likely to be intensified during this period of contraction.

Therefore, a return to growth in a declining government-spending environment will likely require the same kind of response as cited above, plus more. It might include more emphasis on developing new products and technologies that support military mission requirements to address the new threat environment (e.g., asymmetric, air-sea power, cyber, urban, non-state organizations, etc.). These technologies include autonomous systems; next generation ISR; data analytics and cognition; unmanned combat vehicles on land, at sea and in the air; and enhanced precision strike, perhaps with more reliance on non-kinetic (lasers and directed energy) weapons.

It might include more emphasis on international sales to countries that have newfound wealth and the need for more defense capabilities. However, it can be difficult to do business in certain foreign countries with the long decision cycles, investment requirements, and inadequate indigenous capabilities to perform offset work by foreign nationals, for example.

Two areas that defense companies can focus on to create demand in a declining budget environment is life cycle cost reduction and business model transformation. Firstly, defense programs have become extraordinarily expensive by historic standards and affordability has

become a key requirement. It is incumbent on defense companies to address this need by developing next generation technologies that can be developed and maintained in service at a much lower cost. Defense companies may have opportunities in the near future to create demand by assisting global defense departments with this effort.

Secondly, government customers are increasingly faced with large front-end investments to develop and field weapons platforms, which in a budget constrained environment forces a conservation of resources. This inevitably means that not all requirements are funded. However, as has been demonstrated in the United Kingdom (UK) for example, industry has stepped in with a different business model to help fund the requirements with two key innovations including public private financing initiatives (PPFI), and performance based logistics (PBL).³³ Although not new, nor exclusive to the UK, these business models can transform the acquisition process resulting in more affordability and lower life cycle costs.

PPFI provides funding from the private sector to finance acquisition programs. PBL provides an "outcome" for a fee, and gets the armed services and the government out of the business of owning and operating weapons platforms. What is achieved instead is a guaranteed service; e.g., one hour of airlift capacity, for a fee. This business model allows defense contractors to continuously improve the mission capability rate at a lower cost, in exchange for a long-term contract.

When should defense companies expect an upturn in business and in what product areas?

Unfortunately, regional conflicts and forces of tyranny continue to be a threat, raising the potential for armed conflict from time to time. Despotism can still create dangerous disruptions, demonstrated for example with the recent invasion and takeover of the Crimea and continuing troubles in the Ukraine, the ISIS and Syrian conflict, the continued saber rattling by the North Korean leadership, and high tensions over the disputed ownership of islands in the East and South China Sea. Each regional danger zone has its own unique military characteristics: Iran and North Korea with its threat of nuclear strike capability and China with its claims in the East and South China Sea using long-range fighter and sea power, for example.

The recent budget declines most acutely experienced

by U.S.-based defense firms are expected to continue, assuming no major wars. However, as demonstrated over the last 50 years, armed conflict occurs on average every two and a half years, an increase from every four and a half years since the fall of the Berlin Wall. Should this trend continue, expect that defense spending will increase globally in the next two to three years, although this is highly dependent on the global defense environment, and how these potential threats described above unfolds.

Notwithstanding, global defense companies are expected to continue to produce innovations that can effectively address emerging threats and mission requirements with the continued evolution of defense technologies, specifically in the areas of cyber-security, next generation ISR, data analytics and cognition, unmanned combat vehicles, and precision strike, for example. While the global defense decline has had a muted effect on the industry's capacity, financial resources, and capability, in the long term, the defense industry continues to produce the game changing technology innovations that help keep war fighters out of harm's way.

Success internationally will require compliance with changing export controls under the U.S. export controls regulatory system. How will these changing export control requirements affect companies?

The U.S. controls the exports, re-export, and re-transfer of dual-use and defense articles, including the associated technology, data, and services, through regulations administered by the Departments of Commerce and State, respectively. The U.S. export control system has continued to undergo significant changes as a result of the Export Control Reform (ECR) initiative launched in August 2009.³⁴ This program has affected the vast majority of commercial aerospace and global defense companies since U.S. export control requirements apply to American origin items and to U.S. persons. Also, given the extraterritorial application of the U.S. export regulations, U.S. and foreign products derived from U.S. origin items or technology and these companies' foreign partners are equal.

Indeed, the scope of ECR includes a detailed analysis and rationalization of the United States Munitions List (USML) under the Department of State, as well as the harmonization of export licensing processes, the establishment of an Export Enforcement Coordination

Center, and information technology system modernizations.³⁵ A stated goal of the detailed USML review is to "build higher walls around fewer items," by shifting certain parts and components from the USML to the Department of Commerce's Commerce Control List (CCL).³⁶ The expected objective of the USML is to control only strategic and sensitive military items. Included in that shift has been a move of many aircraft and related articles from State's USML to Commerce's CCL, the rule which came into effect on 13 October 2013 providing a transition period that must be completed by 14 October 2015.³⁷

In the long term, ECR may ease companies' licensing burden for less sensitive U.S. origin parts and components and may simplify export compliance requirements allowing companies to penetrate new foreign markets and facilitate global trade with U.S. allied countries. However in 2015, commercial aerospace and global defense companies should expect to face challenges as they operationalize the changes resulting from ECR. Some of these issues include performing focused export re-classification exercises for items affected by ECR, training employees the interpretation of this new set of regulations, and adapting internal control programs, as well as automated systems to comply with new export regulations. In addition, ECR poses other challenges in educating A&D companies' domestic and international business partners about this changing regulatory landscape and its implications. Nevertheless, companies that proactively and effectively allocate resources to adapt to this new set of regulations will likely be able to take advantage of new international business opportunities as restrictions on cross-border activities shift regulatory oversight.

How is the UK defense market looking to emerging markets for growth?

The UK's £22 billion defense sector is currently the second largest exporter of defense equipment in the world after the U.S., with more small and medium-sized companies in this sector than France, Germany, Spain, Italy, and Norway combined.³⁸ Currently, the majority of UK's defense industry revenue is generated from domestic trade.³⁹

Yet, due to the decline in UK Ministry of Defence spending, which is wholly aligned to the sequestration budget cuts seen in the U.S. and other western defense departments, there is an increasing emphasis on the

need to look abroad to grow sales even further.

UK defense companies continue to invest in many of the fast growing emerging markets, which can offer greater potential than their developed counterparts. In particular, companies have been targeting the Middle East, Asia, Canada, Australia, and South America where defense budgets are growing. However, since the U.S. represents 39 percent of total global defense spend, the gains in these markets will not suffice to compensate for the U.S. defense budget reductions.⁴⁰ As such, these growth markets have become crowded and fiercely competitive.

Therefore, while the UK Government has a long standing history of promoting its defense industrial base overseas, many of these businesses, particularly UK OEMs and tier-one suppliers, are now driven to seek more profitable diversification opportunities in adjacent markets. These include security solutions for border protection or investment in global cyber businesses, rather than pursuing traditional geographic expansion alone. The question many investors ask: Is the UK defense sector doing this quickly enough?

In India, what are the recent regulatory changes relating to the defense sector?

The Indian government's regulatory focus for the A&D sector is on self-reliance, import substitution, and indigenization in India. As a result, the government enforces A&D foreign investment and technology platforms for increasing manufacturing operations in India, rather than importing defense equipment. The Ministry of Commerce and Industry (MCI) has updated the Foreign Direct Investment (FDI) limit of 26.0 percent on defense manufacturing to 49.0 percent under the government approval route.⁴¹ Additionally, the defense industry has also been attractive for portfolio investors (foreign institutional investors, foreign portfolio investors, non-resident Indians, qualified foreign investors, and foreign venture capital investors). However, FDI limits for portfolio investors is restricted to 24 percent of total equity of joint venture, and must be included in the overall limit of 49 percent.⁴²

For FDI above 49 percent, a submission is required to the Cabinet Committee on Security (CCS), as well as the Ministry of Defence and Foreign investment promotion board (FIPB). Each application is evaluated on case-by-case basis, and selected based upon access to modern and state-of-art technology. However, the key requirement for selection is that company's

management will remain in control by the Government of India with majority representation on the Board and the Chief Executives being residents of India.⁴³

Further, MCI has curtailed the list of defense items for industrial licensing and removed certain anomalies of investments in the sector.⁴⁴ As a result, parts, components, and assemblies used in defense equipment are no longer in the restricted category of FDI policy. Hence, such items can freely be manufactured in India without FDI restriction and industrial licensing.

Besides these changes, the sector continues to face key challenges. A joint venture opportunity in defense production is usually adopted to seek technology, know-how, and intellectual property rights from the overseas joint venture partner. Although economic returns are received, the overseas partner has a limited shareholding of 49 percent (previously 26 percent). This includes limitations on the technology, restrictions in using the brand name, and opposing any special resolution through veto power of the minority shareholder.⁴⁵

Despite shareholding limitations, innovative technology may not be as forthcoming to the Indian defense sector. There are risks associated with foreign companies that make the investments including the use of the technology without sufficient ownership, as well as business challenges of not having majority control over the joint venture company. Additionally, there are a number of other regulatory barriers to entry in India including offset requirements ranging from 30 percent to 50 percent depending on defense procurement procedure restrictions.⁴⁶ These restrictions include industrial licensing, protection of intellectual property rights, custom clearance requirements for both import and export, tax regulations, to name a few.⁴⁷

How has profitability and efficiency helped with the vitality of the global industry?

The global A&D sector profitability is lower in comparison to many industries such as information technology and health care. In 2013, in the U.S. for example, operating profit margins were 10.9 percent for the A&D sector, while operating profit margins for information technology and healthcare were 13.0 percent and 11.90 percent, respectively.⁴⁸ A&D sector profit margins were also lower compared to other manufacturing sectors such as chemicals, whose 2013 operating profit margins stood at 16.5 percent.⁴⁹



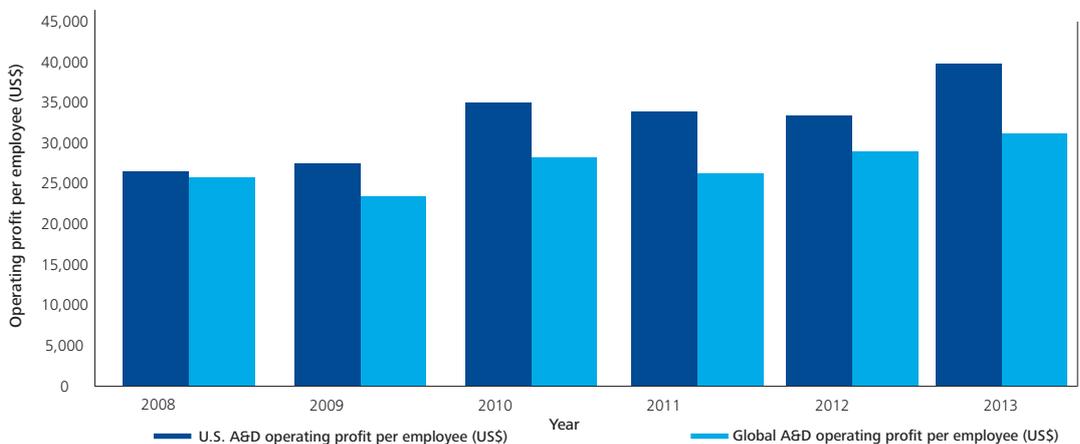


Although profitability and margins are not the driving factors, they are significant indicators of the ability to price products at premium levels, reflecting the dynamics of competition and the cost structure of the industry. Well-known innovations in the industry have brought significant improvements in the functionality, safety, reliability, and pricing of products. For defense sector companies, it is probably not reasonable to expect that profit margins would reach the levels seen in the software industry for example, because of the preferences and expectations of the industry's main customers, global defense ministries, and departments, as well as the taxpaying public. However, profitability does play a role in the ability for companies to attract capital and to increase and maintain financial strength. This in turn allows companies to invest in innovations that society has come to expect from the sector.

Regarding efficiency, the industry continues to improve on this metric due to several initiatives taking hold over

the last several years. Two of these are lean-six sigma and digital product development. Companies are doing a good job of reducing inventories, rationalizing their asset footprint, better managing their supply chain, and increasingly replacing labor with process automation on the factory floor. In addition, the transition of paper drawings to computer-aided design has brought a significant leap in employee productivity. Digital product development allows the entire product to be designed and tested in the computer, without the need for costly physical mockups. The modeling and simulation allowed by digital product development significantly reduces design flow time, tolerance buildup, and engineering errors, for example. The U.S. has experienced more recent success in improving employee productivity over the global industry due to its improved flexibility to rationalize factories, adjust employee levels, and manage their cost structure in a timely manner. Figure 6 shows the gap between the success in the U.S. productivity and the opportunity for improvement for the rest of

Figure 6: Global and U.S. operating profit per employee in US\$ (2008 to 2013)



Note: See Figure 6 source on page 21.

the world. With the U.S. headquartered companies experiencing a 8.2 percent compound annual growth rate improvement in operating profits per employee from 2008 to 2013, over the 3.8 percent improvement for the global A&D industry during the same period.⁵⁰

What is expected in terms of global mergers and acquisitions (M&A) activity?

Public market valuations (enterprise value in dollar terms) has increased by 4.1 percent for the global A&D sector from 1 January to 26 December 2014, while equity prices (market capitalization in dollar terms) grew by 3.0 percent during the same period⁵¹. This may seem at odds with the uncertainty in global governments

and U.S. defense budgets, as well as continued concerns about the potential impact of sequestration and the government shutdown on defense companies doing business with the U.S. Department of Defense. However, investors expect defense companies to look for consolidation and diversification opportunities globally, to increase their efficiency and to improve their operating profit performance.

Beginning with the most recent global economic downturn, there has been a significant gap between the bid and ask prices for many transactions. This has occurred when buyers seek to leverage perceived weakness among potential sellers, which in turn has led



to a stalemate and a relative reduction in the number of transactions consummated. Private equity investors in particular have postponed exits from investments due to the recession and are now ready to sell. In addition, as mentioned earlier, the pricing pressure on suppliers by OEMs in the commercial aerospace sector during this unprecedented upswing in production will likely create an attractive environment for suppliers in certain segments of the value chain to sell to competitors or other strategic buyers. As transaction multiples (EV/EBITDA) continue to return to historic norms, rising 12.5 percent on a last twelve months basis as of the third quarter of 2014 compared to the full year 2013, these factors are likely to contribute to an increase in M&A transactions in the sector in 2015 and beyond.⁵²

What has been the financial performance for major A&D companies?

As illustrated in Figure 7, during the first nine months of 2014, the top 20 global A&D companies outperformed the top 20 U.S. A&D companies both in terms of revenue and operating income growth. During the trailing nine months ending September 2014, the top 20 global A&D companies accounted for 52.3 percent of the industry revenues of US\$709.4 billion reported in 2013.⁵³

The top 20 global A&D companies reported combined revenues of US\$370.7 billion during the first nine months ending September 2014, which represents a year-over-year increase of 2.7 percent.⁵⁴ In contrast, the top 20 U.S. based A&D companies' revenues grew

Figure 7: Top 20 Global and U.S. A&D companies financial performance (2014 and 2013)

Top global A&D companies	Nine months ending September 2014	Nine months ending September 2013	Percentage change
Revenues (US\$ billion)	\$370.7	\$361.0	2.7%
Operating income (US\$ billion)	\$38.1	\$35.3	7.9%
Operating margin	10.3%	9.8%	5.1%
Top U.S. A&D companies	Nine months ending September 2014	Nine months ending September 2013	Percentage change
Revenues (US\$ billion)	\$272.2	\$266.2	2.3%
Operating income (US\$ billion)	\$31.8	\$29.5	7.8%
Operating margin	11.7%	11.1%	5.4%

Note: See Figure 7 source on page 21.

by 2.3 percent to US\$272.2 billion during the same period.⁵⁵ Similarly, operating income for the top 20 global A&D companies grew by 7.9 percent to US\$38.1 billion during this timeframe, while operating income for the top 20 U.S. A&D companies increased by 7.8 percent to US\$31.8 billion.⁵⁶

As illustrated in Figure 8, aggregate revenues for the top 20 global defense companies reported a 1.3 percent decline to US\$199.1 billion in the nine months ending September 2014, versus US\$201.6 billion during the

same period in 2013.⁵⁷ The top 20 U.S. based defense companies reported a 2.1 percent decline in revenues during the nine months ending September 2014, indicating continued sluggishness in defense spending.⁵⁸ Similarly, the top 20 global defense companies outperformed their U.S. peers with a 3.5 percent growth in operating profits versus 3.4 percent for their U.S. peers.⁵⁹

Commercial aerospace continued to report stronger growth with both the top 20 global and the top 20



Figure 8: Top 20 Global and U.S. A&D Companies — Commercial versus defense financial performance (2014 and 2013)

Top global and U.S. A&D companies		Nine months ending September 2014	Nine months ending September 2013	Percentage change
Revenues (US\$ billion)				
Top 20 global A&D companies	Commercial aerospace	\$171.6	\$159.4	7.7%
	Defense	\$199.1	\$201.6	-1.3%
Top 20 U.S. A&D companies	Commercial aerospace	\$109.4	\$99.9	9.5%
	Defense	\$162.8	\$166.2	-2.1%
Operating profit (US\$ billion)				
Top 20 U.S. A&D companies	Commercial aerospace	\$17.5	\$15.4	13.6%
	Defense	\$20.6	\$19.9	3.5%
Top 20 U.S. A&D companies	Commercial aerospace	\$13.4	\$11.7	14.5%
	Defense	\$18.4	\$17.8	3.4%

Note: See Figure 8 source on page 21.

U.S. companies reporting 7.7 percent and 9.5 percent increase in revenues, respectively.⁶⁰ The top 20 U.S. commercial aerospace companies outperformed their global peers with a 14.5 percent increase in operating profits versus a 13.6 percent increase for the global top 20 commercial aerospace companies.⁶¹

What is to be expected from the global A&D industry, its products, and new markets going forward?

The modern era of the A&D industry started only 111 years ago, with the Wright Brothers first flight on 17 December 1903. Since then, the industry has landed a man on the moon, gone supersonic, developed aircraft that have transported over a billion people per year, and sent a spacecraft outside our solar system, just a few notable achievements to mention. The industry

has changed the very nature of the ways consumers travel by commercial aircraft, communicate via satellites, shop over the internet, conduct armed conflict when necessary, and assist with humanitarian missions to far reaches of the globe. The A&D industry is expected to continue to develop game changing technologies that will offer improvements in these and other areas.

For commercial aerospace, there will continue to be a need over the long term to bring more people all over the globe closer together physically via safe, cost effective, and efficient air travel. For defense, there is a need to continue improvements to recognize, encounter, and contain aggression in a manner that increasingly keeps the war fighter out of harm’s way. Technology innovation is the key to advancements in the industry, in order to address current markets and to create demand in markets that have yet to be discovered.

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Acknowledgements

Sincere acknowledgements to Aijaz Shaik Hussain from Deloitte United States (Deloitte Support Services India Private Limited) for his contributions to the outlook. Also, special thanks to Jennifer McHugh, Deloitte Touche Tohmatsu Limited.



End notes

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Figure 7 source: DTTL Global Manufacturing Industry group analysis of the following companies:

List of top 20 global A&D companies:

The Boeing Company, Airbus Group, Lockheed Martin, United Technologies, General Dynamics, BAE Systems, Northrop Grumman, GE Aviation, Raytheon, Safran, Honeywell, Finmeccanica, Thales, Textron, L3 Communications, Rolls Royce, Bombardier, Spirit AeroSystems, Huntington Ingalls Industries, and Leidos.

List of top 20 U.S. companies:

The Boeing Company, Lockheed Martin, United Technologies, General Dynamics, Northrop Grumman, GE Aviation, Raytheon, Honeywell, Textron, L3 Communications, BAE Systems US, Spirit AeroSystems, Huntington Ingalls Industries, Leidos, Harris Corp., Rockwell Collins, Exelis, B/E Aerospace, SAIC, and Triumph Group.

Note: Years include nine months ending September 2014 and September 2013.

Figure 8 source: DTTL Global Manufacturing Industry group analysis of the following companies:

List of top 20 global A&D companies:

The Boeing Company, Airbus Group, Lockheed Martin, United Technologies, General Dynamics, BAE Systems, Northrop Grumman, GE Aviation, Raytheon, Safran, Honeywell, Finmeccanica, Thales, Textron, L3 Communications, Rolls Royce, Bombardier, Spirit AeroSystems, Huntington Ingalls Industries, and Leidos.

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