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Aerospace & defense
2013 year in review and 2014 forecast

How are aerospace and defense companies performing today?

What challenges and opportunities do they face?

PwC takes a look.

pwc

Methodology

Our data is drawn from publicly available financial reports on fiscal 2013 results for the largest 100 aerospace and defense (A&D) companies, by revenue. Our cut-off date for publication was April 1, 2014; accordingly, a few companies were omitted because they had not reported results by that date.

Aerospace and defense companies include those that generate the majority of revenue from A&D activities or, for diversified companies, those reportable segments that derive a majority of their revenue from A&D activities. The results are reported in US dollars. Foreign currencies were translated at average exchange rates for the years ended Dec. 31, 2013 and Dec. 31, 2012, respectively.

Our report also expresses PwC's point of view on topics affecting the industry. Our viewpoints have been developed based on our interactions with our clients and other industry leaders and analysts.

Contents

Aerospace and defense industry delivers a fourth consecutive year of record revenues and profits

Summary (US$ billions)	2013	2012	Change
Revenue	$719	$692	4%
Operating profit	$66	$60	10%
Operating margin	9.24%	8.72%	52bps

Source: PwC analysis

The top 100 A&D companies set records in 2013, reporting $719 billion in revenue and $66 billion in operating profit.

The aerospace and defense industry marked its best year ever in 2013, in terms of revenue and operating profit. The uptick was driven by a continuing surge in the commercial aviation market that more than offset a weakening defense performance. The top 100 A&D companies set records in 2013, reporting $719 billion in revenue and $66 billion in operating profit. Revenue increased by 4 percent compared with 2012, while operating profit was up 10 percent over 2012. Operating margin increased by 52 basis points to 9.24 percent.

However, the largest companies accounted for the bulk of the profit gains: All of the operating profit improvement was reported by companies in the top quartile. All other quartiles reported a decrease in operating profit, with the bottom half reporting a 14 percent drop. Fewer than half of the companies reported an improvement in operating profit.

When it comes to operating profit up the supply chain, a significant shift is taking place. Operating margin among the OEMs had historically been below that of the supply chain. In particular, margins for Boeing and Airbus remain well below the industry average at 7.6 percent and 4.4 percent, respectively. The industry's overall health remains robust, but the supply chain is being adversely affected by defense budget cuts, an emphasis on affordability, cost pressures from commercial OEMs, and efficiency challenges in meeting an aggressive commercial aircraft production ramp-up, among other factors. As a result, companies should closely monitor the financial health of their supply chains.

	Revenue	Operating profit	Operating margin	Change
Top quartile	5%	16%	9.2%	+100 bps
Second quartile	-1%	-1%	9.3%	0 bps
Third quartile	2%	-13%	10.4%	-170 bps
Fourth quartile	5%	-15%	8.2%	-190 bps

Prospects continue to be bright for commercial aerospace. The sector continues to enjoy its longest and most profitable growth cycle in history — and there are no signs of a slowdown. The sector's new equipment output has increased nearly 30 percent over the last two years, reaching a new record, and more production increases are expected. And air traffic shows strong growth, driving the lucrative aftermarket business. The industry captured 2,858 net orders for large commercial aircraft in 2013, a new record, marking the third consecutive year with more than 2,000 large aircraft orders (and only the fourth time this has happened). The sector drove a record backlog of more than 10,000 aircraft for the first time — eight years' worth at current production rates — and the industry expects another record output in 2014.

With the US government's budget sequestration taking effect in March 2013, the defense sector continues to face significant challenges, with more than $40 billion cut from defense spending in fiscal year 2013. The industry reported another modest decline in revenue in 2013. Several companies reported slight improvements in margin, but the margin expansion is slowing, compared with recent years. However, good news for the sector arrived at the end of the year, when the US Congress passed the Bipartisan Budget Act of 2013, which mitigates some of sequestration's impact on the Department of Defense (DoD) for two years. It also led defense industry leaders to be more optimistic that another compromise could be reached when the two-year deal expires.

Now, companies are waiting for the specific impacts on programs as the DoD and Congress determine the budget details. If Congress does not replace the current budget compromise with a similar deal, the DoD could face more significant impacts after two years. Defense companies face more pressure than ever to improve productivity; increase transparency; and respond to increasingly complex government regulations and oversight, tighter schedules, and generally higher expectations. Persistent security threats, Russian assertiveness, the Iranian and North Korean nuclear threats, and geopolitical instability underscore the need for global security and could rapidly change US defense priorities.

Interestingly, no acquisitions of the top 100 A&D companies occurred in 2013, while there were five acquisitions in 2012. The three mega deals in A&D during 2013 all involved the acquisitions of nonpublic companies: Textron's acquisition of Beech Holdings, Rockwell Collins' acquisition of ARINC and Xi'an Aero-Engine's acquisition of AVIC Xi'an Aero-Engine.

Some highlights from our analysis of 2013 results		
Largest increase in revenue (dollars)	Airbus	$6,106 M
Largest increase in revenue (percentage)	MDA	101%
Largest increase in operating profit (dollars)	General Dynamics	$2,852 M
Largest increase in profit (percentage)	General Dynamics	342%
Highest operating margin	Transdigm	38.9%
Largest increase in top 100 list	MDA, improved 19 spots from	#85 to #66
Largest decrease in revenue (dollars)	Lockhead Martin	-$1,824 M
Largest decrease in revenue (percentage)	Nabtesco Aircraft	-41%
Largest decrease in profit (dollars)	BAE Systems	-$1,284 M
Largest decrease in profit (percentage)	Viasat	-1100%
Largest decrease in top 100 list	Mitsubishi and HAL both dropped 9 spots	

Deleted from the list:	
ThyssenKrupp Marine Systems	Segment reporting change
Nabtesco Aircraft and Hydraulic Equipment	Reduced revenue
Sumitomo Precision Products	Reduced revenue

Added:		
#96	Indra Security & Defense	10% increase in revenue
#98	Kaman Aerospace	6% increase in revenue
#100	DigitalGlobe	Acquisition of GeoEye

Another year of record deliveries and backlog for commercial aerospace

Boeing was again the industry's largest company, reporting $86.6 billion in revenue, a 6 percent increase, driven by commercial aircraft deliveries. Airbus increased revenue from €56.5 billion to €59.3 billion, or 5 percent (8 percent in US dollars). Airbus also reported the largest revenue growth: $6.1 billion. Predominantly commercial aerospace companies generally reported strong revenue growth, in the high single digits and sometimes double digits. Companies reporting double-digit growth include United Technologies (17 percent), Rolls-Royce (25 percent), GE Aviation (10 percent), Safran (12 percent), Precision Castparts (16 percent), Dassault (20 percent), Spirit AeroSystems (10 percent), and Zodiac (17 percent).

Several of these companies' growth resulted from acquisitions, including UTC's acquisition of Goodrich and GE's acquisition of Avio. MacDonald, Dettwiler and Associates (MDA) reported a 101 percent increase in revenue, driven partly by their acquisition of Space Systems/Loral. UTC improved to become the fourth-largest A&D company in 2013, largely as a result of the first full year of the Goodrich acquisition. Also, Rolls-Royce moved into the top 10, pushing out Finmeccanica. Rolls-Royce's revenue was up 25 percent (27 percent in British pounds), largely as a result of its acquisition of Tognum, although organic growth was a solid 6 percent. Airbus reported the largest revenue increase, $6.1 billion. But UTC ($5.012 billion), Boeing ($4.925 billion), and Rolls-Royce ($4.9 billion) were close behind. MDA reported the largest revenue increase by percentage, approximately doubling, largely attributable to a full year of revenue from its acquisition of Space Systems/Loral. MDA reported the largest increase in the top 100 list, moving up 19 spots to No. 66. Lockheed Martin reported the largest decrease in revenue, as sequestration hit the world's largest defense contractor. But Lockheed still managed a 2 percent profit improvement and a 50 bps improvement in operating margin to 9.9 percent.

Boeing was also the industry's most profitable company in 2013, with $6.562 billion in operating profit, an increase of 4 percent. General Dynamics reported the largest increase in profit and percentage increase due to the absence of large program charges recognized in 2012. UTC had the second-largest profit improvement of $1,243 million, largely resulting from gains associated with the first full year of the Goodrich acquisition. And BAE Systems reported the largest decline in profit. Despite record gains, the industry still struggles to achieve double-digit operating margins. The industry's best operating margin belongs to Transdigm, at 38.9 percent, a slight decrease from the previous year.

Companies with operating margin > 20%

#19	Precision Castparts	25.4%
#48	Meggitt	24.3%
#51	Hindustan Aeronautics Limited	24.4%
#63	Transdigm	38.9%
#79	Bharat Electronics	20.4%
#86	Wesco Aircraft Holdings	20.1%
#95	Crane Aerospace & Electronics	23.1%

As an honorable mention, GE Aviation and Honeywell Aerospace both reported 19.8% operating margin.

2014 forecast and risks

The A&D industry has experienced four consecutive years of record revenue and profit, as the growth in commercial aviation has more than offset a soft defense market and multi-billion-dollar impairment charges at large defense contractors. For 2014, sequestration again is expected to negatively affect defense industry revenue and profits.

2014 could be another record year for the sector. However, commercial aerospace growth is expected to slow, and defense revenue will continue to make modest declines. Consequently, there are numerous risks with the potential to end the run of consecutive records results, such as a major impairment at a defense contractor or disruptions in the commercial aerospace supply chain.

Commercial aerospace

Boeing and Airbus both set company records for aircraft deliveries in 2013. Airbus marked its twelfth consecutive year of record production levels. Just two years ago, the industry crossed the 1,000 deliveries mark for the first time and has now exceeded that level by 27 percent. Production was more than double compared with a decade ago. This level of production increase is even more remarkable considering the complex and unusually long lead time unique to aircraft manufacturing. 2013 also set a new record for orders at 2,858. The previous record was set in 2007, at 2,754. Orders surpassed the 2,000 mark for the third consecutive year and the fourth time in history. The industry book-to-bill was 2.2:1, pushing backlog to another record of more than 10,000 aircraft, more than eight years' production at current levels.

Boeing launched the 777X on Nov. 17, 2013, at the Dubai Air Show. Etihad, Qatar, and Emirates, three of the four major launch customers, are Middle East airlines, indicating the significance of the Middle East region to the wide-body market. Boeing opted to build the plane in the state of Washington, after agreeing on a new union contract.

Airbus plans to open an A320 assembly plant in Mobile, Alabama; the plant will begin deliveries in 2015 and is expected to produce about 50 planes per year.

Boeing's backlog is at $374 billion, and Airbus' backlog is at $809 billion (at list price), record levels for each company.

Backlog

US$ billions	12/31/13	12/31/12	12/31/11	12/31/10
Boeing	$374	$319	$293	$256
Airbus*	$809	$638	$679	$480

*at list price

Aircraft backlog (units)	Boeing	Airbus	Total
Backlog at December 31, 2012	4,373	4,682	9,055
Net orders	1,355	1,503	2,858
Deliveries	648	626	1,274
Backlog at December 31, 2013	5,080	5,559	10,639

For 2013, the International Air Transportation Association (IATA) reported revenue passenger growth of 5.2 percent, marking the fourth consecutive year that air travel demand grew more than 5 percent, consistent with the long-term demand for aviation. This level of demand bodes well for the 20-year forecast of approximately 35,000 new planes at a value of $4.5 trillion.

IATA statistics	2013	2012	2011	2010
Revenue passenger miles	+5.2%	+5.3%	+5.9%	+8.2%
Load factor	78.7%	79.1%	78.1%	78.4%
Cargo freight ton miles	+1.4%	-1.5%	-0.7%	+20.6%
Load	46.3%	45.2%	45.9%	53.8%

Source: IATA

Order activity continued to be strong for new single-aisle aircraft 737 MAX and A320neo, re-engined versions of the existing models; the new models promise fuel efficiency improvement of at least 15 percent. To put this in perspective, aircraft engines have achieved 49% fuel efficiency improvement across more than five decades of the jet era, or about 1 percent annually. So a 15 percent improvement in one generation represents a significant advance in fuel efficiency. But it was also a big year for wide-body aircraft, particularly among Middle East carriers.

Some larger orders from 2013, with approximate value	
Emirates, Etihad, Qatar, 265 787s and 777s	$200 billion
Lion Air, 234 Airbus aircraft	$24 billion
Several Chinese airlines, 200 737s	$21 billion
Lufthansa, 34 777-9 and 25 A350s	$19 billion
Ryan Air 175 737s	$17 billion
Lufthansa 100 A320s	$10 billion
FlyDubai, 100 737s	$10 billion
Turkish Airlines, 82 A320s	$8 billion
Air Lease Corp, 25 A350s	$9 billion
Air Lease, 75 737s	$7 billion
Air Canada, 61 737MAXs	$6 billion
Jet Airways, 50 737s	$5 billion

In March 2014, ANA placed orders for $16.6 billion, split between Boeing wide-body aircraft and Airbus narrow-body aircraft.

Regional aircraft

Bombardier's CSeries completed its first test flight on Sept. 16, 2013, and received 34 net orders during the year, bringing the total orders to 201.

Mitsubishi is assembling its first flight test aircraft, scheduled for first flight in 2015. No orders for the company's Mitsubishi Regional Jet (MRJ) were placed in 2013; the backlog stands at 165 firm orders.

Embraer formally launched its second-generation E-Jets during 2013 and announced a deal with American Airlines for 60 E175 jets. Among the improvements will be Pratt & Whitney PW1700G and PW 1900G geared turbo fan engines, fly-by-wire, and new wings. In a complete reversal in the regional engine market, Pratt & Whitney, once absent from the regional jet space, now dominates new production platforms, with engines on the Bombardier C-Series, Mitsubishi MRJ, and Embraer's second-generation E-Jets.

Business jets

Business jets cycles showed modest improvement for most of 2013 but remained well below pre-recession levels, except in December. Cycles shot up 8 percent year over year in December to the highest level of any month since 2008. Is this trend an anomaly, or does it point to a long-anticipated recovery for business jets? Time will tell. And business jet growth continues to look favorable for the long term. We expect strong growth in the international markets, particularly China, as well as improvement in the US market, driven by an improving economy and growing demand for replacement aircraft.

Commercial aerospace 2014 forecast:

For 2014, Boeing is forecasting between 715 and 725 deliveries — a 10 percent increase. Airbus is forecasting about 630 deliveries, barely more than in 2013, but this would represent its thirteenth consecutive year of record production. Boeing plans to produce 47 737s per month by 2017, and Airbus will produce 46 A320s per month by 2016. Development programs cost remains the principal risk to the industry's performance.

The industry again expects to set new records for output in 2014. These record output levels drive significant challenges for an industry that arguably has the most complex and longest supply-chain lead time. The challenge will be avoiding previous supply chain issues while raising production rates. The industry in previous years has faced raw materials shortages, late deliveries, out-of-sequence work, overtime, and rush shipments throughout the supply chain; all prevent the economic benefits of higher volume from dropping to the bottom line.

The industry will again face these challenges in 2014 as well as in the longer term, as capacity constraints bump up against record backlogs. Original equipment manufacturers (OEMs) and suppliers are encouraged to perform thorough supplier capacity and readiness assessments. So far, Boeing and Airbus have managed increments in output and have achieved stability in the supply chain.

While it is difficult to predict orders, it is unlikely that orders will maintain the accelerated pace seen from 2011 through 2013. We do, however, expect orders to exceed deliveries greater than 1,400, pushing backlog to another new high by the end of 2014.

For the past three decades, leased and financed aircraft have steadily grown to account for half of the commercial airline fleet. Leasing companies have about 16 percent of the current backlog, a historic high. Aircraft lessors will become even more important as their more stable business models, diversified portfolios, and comparatively higher grade ratings ease their access to the capital markets.

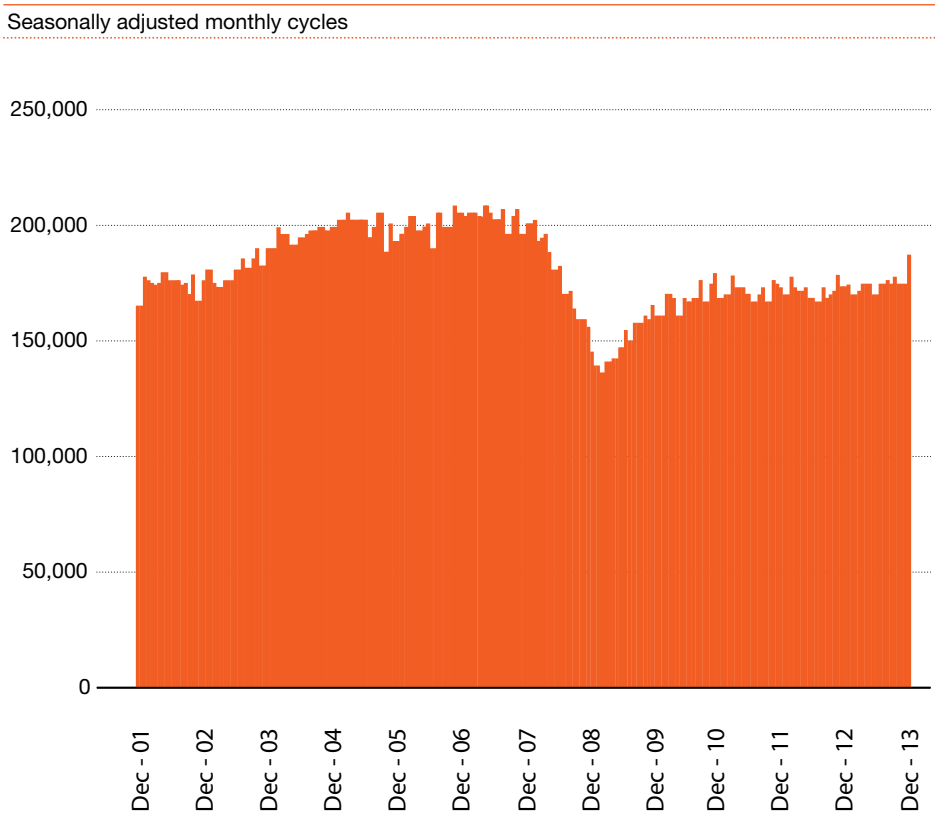
Adverse economic conditions remain the principal risk. The economic recovery, while slow, has been underway for five years — a long time, by historical standards. However, we view these factors as less risky to the industry in 2014. Therefore, we expect modest growth in commercial aerospace in 2014 and another record year for the sector overall.

Space

During 2013, Orbital Sciences joined SpaceX and completed a successful cargo mission to the International Space Station (ISS). Funding for NASA is expected to remain consistent with current levels or be modestly higher. Funding for the ISS, Orion crew vehicle, and James Webb space telescope, as well as other initiatives, is expected to continue.

Long-term forecast

The long-term forecast for commercial OEM aircraft is about 35,000 deliveries over the next 20 years, at a value of approximately $4.5 trillion. While some industry observers have questioned whether these forecasts are too optimistic, they are based on well-grounded assumptions about global economic growth and the rate of aircraft replacement. In fact, the significant efficiency improvements of new aircraft may accelerate the demand for replacement aircraft. With long-term demand at more than 1,700 aircraft per year and current production rates at approximately 1,300 per year, the industry can expect significant future growth and a lot of cushion to absorb any softening in demand. Going forward, companies that can effectively increase production rates have the potential to gain a key competitive advantage.



At the same time, new competitors are seeking to take advantage of the growing market. Commercial Aircraft Corporation of China (COMAC) has launched its C919 aircraft and expects to sell more than 2,000 planes, capturing about 7 percent of market share. In addition, Irkut of Russia has launched a narrow-body aircraft and Bombardier is marketing its CSeries. Embraer launched its next-generation E-Jet in 2013.

Growth in business jets

The business jet rebound continues to be elusive. Perhaps positive indicators late in 2013 signify the long-awaited return to pre-recession levels. Companies are reporting that business jet backlogs have been reduced by approximately half since the start of the recession. The recovery in business jets is expected to reflect the overall Western economic recovery, which continues to be slow. In addition, residual values for aircraft remain challenged, given the lack of demand, leaving many owners, operators, and their financiers vulnerable. Therefore, business jets can expect another year of modest improvement. In the medium to long term, business jets should see significant growth, driven by economic growth and reduced regulations in Asia and the Middle East, particularly in China, which is clearing more air space for general aviation. These longer routes favor the larger segment of the business jet market.

Defense
Sequestration effect

The top dozen defense companies — half from the United States, and half from Europe — reported flat revenues for 2013. Five of the six European companies reported revenue increases, although some were essentially flat, while five of the six US companies reported revenue decreases.Boeing was the only US defense company to report a revenue increase. European companies, possibly having reached the bottom of the revenue trough, have started to turn higher. Meanwhile, US companies still face sequestration-related challenges following the expiration of the two-year Bipartisan Budget Act of 2013.

These same companies reported a 2 percent increase in operating profit (excluding the results of General Dynamics, which reported a large impairment charge in 2012). Five of the top six European companies reported a profit increase; BAE Systems was the only European company to report a profit decrease. Among US companies, only Boeing and Lockheed Martin reported profit increases (excluding General Dynamics, which reported large impairment charges in 2012).

Operating margin improved to 8.7 percent for the top dozen defense contractors. Operating margin for the top six US defense contractors was 10.7 percent, while operating margin for the top six European companies was 6 percent. Rolls-Royce Defense reported the best operating margin, at 16.9 percent. Northrop reported the best operating margin among US companies, at12.7%. Some investors are wondering whether the margin improvements in recent years have hit a ceiling.

Sequestration went into effect on March 1, 2013, and drove about $85 billion in spending cuts in FY 13, half from defense. The defense cuts represent approximately 8 percent of DoD's FY 13 base budget. DoD actions included reduction and furlough of civilian staff, cutbacks in base support services, and fewer public relations events — the DoD did not participate in the 2013 Paris Air Show, for example.

At the end of 2013, Congress passed the Bipartisan Budget Act of 2013, which helped mitigate the impact of sequestration on the Department of Defense for two years. However, Secretary of Defense Hagel, testifying before Congress, said the impact of sequestration beyond 2015 may include the following:

- The Army's cutting of troop levels below 450,000, the lowest level since before World War II, and elimination of the A-10 program
- The Navy's elimination of a carrier fleet and air wing, a nuclear submarine, and other ships
- The Air Force's retiring 80 aircraft and a slowing in the purchase of F-35s

Whether these cutbacks are acceptable to Congress will play out over the next two years and could be impacted by dynamic international events such as the crisis in Syria, Russia's assertiveness beyond Crimea, and the Iranian and North Korean nuclear threats.

The economic crisis in Europe has led to cuts in military expenditures, reducing European military forces and putting pressure on R&D spending. Recent operations where European countries were involved, however, highlighted capability gaps (e.g., in intelligence and surveillance systems) as well as logistical weaknesses and difficulties in finding a common approach. The European Union and its Member States have understood that a fragmented European defense potentially endangers both their domestic industries' development and their countries' security.

In December 2013, for the first time since the entry into force of the Lisbon treaty, the European council held a thematic debate on defense. The opening statement set the tone: "Defense matters." Undoubtedly, the council recognizes as a first priority the need for a much more effective Common Security and Defence Policy (CSDP) to face the challenges of a rapidly evolving strategic and geopolitical environment. Enhancing R&D capabilities and strengthening Europe's defense industry are part of the three key priorities that will drive the European Council's actions.

The most immediate effects of this strong commitment is unlikely to be felt at the EU level in the short term, but rather through bilateral or 'cluster' cooperation agreements.

The European Council called member states to deepen cooperation by making full use of synergies to build a more integrated, sustainable, innovative, and competitive European Defence industrial base.

Bilateral arrangements such as the Franco-British Defence Cooperation treaty and the recent example of collaboration in the development program of the future European's UCAV (Unmanned Combat Air Vehicle) are key steps on the way to building a European Defence approach.

Cooperation programs will limit competition between European companies such as the emblematic Rafale / Eurofighter rivalry, and would put European players in a better position to win export opportunities in particular in the emerging markets, where competition against the rest of the world is already fierce.Growth in defense exports has helped mitigate the impact of domestic cuts on backlogs.

Growth in defense exports has helped mitigate the impact of domestic cuts on backlogs.

Backlog

US$ (billions)	12/31/2013	12/31/2012	12/31/2011
EADS Defense	$63	$64	$73
Lockheed Martin	$83	$82	$81
Finmeccanica	$57	$57	$64
BAE Systems	$67	$67	$58
Boeing Defense, Space & Security	$67	$71	$60
Thales	$39	$32	$33
Northrop Grumman	$37	$41	$40
General Dynamics (exc. Gulfstream)	$32	$36	$40
Raytheon	$34	$36	$35
L-3	$10	$11	$10
Total	$489	$497	$494

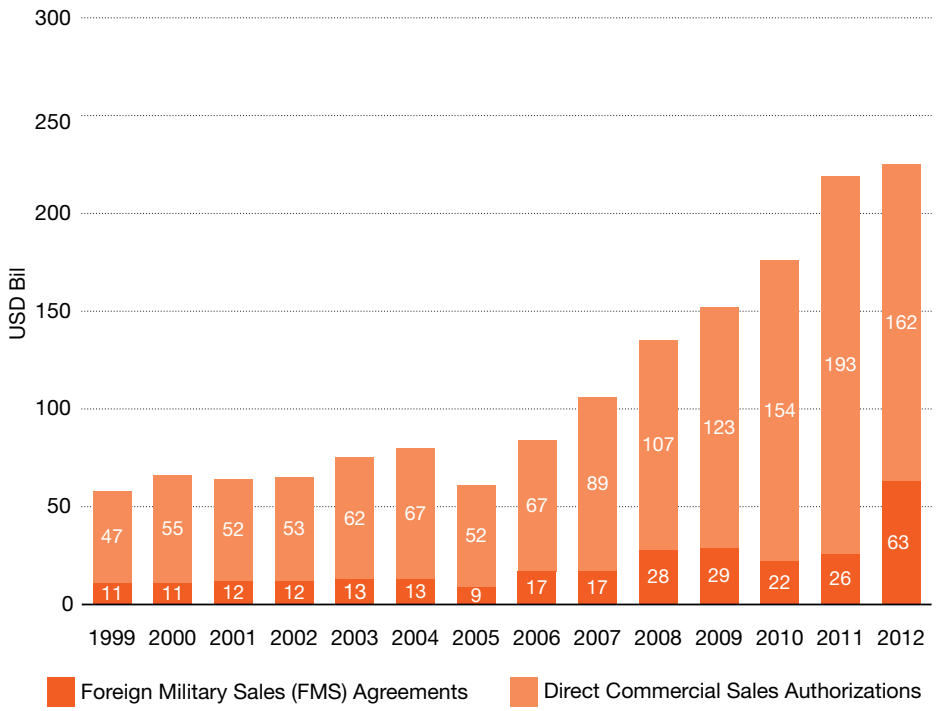
Exports

The growth of defense export deals has led to a record backlog of $327 billion at mid-year 2011. “We have in excess of 13,000 active cases with more than 165 countries and institutions,” adding up to about $327 billion, said Vice Admiral Bill Landay at a Pentagon news briefing ahead of the Paris Air Show. (Source: Bloomberg)

US Defense export authorizations spiked to $225 billion in 2012, the most recent year for which data is available, up $141 billion, or 168 percent, since 2006. Export backlog, disclosed at $327 billion at mid-year 2011, is now estimated to be around $500 billion. The significant growth in defense exports should help soften the impact of US defense cuts. Much of the growth during this period has been in Asia, due to concerns over China’s growing military power and tensions between North Korea and South Korea, and in the Middle East, due to concern over Iran’s military ambitions. And the United States is not the only country benefiting from these trends. Western European countries, Israel, South Korea, and Russia are all benefiting from increased defense exports.

On March 7, 2013, the White House sent its export control reform proposals to Congress for approval. The reforms redefine restricted categories on the US Munitions List (USML), with oversight responsibility for some categories moving from the Department of State to the Department of Commerce. These reforms, which have been supported by industry, will simplify and streamline the export process and may lead to further increases in export authorizations.

US foreign military sales (FMS) agreements and direct commercial sales authorizations



Defense forecast

As a result of the Bipartisan Budget Act, defense revenue is expected to decline into the low single digits in 2014. We also believe that margin expansion in recent years may have hit a ceiling, or at least slowed considerably. The industry is experiencing some favorable pension cost trends as a result of market conditions and the "pension harmonization" rules for cost allowability. Therefore, we expect operating margins to be modestly higher in 2014. As the industry contracts, much of the costs to reduce capacity and restructure or terminate programs will be passed along to the government. There is a risk that some companies will be susceptible to impairment charges similar in nature, if not necessarily in magnitude, to those reported by General Dynamics and Finmeccanica in recent years.

We also expect that market contraction, coupled with more certainty about defense budgets and the impact on specific programs, will be the catalyst for some industry consolidation. In recent years, spin-offs and divestitures have increased. High profile spin-off transactions have included Huntington-Ingals from Northrop Grumman, Exelis from ITT, and Engility from L-3. In 2013, SAIC completed its spin-off and renamed itself Leidos. We believe the period of spin-offs is closing, and the period of defense consolidation will begin. The defense industry is already highly concentrated, resulting from the consolidation during the post-Cold War era. The Defense Department has opposed any further consolidation among major prime contractors, but that position could soften, depending on market conditions. Regardless of whether the major prime contractors consolidate further, we expect some consolidation of the supply base.

Contractors will also continue to respond to market conditions in other ways. The current focus remains on affordability. The Defense Department now lists affordability among its procurement criteria. Contractors should stay focused on improving productivity. We are entering a period of fewer new platforms, but at the same time, there is a need to recapitalize equipment. So the focus will shift from new platforms to platform upgrades and sustainment. Electronics and C4ISR, including unmanned aerial vehicles and cybersecurity, are among the expected areas of growth.

Many companies are considering commercial applications for their technologies. Most defense contractors, and their investors, approach commercial markets cautiously because past experience has been mixed, weighted toward the negative. In fact, much of that experience is quite dated because defense contractors have had ample opportunities in their core markets for more than a decade. However, many of our largest commercial markets have their roots in defense and space technologies, such as

In 2013, the European defense markets stabilized as defense ministries worked through the rounds of budget cuts begun two years ago.

computers, computer networking, and telecommunications. So defense contractors will seek commercial applications for their technologies, even if it means licensing or supplying technology to commercial entities.

Defense budgetary increases are unlikely in Europe in the short to medium term, which is creating challenges for defense contractors to maintain capabilities in some R&D areas. This challenging situation is even more pressing as the cost of developing ever more technologically complex capabilities is rising. European countries (in particular France and the UK, which represent together nearly 45 percent of total European defense spending) have therefore started to realize that it is impossible for a single country in Europe to maintain a comprehensive national defense industry base without cooperating and exporting significantly.

Even if some significant national programs have been launched, in particular related to naval capability (e.g., aircraft carrier in the UK, submarines and frigates in France), the European Council is putting a strong emphasis on increasing the effectiveness of the Common Security and Defence Policy (CSDP), with a will to enhance certain key capabilities (e.g., creation of a European Cyber Defence Policy Framework and a common Maritime Security Strategy) and to strengthen Europe's defense industrial base.

The necessity to export will continue and remain fiercely competitive as the global defense industry competes in growth markets. The need for European champions will therefore be felt even more acutely and could force companies and governments to rethink their cooperation model leading to more common programs, to specializing certain players or to consolidate the industrial base.

Mergers and acquisitions

Total A&D deal value for the year was $13.2 billion, more than one-third below the preceding 10-year average of $21.5 billion. It was the lowest value in more than a decade, except for 2009, the year of the Great Recession, when companies took a defensive posture to capital deployment. Overall, M&A was robust in commercial aerospace; however, the defense sector did not generate a single mega deal (above $1 billion) in 2013. In fact, there has not been a defense mega deal since before the Budget Control Act of 2011 (sequestration), more than two-and-a-half years ago, as of this paper's publication date. The three mega deals in 2013 were:

Target	Acquirer	Value	Category
Avic Xi'An Aero-Engine	China Xi'an Aero-Engine	$1.59 billion	Aerospace
Beech Holdings	Textron	$1.40 billion	Aerospace
ARINC	Rockwell Collins	$1.39 billion	Aerospace

It is expected that 2013 will be the trough of A&D M&A activity and that 2014 deal values will improve. We have long held that greater certainty regarding defense budgets will result in an increase in defense M&A. Defense M&A is facing a "perfect storm" of pent-up demand, strong balance sheets and cash positions, and, most significantly, the necessity to consolidate in response to a contracting market. Most defense companies have deployed cash through share buy-backs, increased dividends, and contributions to pension plans. Now, companies will need to turn their attention to capital deployment for growth. While the two-year deal alone does not provide greater certainty for companies, it may inspire confidence for future budget compromise.

Looking ahead, four themes are likely to affect M&A activity in coming years:

- Increasing consolidation in response to a contracting defense market and cost pressures
- Further re-evaluation of supply chains by big manufacturers, in both civil and military segments, as they seek to gain better control of their large program pipelines
- Continuing growth in the security, surveillance, and homeland security sector
- Greater investment in and competition from fast-growing markets, most notably China

We believe these trends will provide the context for growth in deal volume and value in 2014.

The outlook for defense continues to be clouded by uncertainty about overall budgets beyond 2015, when the Bipartisan Budget Act expires.

In summary

The performance of the top 100 A&D companies is a barometer for the health of the industry and a reflection of strong and disciplined management over the past decade. It also reflects the strong demand for the industry's products and services.

Aviation has become a critical part of our global infrastructure. Businesses cannot operate effectively without global deployment of human capital. Aviation is increasingly inelastic, as we witnessed its resiliency during the recession. And while air freight is still dwarfed by sea and land freight, an increasing portion of the global supply chain now relies on air cargo.

The outlook for defense continues to be clouded by uncertainty about overall budgets beyond 2015, when the Bipartisan Budget Act expires.

However, industry executives point out that security threats remain a concern. Furthermore, the security threat is dynamic and could rapidly force revisions to defense priorities. The defense industry agrees that it must respond to the affordability challenge and improve productivity.

The near-term and long-term forecast for commercial aerospace is full of optimism and growth. Aviation will continue to grow faster than the overall economy because of its critical role in the global economic infrastructure, bolstered by economic growth in Asia, the Middle East, Eastern Europe, and Latin America. Defense faces some challenges, but those challenges should be moderate and manageable through 2015. Accordingly, we believe the industry is poised for a fifth consecutive year of record results in 2014.

Additional resources

Aviation's second golden age: Can the US aircraft industry maintain its leadership?

The US commercial aircraft industry is at a crossroads. While it sees spiking demand for its aircraft, it also grapples with issues that need to be resolved to ensure its spot as a global leader, including meeting talent needs, unleashing a new wave of innovation and establishing a wider global footprint.

Navigating the mega trends: Strategizing for success

Economic, cultural, social, and scientific changes like demographic shifts, urbanization, climate change, technology advances are impacting all businesses. What should aerospace & defense companies be thinking about to be successful in light of these megatrends?

Mission control

Mission control, a quarterly analysis of global merger and acquisition (M&A) activity in the A&D industry, provides an overview of the most recent M&A results and our expectations for future deal activity.

Gaining altitude with PwC – Innovation and the path to success for aerospace and defense companies

Economic conditions have prompted aerospace and defense companies to reduce spending levels, impacting product development and innovation. Successful companies follow a methodology for managing innovation that is built on market knowledge, technology management, product line planning, and process improvement.

Gaining altitude with PwC – 3D printing: A potential game changer for aerospace and defense

3D printing is making inroads into the aerospace and defense industry manufacturing value chain, and is forecasted to have an increasing number of applications in the near future. But will it ever become a game changer for the A&D industry? How will executives know when 3D printing is ready to be used as a legitimate production technology?

Aviation Week Top Performing Companies Study

Aviation Week's annual TPC study measures how the aerospace and defense industry performed through the first year of the automatic federal budget cuts, continued economic upheaval in Europe, and a commercial market whose thirst for new aircraft seems unquenchable.

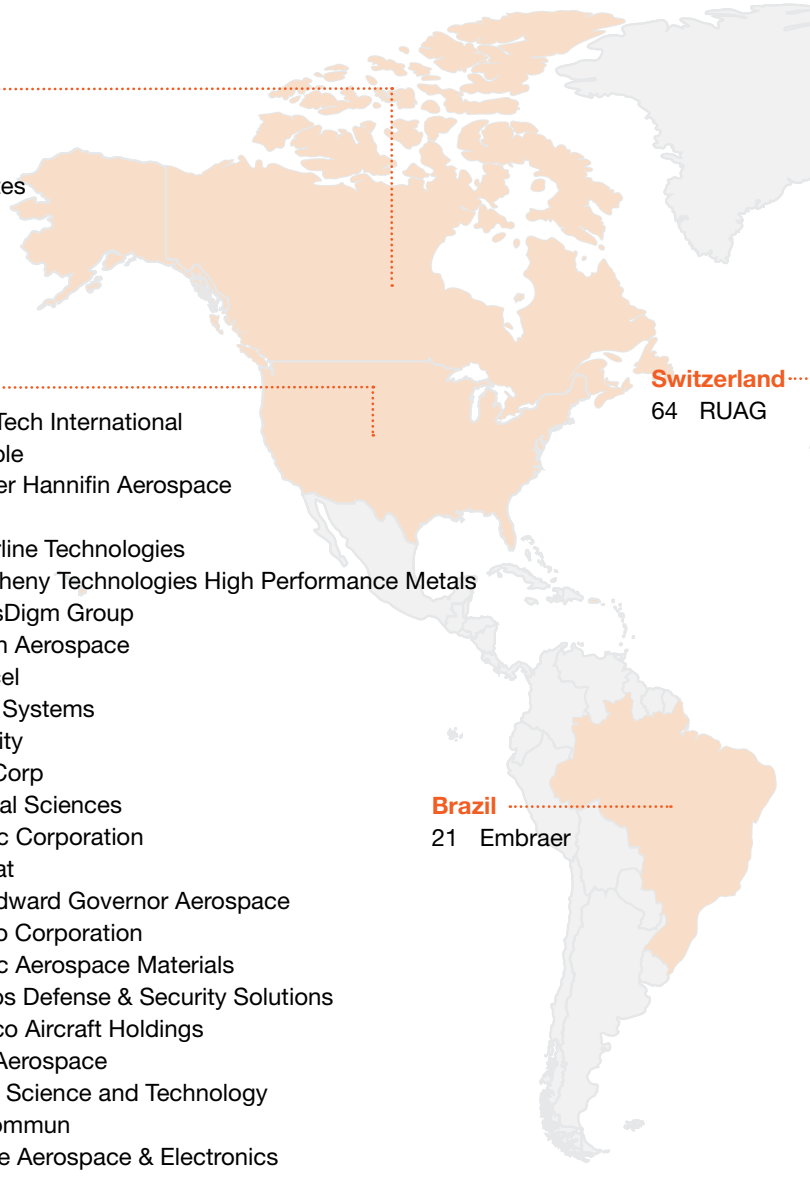
A&D Top 100

UK

6 BAE Systems
8 Rolls-Royce
27 Serco UK & Europe and Americas
29 Babcock International Group
39 GKN Aerospace
46 Cobham
49 Meggitt
57 BBA Aviation
59 QinetiQ
75 Ultra Electronics
89 Smiths Detection
92 Senior Aerospace

Canada

17 Bombardier Aerospace
60 CAE
66 MacDonald Dettwiler & Associates
94 Magellan Aerospace Corp



US

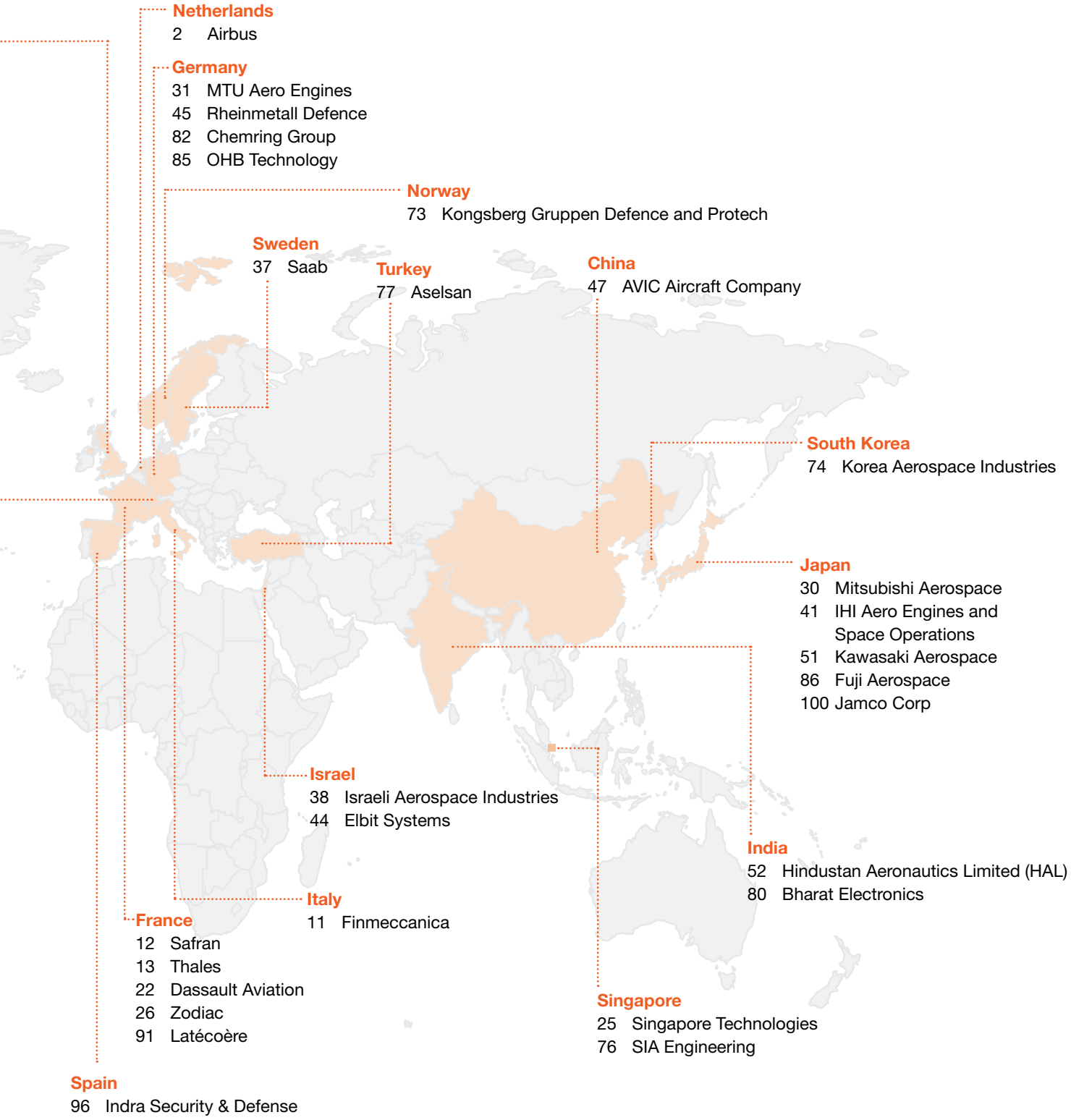
1 Boeing
3 Lockheed Martin
4 United Technologies
5 General Dynamics
7 Northrop Grumman
9 Raytheon
10 GE Aviation
14 L-3 Communications
15 Honeywell Aerospace
16 SAIC
18 Textron
19 Precision Castparts Corp.
20 Huntington Ingalls
23 Spirit AeroSystems
24 CSC North American Public Sector
28 Harris Corp
32 Exelis
33 Rockwell Collins
34 Alliant Techsystems
35 Triumph Group
36 CACI
39 BE Aerospace
42 Delta Tucker Holdings / DynCorp International
43 Oshkosh Defense
48 MOOG
50 Curtiss-Wright
53 Teledyne Technologies
54 ManTech International
55 Trimble
56 Parker Hannifin Aerospace
58 AAR
61 Esterline Technologies
62 Allegheny Technologies High Performance Metals
63 TransDigm Group
65 Eaton Aerospace
67 Hexcel
68 FLIR Systems
69 Engility
70 GenCorp
71 Orbital Sciences
72 Cubic Corporation
78 ViaSat
79 Woodward Governor Aerospace
81 Heico Corporation
83 Cytec Aerospace Materials
84 Kratos Defense & Security Solutions
87 Wesco Aircraft Holdings
88 Ball Aerospace
90 Alion Science and Technology
93 Ducommun
95 Crane Aerospace & Electronics
97 Aeroflex
98 Kaman Aerospace
99 DigitalGlobe

Switzerland

64 RUAG

Brazil

21 Embraer


Netherlands
2 Airbus
Germany
31 MTU Aero Engines
45 Rheinmetall Defence
82 Chemring Group
85 OHB Technology
Norway
73 Kongsberg Gruppen Defence and Protech
Sweden
37 Saab
Turkey
77 Aselsan
China
47 AVIC Aircraft Company
South Korea
74 Korea Aerospace Industries
Japan
30 Mitsubishi Aerospace
41 IHI Aero Engines and Space Operations
51 Kawasaki Aerospace
86 Fuji Aerospace
100 Jamco Corp
Israel
38 Israeli Aerospace Industries
44 Elbit Systems
India
52 Hindustan Aeronautics Limited (HAL)
80 Bharat Electronics
Italy
11 Finmeccanica
France
12 Safran
13 Thales
22 Dassault Aviation
26 Zodiac
91 Latécoère
Singapore
25 Singapore Technologies
76 SIA Engineering
Spain
96 Indra Security & Defense

#	Company	Revenue (US$ millions) 2013	2012	Change	Operating Profit (US$ millions) 2013	2012	Change
1	Boeing	86,623	81,698	6%	6,562	6,290	4%
2	Airbus	78,693	72,587	8%	3,462	2,685	29%
3	Lockheed Martin	45,358	47,182	-4%	4,505	4,434	2%
4	United Technologies	34,101	29,089	17%	4,488	3,245	38%
5	General Dynamics	31,218	31,513	-1%	3,685	833	342%
6	BAE Systems	28,406	28,376	0%	1,259	2,544	-50%
7	Northrop Grumman	24,661	25,218	-2%	3,123	3,130	0%
8	Rolls-Royce	24,227	19,349	25%	2,861	2,369	21%
9	Raytheon	23,706	24,414	-3%	2,938	2,989	-2%
10	GE Aviation	21,911	19,994	10%	4,345	3,747	16%
11	Finmeccanica	21,292	21,211	0%	61	(682)	109%
12	Safran	19,515	17,427	12%	2,333	1,792	30%
13	Thales	18,850	18,196	4%	1,332	1,191	12%
14	L-3 Communications	12,629	13,146	-4%	1,258	1,351	-7%
15	Honeywell Aerospace	11,980	12,040	0%	2,372	2,279	4%
16	SAIC	11,173	10,497	6%	734	299	145%
17	Bombardier Aerospace	9,385	8,628	9%	418	390	7%
18	Textron	8,960	9,122	-2%	672	853	-21%
19	Precision Castparts Corp.	8,378	7,202	16%	2,130	1,811	18%
20	Huntington Ingalls	6,820	6,708	2%	512	358	43%
21	Embraer	6,235	6,167	1%	713	612	17%
22	Dassault Aviation	6,100	5,065	20%	661	703	-6%
23	Spirit AeroSystems	5,961	5,398	10%	(364)	92	-496%
24	CSC North American Public Sector	5,391	5,703	-5%	519	132	293%
25	Singapore Technologies	5,302	5,108	4%	538	527	2%
26	Zodiac	5,169	4,422	17%	718	610	18%
27	Serco UK & Europe and Americas	5,123	5,252	-2%	328	368	-11%
28	Harris Corp	5,112	5,451	-6%	812	941	-14%
29	Babcock International Group	5,069	4,865	4%	367	320	15%
30	Mitsubishi Aerospace	4,978	6,216	-20%	299	(66)	549%
31	MTU Aero Engines	4,969	4,343	14%	501	482	4%
32	Exelis	4,816	5,522	-13%	476	561	-15%
33	Rockwell Collins	4,610	4,726	-2%	868	857	1%
34	Alliant Techsystems	4,362	4,614	-5%	470	496	-5%
35	Triumph Group	3,703	3,408	9%	531	515	3%
36	CACI	3,682	3,774	-2%	271	300	-10%
37	Saab	3,645	3,547	3%	206	303	-32%
38	Israeli Aerospace Industries	3,642	3,388	7%	84	79	6%
39	GKN Aerospace	3,505	2,813	25%	416	269	54%
40	BE Aerospace	3,484	3,085	13%	629	540	16%
41	IHI Aero Engines and Space Operations	3,468	3,753	-8%	158	76	108%
42	Delta Tucker Holdings / DynCorp International	3,287	4,044	-19%	(207)	96	-316%
43	Oshkosh Defense	3,050	3,951	-23%	225	237	-5%
44	Elbit Systems	2,925	2,889	1%	239	203	18%
45	Rheinmetall Defence	2,862	3,001	-5%	5	224	-98%
46	Cobham	2,797	2,772	1%	248	374	-33%
47	AVIC Aircraft Company	2,793	2,474	13%	82	35	136%
48	MOOG	2,610	2,470	6%	195	243	-20%
49	Meggitt	2,558	2,545	0%	620	621	0%
50	Curtiss-Wright	2,511	2,098	20%	234	161	45%

#	Company	Revenue (US$ millions) 2013	2012	Change	Operating Profit (US$ millions) 2013	2012	Change
51	Kawasaki Aerospace	2,450	2,588	-5%	152	98	55%
52	Hindustan Aeronautics Limited (HAL)	2,448	2,655	-8%	598	622	-4%
53	Teledyne Technologies	2,339	2,127	10%	240	243	-1%
54	ManTech International	2,310	2,582	-11%	22	171	-87%
55	Trimble	2,288	2,040	12%	252	213	18%
56	Parker Hannifin Aerospace	2,268	2,103	8%	280	290	-3%
57	BBA Aviation	2,219	2,179	2%	169	160	6%
58	AAR	2,137	2,065	3%	123	131	-6%
59	QinetiQ	2,075	2,329	-11%	(189)	573	-133%
60	CAE	2,044	1,822	12%	239	302	-21%
61	Esterline Technologies	1,970	1,992	-1%	238	189	26%
62	Allegheny Technologies High Performance Metals	1,945	2,314	-16%	209	385	-46%
63	TransDigm Group	1,924	1,700	13%	749	700	7%
64	RUAG	1,890	1,827	3%	124	121	3%
65	Eaton Aerospace	1,774	1,719	3%	252	213	18%
66	MacDonald Dettwiler & Associates	1,766	880	101%	175	124	41%
67	Hexcel	1,678	1,578	6%	271	249	9%
68	FLIR Systems	1,496	1,405	6%	241	303	-20%
69	Engility	1,407	1,655	-15%	108	(329)	133%
70	GenCorp	1,383	995	39%	22	35	-37%
71	Orbital Sciences	1,365	1,437	-5%	114	113	1%
72	Cubic Corporation	1,361	1,381	-1%	36	128	-72%
73	Kongsberg Gruppen Defence and Protech	1,186	1,294	-8%	160	207	-23%
74	Korea Aerospace Industries	1,174	1,367	-14%	97	112	-14%
75	Ultra Electronics	1,164	1,206	-3%	90	140	-36%
76	SIA Engineering	1,147	1,170	-2%	128	130	-2%
77	Aselsan	1,143	907	26%	92	146	-37%
78	ViaSat	1,120	864	30%	(20)	2	-1100%
79	Woodward Governor Aerospace	1,061	896	18%	166	130	28%
80	Bharat Electronics	1,047	1,088	-4%	214	224	-5%
81	Heico Corporation	1,009	897	12%	184	163	13%
82	Chemring Group	977	1,173	-17%	(58)	59	-199%
83	Cytec Aerospace Materials	962	877	10%	178	169	5%
84	Kratos Defense & Security Solutions	951	969	-2%	32	(50)	164%
85	OHB Technology	930	813	14%	48	40	20%
86	Fuji Aerospace	913	1,006	-9%	70	36	93%
87	Wesco Aircraft Holdings	902	776	16%	181	159	14%
88	Ball Aerospace	897	877	2%	80	87	-8%
89	Smiths Detection	873	823	6%	81	109	-26%
90	Alion Science and Technology	849	817	4%	42	40	5%
91	Latécoère	825	827	0%	(53)	34	-255%
92	Senior Aerospace	792	755	5%	119	116	3%
93	Ducommun	737	747	-1%	38	55	-31%
94	Magellan Aerospace Corp	730	705	4%	65	70	-6%
95	Crane Aerospace & Electronics	694	701	-1%	160	156	3%
96	Indra Security & Defense	657	595	10%	45	44	2%
97	Aeroflex	647	673	-4%	(70)	(21)	233%
98	Kaman Aerospace	614	581	6%	103	89	16%
99	DigitalGlobe	613	421	46%	(85)	76	-212%
100	Jamco Corp	527	624	-15%	30	13	121%
	Total	**719,283**	**692,282**	**4%**	**66,434**	**60,385**	**10%**

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DISCLAIMER: This paper makes a number of predictions and presents PwC's vision of the future environment for the aerospace and defense industry. These predictions are, of course, just that – predictions. These predictions of the future environment for the A&D industry address matters that are, to different degrees, uncertain and may turn out to be materially different than as expressed in this paper. The information provided in this paper is not a substitute for legal, investment or and other professional advice. If any reader requires legal advice or other professional assistance, each such reader should consult his or her own legal or other professional advisors and discuss the specific facts and circumstances that apply to the reader.