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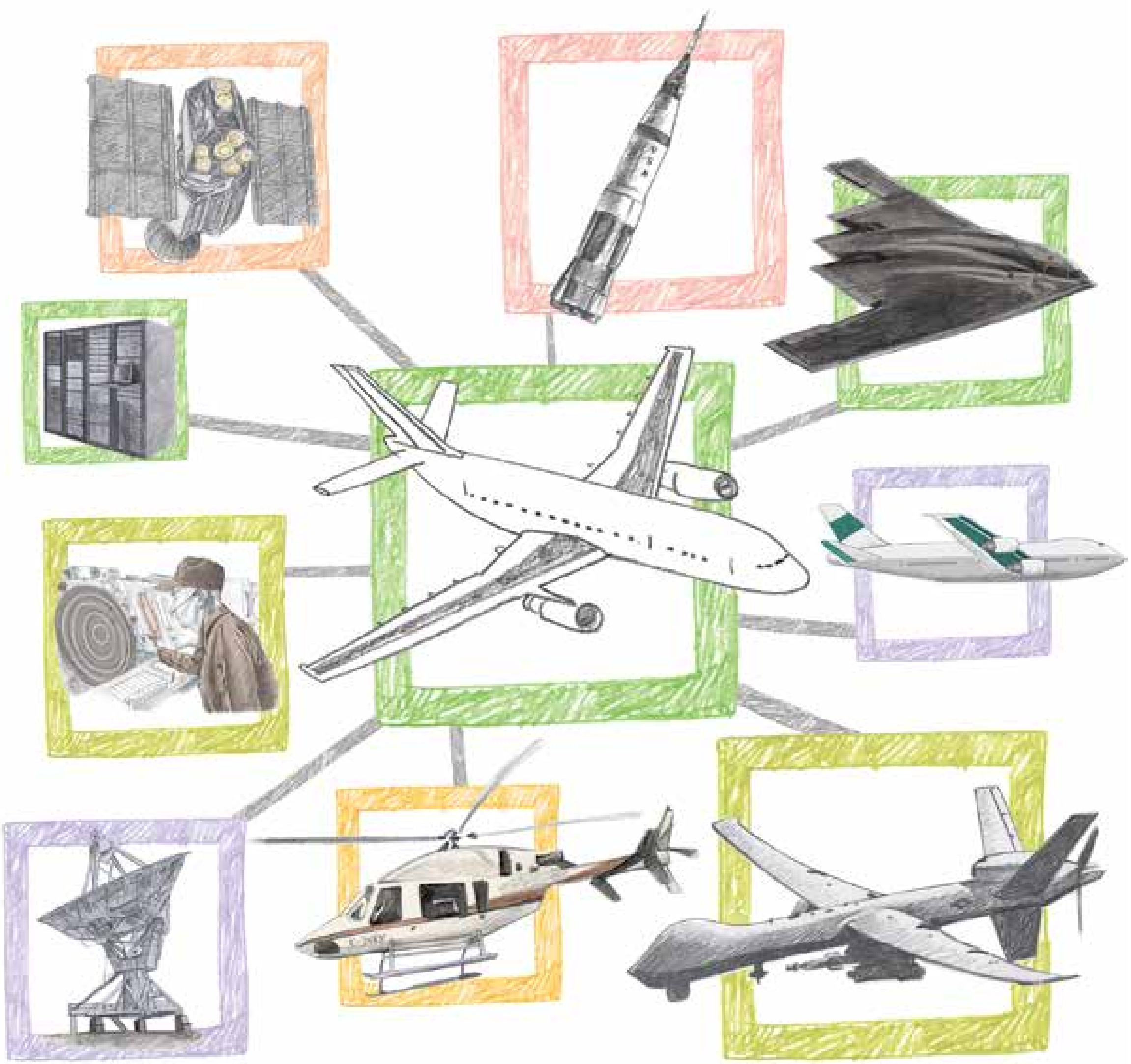
Aerospace & Defense Update: Mergers, Acquisitions and the Operating Environment



Aerospace & Defense Update:
Mergers, Acquisitions and the Operating Environment

Grant Thornton Corporate Finance
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Executive summary

M&A update:

Deal activity slows due to caution in defense acquisitions. Component manufacturing reaches record highs on the back of strong commercial aviation growth.

Aerospace and defense (A&D) merger and acquisition activity within North America declined by 4% in 2012 and was marked by a divergence in subsector transaction activity. Buoyed by a record backlog for civil aircraft manufacturers and strong EBITDA earnings growth, the component manufacturing and maintenance, repair and operations (MRO) subsectors experienced solid transaction activity. In contrast, M&A in defense electronics and technology declined as reductions in defense spending prompted buyers to look for growth opportunities elsewhere. Public company EBITDA earnings increased 6% over the year, while public company enterprise multiples declined slightly due to uncertain growth prospects for defense subsectors.

Within A&D component manufacturing, transaction volume increased 10% in 2012, on top of a 42% increase in the prior year, to surpass 2007 peaks. Transaction activity was underpinned by increased production, aircraft manufacturers posting record orders and long-term growth prospects in civil aviation. M&A activity included multiple acquisitions by Precision Castparts Corp., considerable interest from private equity, and United Technologies Corp.'s (UTC) divestment of certain Goodrich Corp. assets to comply with antitrust orders and pay down acquisition debt.

Within MRO, transaction volume increased 5% in 2012, on the back of a 27% increase the previous year, with aggregate deal value doubling. The subsector saw a number of large aircraft leasing company deals as airlines increasingly look to lessors to fund the procurement of fuel-efficient aircraft.

Within A&D electronics, M&A activity decreased by 11% following two years of strong growth. Defense technology deal volume declined 19% in 2012 on lower government spending. However, buyer interest remained strong in growth areas, such as cybersecurity and unmanned vehicles, where transactions command far higher valuations than the industry average.

Businesses funded by the Small Business Innovation Research (SBIR) program continued to be acquired by large defense firms with buyers typically waiting to purchase targets until their newly developed products have gained market acceptance. Overall, SBIR funding has declined since 2009 after a decade of expansion, but Congress has introduced measures through the National Defense Authorization Act (NDAA) to try and safeguard the program from being adversely affected by defense budget cuts.

Looking to the future, we expect to see continued transaction activity in civil aircraft component manufacturing, as original equipment manufacturers (OEM) increase commercial aircraft production in the current cycle, and more modest M&A activity in traditional defense markets, as buyers focus their attention on growth areas.

The operating environment:
Commercial aircraft sales surge as military cuts result in lower defense revenues.

A two-speed industry took shape as commercial aviation sales recorded double-digit growth while military aircraft and missile sales declined. Overall, the aerospace industry continued to grow in 2012 with sales increasing 3.4% and backlog levels up 5% for the year. Civil aircraft sales surged 14% in 2012 with an 11% increase expected in 2013, while military aircraft sales decreased 3% in 2012 with an additional 2% drop anticipated in 2013. Total industry sales are expected to grow marginally in 2013, assisted by further growth in civil aircraft sales, while large defense players are likely to expand exports to offset declines in U.S. military sales.

The Department of Defense's (DoD) budget declined by around 7% in 2012. This is in line with plans to cut $480 billion in defense spending over the next 10 years, but does not include additional deductions that may occur due to sequestration. The DoD has reacted to budgetary challenges by protecting uniformed personnel programs and initiatives supporting the new defense strategy that shifts U.S. military focus to the Asia-Pacific region. The most significant cuts are expected to occur within the remaining two-thirds of the defense budget, namely procurement and operations and maintenance (O&M). The impact has already been felt by government vendors with canceled maintenance contracts and operations contracts reviewed for additional cost savings. The most at-risk procurement accounts are programs not aligned with the new defense strategy or that can be delayed without major impact; modernization or service-life extension projects are particularly vulnerable. Despite the challenging environment, growth opportunities remain: The DoD is investing in special operation forces, including unmanned air systems; sea-based unmanned platforms; and intelligence, surveillance and reconnaissance (ISR) systems. The maintenance, repair and overhaul of special operation services will also be in demand. Cyberoperations that enhance war-fighting capabilities was one of the few areas to receive additional defense funding in 2012. Finally, significant infrastructure and supply chain investments in Asia-Pacific will be needed to support U.S. forces, including the construction of overseas facilities and supply chain-related services.

The biggest news in 2012 for the European A&D industry was a nonevent, as the proposed merger between EADS and BAE Systems failed to occur. The European market is shrinking, and the imperative to merge has never been stronger. Even though the rationale for combining BAE and EADS was compelling, the lack of support from the French, German and UK governments ultimately killed the deal. Defense consolidation activity in the near term can be expected to remain within national borders or through further pooling of assets in joint venture vehicles. In commercial aerospace, Europe's subsystem and component manufacturers continue to prosper as Airbus and its aero engine peers, Rolls-Royce and GE/Snecma, increase production rates. Securing financing for equipment and working capital expansion continues to be a challenge for suppliers trying to increase production. The rationale for supplier consolidation — to gain economies of scale and mitigate the risks of a fragmented supply chain — remains but has yet to be realized through increased M&A. Private equity has been behind much of the aerospace M&A activity in Europe, and we expect maturing investments to be realized within the next couple of years as the commercial aerospace cycle approaches its peak. Most of these companies have a strong position on Airbus or Rolls-Royce platforms and represent an interesting diversification opportunity for U.S. acquirers with a strong Boeing/GE/Pratt & Whitney (P&W) bias.

Government contractors are facing more uncertainty than they have seen in a very long time and the regulatory tone has changed. As regulators increasingly seek to recover money from contractors, being prepared has become the order of the day. The Defense Contract Audit Agency (DCAA) and the Defense Contract Management Agency (DCMA) are using compliance with Contractor Business Systems as a reason to dig deeper into books and records. Compensation is also being targeted, with survey data being paramount to defending a position. For companies receiving a notice of contract termination, managing the process appropriately is critical to securing cost reimbursement. Basic safeguarding of government information and systems requires preparation, due to mandates under a proposed Federal Acquisition Regulation (FAR) change. With respect to M&A activity, due diligence is considerably more complicated for contractors than many businesses, as regulatory compliance is an area of scrutiny. In today's climate, greater emphasis on compliance has become absolutely necessary to avoid some complicated and costly situations.

In Grant Thornton's *18th Annual Government Contractor Industry Survey*, we reported that revenue from government contracts grew for 36% of survey participants, while 26% experienced no significant change and 38% experienced reductions in revenue. This is the first time in many years that a higher percentage experienced reductions rather than growth, and combined with significant reductions in profitability — 60% of respondents reported sub-5% profit before interest and taxes — it is a sign that deficit-reduction efforts are having an impact. Regarding M&A activities, 84% of respondents expect the M&A environment to improve or stay the same, while only 16% expect it to worsen. The sale of a company continues to be the most-favored exit strategy, with private shareholders' liquidity needs and market opportunities being the most frequently cited reasons for completing a sale.

A two-speed industry took shape as commercial aviation sales recorded double-digit growth while military aircraft and missile sales declined.

Mergers and acquisitions update

Activity overview:

Component manufacturing transactions reach record high while caution is seen in defense acquisitions

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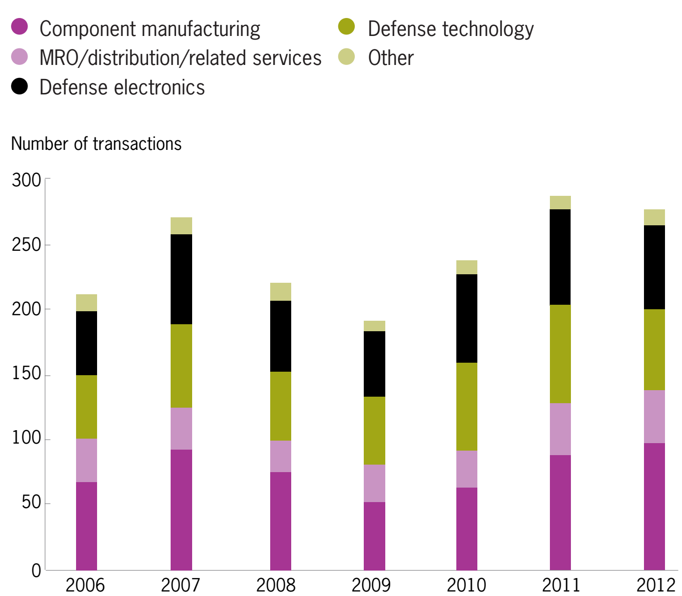
Component manufacturing transactions increased 10% in 2012 on top of a substantial rebound the previous year, when transactions increased 42%, buoyed by strong growth in commercial aerospace.

North American A&D transaction activity softened in 2012, declining by 4%, but remained well above average deal volume for the preceding 5-year period. Assisted by a robust component manufacturing subsector, A&D transaction activity recorded 274 deals in 2012 (versus an annual average of 238 deals between 2007 and 2011). Aggregate announced transaction deal value fell to $21 billion in 2012 (versus $41 billion in 2011), the major difference being UTC's acquisition of Goodrich for $18 billion in 2011.

North American aerospace and defense M&A activity



Transactions where target is headquartered in U.S. or Canada.
Sources: Company press releases, certain financial information provided by S&P Capital IQ.

Within subsegments:

- Component manufacturing transactions increased 10% in 2012 on top of a substantial rebound the previous year, when transactions increased 42% buoyed by strong growth in commercial aerospace. Component manufacturing accounted for 35% of sector deals (versus 30% in 2011).
- MRO and services saw deal value double as a result of sizable aircraft leasing transactions. After a 27% increase in M&A activity the previous year, deal volume increased another 5% in 2012 (15% of sector deals).
- The number of defense electronics transactions declined 11% in 2012 after two years of strong growth in the subsector (accounting for 22% of sector deals).
- Defense technology transaction activity slowed significantly as defense cuts hit the industry, with deal volume decreasing 19% (accounting for 23% of sector transactions).

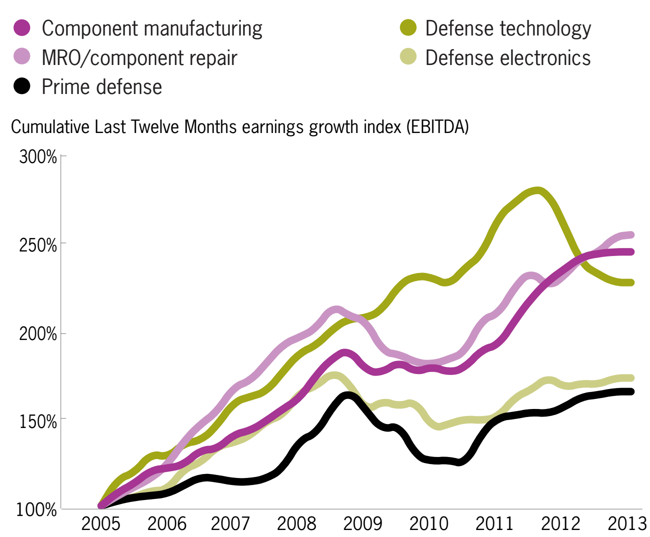
Buyers and sellers

Strategic buyers were responsible for around 70% of A&D acquisitions, with private equity players remaining very active, accounting for almost 30% of sector deal activity — substantially higher than financial sponsor activity in the U.S. as a whole. Private equity groups remained particularly active in aerospace component manufacturing, with financial buyers increasing to comprise 40% of subsector acquirers. Financial sponsors continued to be net investors in terms of deal volume, with the number of acquisitions outstripping their divestitures by a ratio of around 1.2 to 1. Seller composition continued to be dominated by founders, accounting for more than half of all sales (52%). Private equity sellers comprised around 25% of sector activity, followed by private corporations (13%) and publicly traded businesses (10%).

Earnings and valuation

The market value of our public company A&D index increased by nearly 12% in 2012 — matching the performance of the S&P 500 — on the back of EBITDA earnings increases (6%) and revenue growth (4%). Public company A&D earnings and values diverged in 2012, with aerospace-related subsectors performing well due to strong growth in commercial aviation, while defense-related subsectors experienced slower growth on the back of reduced defense spending. Median public company enterprise value closed the year at 7.2x EBITDA.

Public company aerospace/defense index earnings by sector



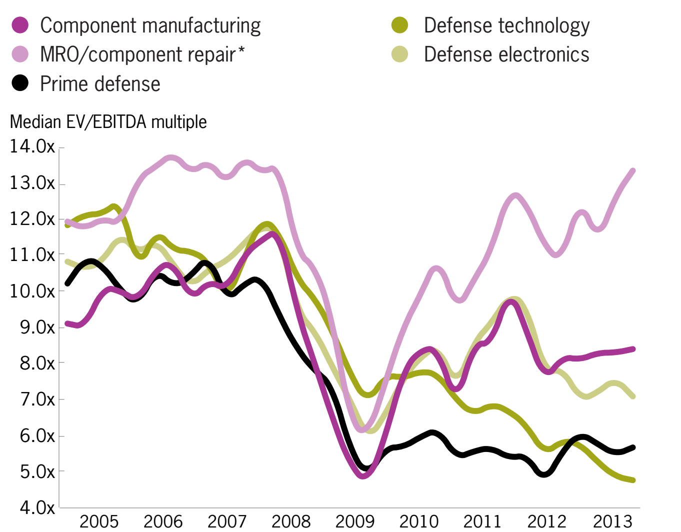
Sources: Company press releases, certain financial information provided by Capital IQ

MRO-related services as a subsector recorded median EBITDA earnings growth of around 11% among public companies (on top of 10% growth in 2011) and EBITDA margins of around 10% in 2012. Component manufacturers recorded a 4% earnings increase in 2012, on top of the 23% earnings rebound in 2011, with subsector EBITDA margins of around 17%. Defense electronics and prime defense subsectors posted solid EBITDA gains of around 5% during the year and recorded EBITDA margins of around 16% and 14%, respectively. Defense technology recorded EBITDA margins of 12% in 2012; however, public company EBITDA earnings decreased 12% in 2012, following an 8% decline in 2011, as earnings returned to 2010 levels.

A&D public company enterprise multiples declined 5% in 2012, with subsectors again seeing a divergence between commercial and defense markets. Median multiples for defense technology and defense electronics closed the year at around 4.9x EBITDA and 7.2x EBITDA, respectively, on expectations of further cuts to defense spending. The prime defense subsector remained flat in 2012, closing the year at 5.8x EBITDA. In contrast, due to greater exposure to civil aircraft, component manufacturers traded in public markets at 8.5x EBITDA. MRO-related service companies, heavily influenced by the Asia-Pacific region, traded around 13.4x EBITDA at the year-end.

Similar to last year, median EBITDA multiples for disclosed M&A transactions in A&D took place at around 10x EBITDA, a 25% premium to median public company enterprise values for the sector. M&A transaction values were typically higher than those of publicly traded companies, as disclosed transactions tend to be acquisitions of large businesses, purchases of companies in growth areas and takeovers of public companies at a premium to the stock price. Companies with smaller manufacturing operations, while valuations are not frequently disclosed, traded at multiples lower than median-disclosed transaction values.

Public company aerospace/defense index valuation multiples by sector



*MRO valuation skewed by weighting to Asia-Pacific market.
Sources: Company press releases, certain financial information provided by S&P Capital IQ.

M&A outlook

We expect to see current M&A trends continue, with transaction activity in growth areas of A&D spending:

- Continued transaction activity in civil aircraft component manufacturers as larger aircraft manufacturers increase production rates to satisfy a record backlog. Business owners are faced with the dilemma of investing ever-increasing amounts of capital to support growth, or contrastingly, using strong earnings to sell the business and secure their families' financial future.
- Further acquisitions of specialized high-value businesses, including cybersecurity and unmanned vehicle services. Cybersecurity companies offering differentiated products/services with robust EBITDA margins will continue to fetch high transaction valuation multiples as buyers seek to enter growth areas of defense spending.
- Modest transaction activity in defense markets, with traditional buyers looking to expand outside the sector to growing industries, including health care technology. M&A activity tends to follow general levels of economic performance, with sellers choosing to transact at times of record earnings, while buyers, also buoyed by strong growth, feel more confident to expand their operations.
- Factors that could change this picture, of course, relate to the macro-level unknowns, such as: worldwide stability or escalation of military equipment in Asia-Pacific; or on the commercial side, vagaries affecting leasing companies' access to capital, which has become the lifeblood of growth for some of the industry's largest customers.

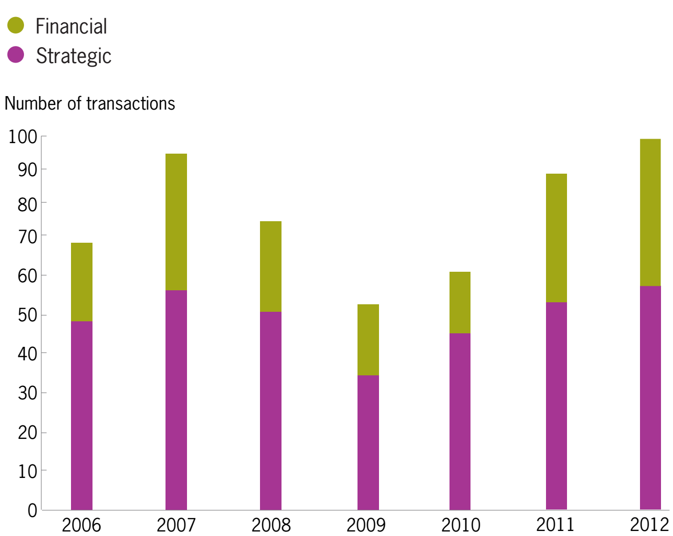
Public company A&D earnings and values diverged in 2012 with aerospace-related subsectors outperforming due to strong growth in commercial aviation while defense-related subsectors experienced slower growth on the back of reduced defense spending.

Component manufacturing:

M&A activity reaches record high on strong commercial aviation growth

Driven by robust growth in commercial aviation, M&A transactions in aerospace and defense component manufacturing increased 10% to surpass peak levels seen in 2007. The end of Bush-era tax cuts on capital gains resulted in a surge of transaction activity, with nearly one-third of deal volume occurring in the last three months of the year. Announced transaction values declined 75%, while the value of closed transactions increased 450%, the difference being UTC's acquisition of Goodrich for $18 billion, which closed in July 2012. Publicly disclosed transaction values saw subsector businesses change hands at a median multiple of 1.1x revenue and 7.7x EBITDA, closely mirroring our public company index that finished the year at nearly 8.5x EBITDA. Larger deals commanded higher valuations, with disclosed transactions over $500 million changing hands at 2.8x revenue and 12.4x EBITDA. Meanwhile, smaller deals in the subsector occurred at levels below disclosed median transaction values. The subsector saw public company EBITDA earnings grow 4% on top of the 23% earnings rebound achieved in 2011 and recorded an EBITDA margin of 17%.

North American component manufacturing M&A activity



Transactions where target is headquartered in U.S. or Canada.
Sources: Company press releases, certain financial information provided by S&P Capital IQ.

Long-term growth prospects predicted for commercial aviation underpinned strong M&A activity in the subsector. Order books for civil aircraft manufacturers are at historic highs, which have put pressure on component manufacturers to ramp up production to satisfy demand. Boeing took more than 1,200 orders in 2012 and has a backlog of more than 4,000 planes estimated to be worth more than $300 billion. Similarly, Airbus has a current backlog of around 4,500 aircraft, with the single-aisle A320 accounting for 3,500 of that total.

Driven by robust growth in commercial aviation, M&A transactions in aerospace and defense component manufacturing increased 10% to surpass peak levels seen in 2007.

Sector M&A comprised four distinct segments:

- **Aerospace (63%)** — Includes engine components, landing gear systems, structural and interior components, as well as composites, fasteners and other machined/forged products. Component manufacturers with interests in the aerospace subsector accounted for more than 63% of transaction activity.
- **Ground support equipment (20%)** — Includes armor, firearms, ammunition and other products. Armor-related deals accounted for the majority of activity, with deals involving protective helmets, bullet-resistant vehicles, body armor and security glazing systems. Armor transactions were motivated by a number of factors, including leveraging manufacturing capabilities, expanding core offerings, obtaining industry expertise and acquiring advanced technology.
- **Materials (9%)** — Includes coatings, laminates, lubricants and insulation, as well as plastics and molding compounds for A&D applications.
- **Other (8%)** — Includes tooling, testing and machining equipment for A&D applications.

Strategic buyers accounted for the majority (60%) of acquirer activity in the subsector, which was dominated by component manufacturers such as BE Aerospace, EDAC Technologies, CoorsTek and GenCorp. Also active were large A&D players like General Dynamics, Gentex, Thales Group and Teledyne Technologies.

Precision Castparts Corp. (PCC) recorded multiple purchases in the subsector as it continues to expand into the aerostructures market. Out of the nine acquisitions made by the company during the year, six transactions were in component manufacturing, one in MRO, and two transactions related to industrial machining businesses. PCC was involved in the subsector's largest transactions, including:

- The acquisition of titanium-melted and milled products operator, Titanium Metals Corp. (TIMET) for nearly $3 billion (2.8x revenue, 14x EBITDA) added significant titanium capabilities to its product offerings. It also makes PCC a major supplier of titanium (controlling 20% of the global market), which is in high demand among aerospace manufacturers due to its weight and temperature advantages.
- Purchase of Héroux-Devtek's aerostructure operations for $300 million (2.3x revenue) and aerostructure machining and assembling experts Klune Industries in a large, but undisclosed, cash deal. The purchase of Klune and Héroux-Devtek underlines PCC's desire to be a major player in the aerostructures market following its acquisition of Primus International in July 2011.

Other major deals in the subsector included:

- 3M's acquisition of ceramic specialists Ceradyne ($668 million, 1.4x revenue, 7.7x EBITDA), which allows 3M to participate in a high-growth materials segment and increases its exposure to defense and transportation industries. Ceradyne has diversified its service offerings, with defense customers accounting for around 40% of sales (versus nearly 75% in 2007);
- GenCorp's purchase of rocket engine experts and long-term competitors Pratt & Whitney Rocketdyne for $550 million from United Technologies Corp. (UTC); and
- BAE Systems divestiture of protective products and equipment manufacturer Safariland to private investment firm Kanders & Company for $124 million. Warren Kanders was previously the CEO of Safariland prior to being taken over by BAE Systems in 2007.

UTC's sale of Pratt & Whitney Rocketdyne was motivated by a number of factors relating to their purchase of Goodrich in 2011, namely the need to sell assets to finance the megadeal and a court requirement to sell assets to avoid antitrust concerns. To address funding issues, UTC raised around $5 billion in disclosed deal value by divesting 15 companies in 2012. This cash paid down debt assumed from the Goodrich deal and eased concerns over the company's credit rating. The company also complied with Department of Justice anticompetitive orders and sold certain Goodrich assets, including its electric power systems division, to Safran as well as a 50% stake in their engine control systems joint venture with Rolls-Royce. Further divestitures are expected in 2013, including the resale of Goodrich's pump and engine control systems business after a deal with TransDigm was canceled in late 2012 following DOJ objections.

Transaction activity among our clients is often driven by owners facing the dilemma of higher investment demands at a time when they want to reduce their involvement in the business and secure their families' financial future.

Attracted by strong order books in commercial aviation, private equity buyers continued their healthy interest in the subsector and accounted for 40% of transaction activity during the year (versus 38% in 2011). Many private equity players have pursued consolidation or buy-and-build strategies to exploit potential synergies or multiple arbitrage opportunities. For example, Platte River Ventures bought and combined six aerospace businesses between 2006 and 2011 to form PRV Aerospace, which it subsequently sold in a secondary buyout to Court Square Capital Partners in May 2012.

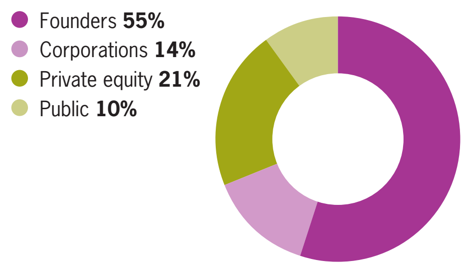
A noticeable trend in 2012 was the increase in secondary buyouts (accounting for 12% of deal volume), with larger private equity buyers purchasing companies from previous investors to continue their expansion. There were multiple purchases by financial sponsors: Graycliff Partners, The O'Gara Group (consisting of Walnut Group, Monroe Capital and Hauser Private Equity), Wynnchurch Capital and Grey Mountain each made two acquisitions in the subsector. Significant deals included:

- Graycliff's ramping up of its aerospace businesses with their platform investment Impresa Aerospace acquiring assets of precision machined specialists Swift-Cor Aerospace. Graycliff also purchased a majority stake in aircraft interior products and services operator Skandia;
- The O'Gara Group's (ultimately backed by the Walnut Group, Monroe Capital and Hauser Private Equity) repurchase of previously sold armored vehicle businesses, including BAE Systems' transparent armors division and bullet-resistant experts Protection Devices Inc.; and
- Wynnchurch's platform investment in the industry by purchasing flight-critical parts manufacturer Northstar Aerospace out of Chapter 11 bankruptcy ($70 million, 0.6x revenue, 5.0x EBITDA). Along with Stone River Capital Partners, Wynnchurch also acquired mobile military equipment manufacturer Burtek.

As commercial production rates surge, long-term owners are faced with the dilemma of higher capital expenditure (CAPEX) demands at a time when they want to reduce their involvement in the business and secure their families' financial future. This divergence between the cash demands of the business and the owner's personal needs is the most frequent driver of transaction activity among our clients. Founders accounted for the majority of sellers, comprising more than half (55%) of transaction volume.

Private equity sellers accounted for more than one-fifth (21%) of activity as they capitalized on successful investments and generated returns for limited partners. Many investments by financial sponsors made during the 2007 peak are coming to the end of their investment cycle, and general partners are in the process of returning cash ahead of seeking investments for their next fund. Divestitures by public and private corporations accounted for the remaining 24% of sellers.

Sellers of North American aerospace and defense component businesses by ownership type – 2012



Transactions where target is headquartered in U.S. or Canada.
Sources: Company press releases, certain financial information provided by S&P Capital IQ.

Illustrative aerospace and defense component manufacturer transactions

Date	Target	Description	Acquirer [ultimate parent]
Dec-12	GE Aviation Systems	Hydraulic thrust reverser actuation for jet engines.	Woodward
Dec-12	Churchill Aerospace	Fabricates mechanical and electrical aircraft components.	Corridor Capital
Dec-12	Adhesive Packaging Spec.	Manufactures adhesives for aerospace market.	Royal Adhesives & Sealants [Arsenal et al]
Dec-12	Center Manufacturing	Manufacture of assemblies and fabrications for military markets.	Mayville Engineering
Dec-12	Specialty Maintenance & Con.	Fabrication and machining company serving aerospace market.	MetalTek International
Dec-12	Glasforms	Ballistic resistant panels for military market.	PolyOne Corp.
Dec-12	Enstrom Helicopter	Manufactures helicopters for commercial markets.	Chongqing Helicopter Investment Co.
Dec-12	Alliance Spacesystems	Manufactures and fabricates satellite structures.	Admiralty Partners
Dec-12	Embee Div. Inc.	Metal-finishing, inspection and testing services.	Triumph Group
Dec-12	Volant Aerospace	Engineering, manufacturing and selling interior parts.	VT Aerospace [Singapore Tech.]
Dec-12	Valent Aerostructures	Subassemblies for airframe manufacturers.	LMI Aerospace
Nov-12	Synchronous Aerospace	Aluminum, steel, titanium and composite parts and assemblies.	Precision Castparts
Nov-12	Ameriforge Group	Manufactures forged components and systems to aerospace sector.	First Reserve Corp.
Nov-12	Tex Tech Industries	Manufactures needle and woven felt for military/commercial aircraft.	ShoreView Industries
Nov-12	Odyssey, Global Tooling et al.	Aerostructure parts, assemblies and tooling.	American Industrial Partners
Nov-12	TAPCO	Manufactures accessories and parts for weapons.	Remington Arms [Freedom Group]
Nov-12	Titanium Metals	Titanium melted and milled products.	Precision Castparts
Nov-12	Gentex Visionix	Helmet-mounted display and motion tracking systems.	Thales Communications
Nov-12	M Cubed Technologies	Reaction bonded ceramic and metal matrix composite materials.	II-VI
Nov-12	Davie Yards	Manufactures vessels for defense maritime market.	Zafiro Marine UK
Oct-12	American Marine Holdings	Makes fiberglass composite/aluminum crafts for military.	Baja Marine Corp.
Oct-12	Santier	Manufactures metal matrix composites for aerospace market.	Pegasus Capital Group
Oct-12	BAE Sys. (Commercial Armor)	Manufactures armour for commercial and military applications.	The O'Gara Group [Monroe Capital et al.]
Oct-12	Acushnet Rubber	Designs and manufactures elastomeric sealing solutions.	ZD USA Holdings
Oct-12	Omanson Precision Eng.	Manufactures and supplies machinery and equipment.	Novagen Solar
Oct-12	North American Spec. Glass	Safety and security glazing systems.	Grey Mountain Partners
Oct-12	TSC	Commercial spaceships and carrier aircraft.	Virgin Galactic
Oct-12	Ceradyne	Development, manufacture and marketing of ceramic products.	3M Co.
Sep-12	Advance Manufacturing Tech.	Provides custom fabrication, welding and machining services.	CoorsTek
Sep-12	Lindstrand USA	Aerostats, airships and high-tech inflatable structures.	Bea Maurer
Sep-12	RSA Engineered Products	Engineered components, aerospace ducting and connectors.	Cornerstone Capital, Merit Capital
Sep-12	American Blimp	Manufactures airships.	Van Wagner Aerial Media
Aug-12	Gayston Corporation	Rocket motor tubes manufacturing facility.	General Dynamics
Aug-12	Airtronic USA	Makes small arms and parts.	Global Digital Solutions
Aug-12	American Industrial Plastics	Precision plastic components.	Fenner Advanced Sealing Tech.
Aug-12	Mountain Tech Manufacturing	Precision-machined and assembled components.	Cohio Ventures
Aug-12	Ellwood Advanced Components	Forged and machined components.	Ellwood Group
Aug-12	Aerocast International	Manufactures and distributes aluminum/magnesium alloy castings.	Consolidated Precision [Audax]
Aug-12	AP Parpro	Manufactures parts and assemblies for A&D.	AP Parpro
Jul-12	Pratt & Whitney Rocketdyne	Launch vehicles, missile defense and hypersonic propulsion.	GenCorp
Jul-12	Glasair Aviation	Manufactures kit planes, aircraft and sport planes.	Zhuhai Hanxing General Aviation
Jul-12	Heroux-Devtek	Aerostructure operations.	Precision Castparts
Jul-12	Nilan Tool & Mold	Molds for rubber and plastics industries.	Tyler Jeffrey
Jul-12	Klune Industries	Provides manufactured solutions for A&D industry.	Precision Castparts
Jun-12	Aveos Fleet Performance	Manufactures air frames for aerospace industry.	Premier Aviation [Desjardins Venture]
Jun-12	NEPTCO	Engineering and manufacture of materials for military applications.	Chase
Jun-12	Pexco	Custom design, engineering and assembly of extruded plastics.	Odyssey Investment Partners
Jun-12	Hi-Tech Machine	Precision machining business.	MW Industries [Genstar Capital]
Jun-12	DaveCo Industries	Precision sheet metal and product assembly services.	Anchor Fabrication
Jun-12	Airscooter	Sport aircraft engines, and related accessories.	Tatyana Designs
Jun-12	Northstar Aerospace	Flight-critical parts for military and commercial aircraft applications.	Wynnchurch Capital
Jun-12	BAE Systems	Makes products for lightweight vehicle armor.	E. I. du Pont de Nemours
Jun-12	AMPAC-ISP	Liquid rocket engines, propellant tanks and propulsion systems.	Moog
Jun-12	EBTEC	Fabrication services for power generation.	EDAC Technologies
May-12	Blue Chip Manu. & Sales	Manufactures, sells and supplies spare parts to the U.S. military.	Ice Industries
May-12	Clifton Adhesive	Specialty industrial adhesives and coatings.	Royal Adhesives & Sealants [Arsenal]
May-12	PRV Aerospace	Makes components and assemblies for aircraft industry.	Court Square Capital Partners
May-12	MacLean Sky	Fasteners for the aerospace industry.	MacLean-Fogg Component Solutions
May-12	Centra Industries	Assembly of mechanical and pneumatic components.	Precision Castparts

Sources: Company press releases, certain information taken from Capital IQ Inc.

Illustrative aerospace and defense component manufacturer transactions (continued)

Date	Target	Description	Acquirer [ultimate parent]
May-12	The Lewis Machine Company	Complex precision-machined components.	Blackland Aerospace [Blackland Group]
May-12	Safariland	Law enforcement and security products.	Kanders & Company
Apr-12	Commerce Overseas	Manufactures and supplies military aviation parts.	Merex [Dubin Clark & Company]
Apr-12	Skandia	Makes aircraft interior products and services.	Graycliff Partners
Apr-12	QCC	Manufacture, assembly and testing of products and assemblies.	First Capital Partners
Apr-12	Tri Aerospace	Precision machined components.	Generation Growth Capital
Apr-12	Swift-Cor Aerospace	Precision CNC machined and sheet metal parts and assemblies.	Impresa Aerospace [Graycliff et al.]
Apr-12	Advanced Forming Technology	Metal injection molded and powder injection molded components.	ARC Wireless Solutions
Apr-12	Techniques	High-precision machined components and assemblies.	Kirkwood Holding
Apr-12	NC Dynamics	Parts manufacturing services to the aerospace industry.	Aerospace Holdings [Corinthian Cap.]
Apr-12	CWC - Heat Treatment Business	Thermal processing for metal components used in aerospace.	Bodycote Thermal Processing
Apr-12	Mayville Die & Tool	Engages in refurbishing and machining forge dies.	Precision Castparts
Apr-12	Excaliber Precision Mfg.	Precision machining and assembly of aerospace parts.	Thunderbird
Mar-12	Nassau Tool Works	Parts and subassemblies for military fighter aircraft.	Air Industries Group [Taglich]
Mar-12	Mine Safety Appliances	Manufactures combat helmets for the U.S. Army.	Revision Military
Mar-12	Hill AeroSystems	Parts and assemblies for military and commercial aircraft.	AGC Composites [Acorn Growth]
Mar-12	Tronair	Aircraft ground support equipment for the aerospace industry.	Levine Leichtman Capital Partners
Mar-12	Gregor Technologies	Contract and manufacturing and sheet metal fabrication.	Metals USA Holdings [Apollo Global]
Mar-12	MDT Armor	Develops and supplies vehicle armoring solutions.	Shladot Ltd.
Mar-12	Epic AIR	Designs and produces aircraft.	Engineering LLC
Mar-12	Wakefield Thermal Solutions	Fabricated metals and thermal management products.	HEICO
Feb-12	LAI International	Precision-engineered finished parts and components.	RLJ Equity Partners, Monroe Capital
Feb-12	VariSystems	Cabling solutions for military and industrial customers.	Teledyne Technologies
Feb-12	Summit Tool	Manufactures aerospace engine components.	Summit Aerospace USA
Feb-12	Burtek Enterprises	Ground-based mobile military equipment for the U.S. military.	Wynnchurch Capital and Stone River
Feb-12	Weber Technologies	Components and assemblies for aerospace industry.	Enginetics Aerospace [Morgenthaler]
Jan-12	Quartermaster	Law enforcement apparel and tools.	Galls [CI Capital]
Jan-12	Radian Precision	Precision machined parts and assemblies.	TAG Holdings
Jan-12	Para USA	Manufactures pistols and handguns for government agencies.	Freedom Group [Cerberus Capital]
Jan-12	Fitz Aerospace	Aerospace bushings and fasteners and machined components.	Novaria Group [Satori Capital]
Jan-12	AmSafe	Manufactures safety and securement equipment.	TransDigm
Jan-12	Aviation Manufacturing Group	Precision-machined parts for the aerospace industry.	JLL Partners
Jan-12	Ops-Core	Manufactures protective equipment for soldiers.	Gentex
Jan-12	TurboCombustor Technology	Sheet metal fabrications for turbine jet engines.	Undisclosed buyer
Jan-12	Machine Laboratory	Machined parts and components for aerospace industry.	Milestone Partners
Jan-12	Global Security Glazing	Attack-resistant glass laminates and transparent armors.	Grey Mountain Partners
Jan-12	TechSpec	Rolled and forged titanium products for commercial aerospace.	PRV Metals [Platte River Equity]
Jan-12	Protection Devices	Produces bullet-resistant vehicles.	O'Gara Group [Monroe Capital, et al]

Sources: Company press releases, certain information taken from Capital IQ Inc.

Increased production and long-term growth prospects underpinned strong M&A activity in the component manufacturing subsector, with order books for civil aircraft manufacturers at historic highs.

MRO, component repair, distribution and support services:

Deal volume increases 5%; deal value doubles on back of aircraft leasing transactions

North American transaction activity within MRO and other related services increased 5% in 2012, on top of a 27% increase the previous year, while subsector deal values more than doubled due to a number of large aircraft leasing company deals. Despite global economic headwinds, MRO public company multiples (dominated by Asia-based businesses) increased more than 20% (from 11x EBITDA to 13.4x EDBITA) during the year, as a result of higher industry revenues (increased 6%) and continued earnings growth of around 11% year on year. TeamSAI forecasts long-term growth in the MRO market of around 3.3% compound annual growth rate (CAGR) through 2022. The majority of MRO growth is expected to occur in Asia, with 6.1% CAGR from 2012 to 2022, as demand in North America is dampened by limited fleet expansion.

Transaction volume was dominated by smaller deals, with activity among repair shops accounting for the majority of sector volume. As in previous years, strategic buyers accounted for nearly 70% of M&A activity. Acquisitions primarily consisted of bolt-on opportunities that seek to develop integrated platforms to serve customers, complement existing capabilities, open geographic markets or add expertise in niche areas. Notable deals include HEICO's purchase of repair and overhaul provider of specialized components CSI Aerospace; LMI Aerospace's purchase of engineering support operators TASS, giving the buyer a global presence; and Weinberg & Bell's acquisition of component overhaul operator AeroRepair, the third aerospace investment in as many years for the private equity firm.

North American MRO and support services M&A activity

Transactions where target is headquartered in U.S. or Canada.
Sources: Company press releases, certain financial information provided by S&P Capital IQ.

M&A activity involving aircraft leasing companies came to the forefront in 2012, with a number of high-profile acquisitions by Japanese and Chinese financial institutions. Having avoided the worst of the credit crunch, Japanese banks expanded into the leasing industry due to a stronger yen, lethargic domestic lending and an opportunity to generate higher returns in a growing market. Strong growth is expected in the aircraft leasing industry, as airlines seek to avoid large CAPEX outlays and use lessors to finance more fuel-efficient planes.

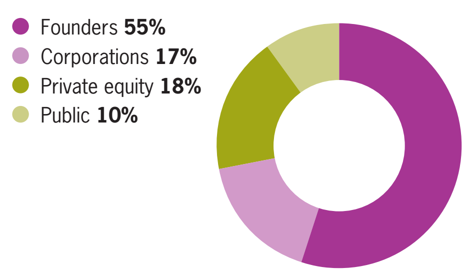
The year started off with the purchase of Ireland-based firm RBS Aviation Capital by Sumitomo Mitsui Financial Group for around $7.3 billion (not included in transaction summary), giving the Japanese buyer a platform to expand aggressively into the fast-growing Asia-Pacific region. In October 2012, Japan-based Mitsubishi UFJ Financial Group purchased sale-leaseback experts Jackson Square Aviation — which has a fleet of 70 narrow-body Boeing and Airbus SAS planes — from Oaktree Capital Group for around $1.3 billion. Prior to the transaction, Mitsubishi UFJ had owned just four Boeing planes. In a separate deal, Grant Thornton UK LLP acted as adviser to DVB Bank as they sold the majority shareholding in engine repair and lease experts TES Holdings to the Development Bank of Japan and the Mitsubishi Corp.

After looking to float its aircraft leasing business late last year, AIG sold a majority share of its leasing arm, International Lease Finance Corp. — with an estimated fleet of 1,000 jets — to a group of Chinese financial services firms for around $4.2 billion. Other notable investments included Onex's purchase of half of commercial aircraft leasing operator BBAM for $165 million; Aviation Capital Group raising $240 million in growth capital; and AerCap's share buyback from Cerberus Capital for $278 million as the financial sponsor sought to exit its position.

A noteworthy MRO deal was Pemco World Air Services' filing for Chapter 11 protection in March 2012 after they had been adversely affected by a slowdown in customer demand. Pemco was purchased out of bankruptcy for $38 million by Avion Services, which is ultimately owned by private equity player Sun Capital. Sun Capital also owned Pemco prior to its Chapter 11 filing and received court approval to buy back the company through Avion Services. Sun Capital sold a substantial part of Pemco's MRO business to TIMCO Aviation in October 2012.

Founders continue to account for the majority of sellers (55%), with corporate divestitures accounting for 17% and publicly traded companies making up 10%. Sales by private equity doubled to account for 18% of all transactions.

Sellers of North American American MRO and support services businesses by ownership type – 2012



Transactions where target is headquartered in U.S. or Canada.
Sources: Company press releases, certain financial information provided by S&P Capital IQ.

Illustrative MRO and other services transactions

Date	Target	Description	Acquirer [ultimate parent]
Dec-12	Precision Aviation Group	Provides MRO services for aerospace and defense industries.	PNC RiverArch Capital
Dec-12	Aero Components	Provides avionic maintenance and support services.	AMETEK
Dec-12	First Wave MRO	Provides maintenance services.	Tray Siegfried and Jon Werthen
Dec-12	Hawthorne Services	Provides aircraft fuel services and facility support services.	Louis Berger Services [Berger Group]
Dec-12	Northwest Aerospace Tech.	Aircraft modification engineering.	Zodiac Aerospace
Dec-12	International Lease Finance	Leases jets and provides fleet management services.	New China Trust
Dec-12	First Aviation Services	Provides fixed-based operation services.	Landmark Aviation
Dec-12	BBAM	Offers commercial aircraft leasing and management services.	Onex Capital
Nov-12	Intercoastal	Distributes aircraft hardware products worldwide.	Herndon Products
Nov-12	Cascade Aerospace	Provides long-term integrated aircraft support programs.	IMP Group–Aerospace & Defence
Oct-12	Pemco World Air Services	Aircraft maintenance and repair business.	TIMCO Aviation Services [Owl Creek]
Oct-12	Action Research	Provides aerospace repair services.	Flight Support Group [HEICO]
Oct-12	Galaxy Air Services FBO	Provides aircraft maintenance and management services.	Black Forest Ventures
Oct-12	Jackson Square Aviation	Provides aircraft sale and leaseback services.	Mitsubishi UFJ
Sep-12	Quality Aircraft Accessories	Provides MRO services.	BOK Financial
Sep-12	Landmark Aviation	Provides fixed-base operations and aircraft management services.	Carlyle Partners
Aug-12	Logos Aviation Services	Provides aircraft maintenance services.	Tactical Air Defense Services
Aug-12	Aveos Fleet Performance	Provides repair and overhaul of aircraft components.	A J Walter Aviation
Aug-12	TASS	Fleet management and support services.	D3 Tech. [LMI Aerospace]
Aug-12	CSI Aerospace	MRO services of pitot tubes and total air temperature sensors.	HEICO Aerospace Holdings
Jul-12	AeroPremier Jet Center	Provides fixed-base operator services.	Hawthorne Corp.
Jun-12	Fastener Dist. & Marketing	Distributes fasteners to aerospace and military.	Precision Aerospace
May-12	Interfast	Distributes fasteners to aerospace industry.	Wesco Aircraft Europe
May-12	Keystone Aviation	Provides aircraft sales and maintenance services.	Truman Arnold Companies
May-12	Dickson Testing Company	Commercial heating and testing services to aerospace market.	Precision Castparts
May-12	Wing Aviation	Offers aviation services for corporate aircrafts.	Black Forest Ventures
Apr-12	Field Aviation Company	Modifies and overhauls aircraft.	MBO
Apr-12	Wood Group Turbopower	Provides overhaul and repair services.	CPR Aerospace
Mar-12	NTE Aviation	Provides parts for turboprop and turbofan aircraft and engines.	Waveland Investments
Mar-12	AeroRepair	Provides overhaul services for aircraft components.	The Weinberg & Bell Group
Mar-12	Pemco World Air Services	Provides maintenance, repair and overhaul services.	Avion Services [Sun Capital]
Feb-12	Enterprise Jet Center	Operates as a repair and aviation fuels distribution center.	Jet Aviation Mfg. [General Dynamics]
Feb-12	AAXICO	Distributes aviation products to airlines and maintenance facilities.	Kirkhill Aircraft Parts Company
Feb-12	World Technical Services	Base operations support and maintenance services.	Primus Solutions
Feb-12	Louis Berger Services	Provides airfield, aircraft and base logistics services.	Berger Group Holdings
Jan-12	ExcelAire	Aircraft management company.	Hawthorne Global Aviation Services
Jan-12	Rotorcraft Services Group	Helicopter and aircraft MRO services.	Helicopter Services Group
Jan-12	Custom Helicopters	Aircraft refurbishing, transmission engine repair services.	Exchange Income
Jan-12	JetLink MRB	Aircraft charter services and customized solutions.	Jet Access Aviation
Jan-12	UFC Aerospace	Aerospace logistics integrated supply chain solutions globally.	B/E Aerospace

Sources: Company press releases, certain information taken from Capital IQ Inc.

Defense technology:
M&A slows down as industry faces transition

After a record year for defense technology deals in 2011, M&A activity slowed in 2012 as the effects of defense cuts and lower earnings hit the industry. The number of transactions declined 19% in 2012, with 64 deals taking place during the year. Disclosed aggregate deal value for defense technology transactions declined 30% to $4.3 billion in 2012 (versus $6.1 billion in 2011). Publicly traded valuation multiples declined 20% over the past 12 months to 4.9x EBITDA as a result of uncertain growth prospects in light of expected DoD spending cuts, lower public company earnings (down 12% in 2012) and reduced revenues (declined 2% in 2012) for our subsector index.

Strategic buyers made up the vast majority of acquirers in the industry and accounted for around 80% of transactions in 2012. Defense technology transaction activity fell into the following categories:

- **Cybersecurity (39%):** Cybersecurity transactions accounted for the largest segment, with prime contractors, government IT providers and private equity looking to establish or strengthen capabilities in this area. Service offerings in cybersecurity include: cyberwarfare solutions, intrusion detection, network security/encryption, disaster recovery, threat management, data leakage detection, systems integration/engineering, and secure cloud computing and data centers.
- **Traditional government contracting (28%):** This segment includes lifecycle management, enterprise architecture, product management, acquisition and contract consulting, records management, and strategic planning and budgeting support.

North American defense technology M&A activity

Transactions where target is headquartered in U.S. or Canada.
Sources: Company press releases, certain financial information provided by S&P Capital IQ.

- **C4ISR/LogC2 (22%):** Transactions in this broad segment include command and control systems, counterterrorism intelligence, supply chain management, advanced geospatial and video analytics solutions, data visualization, and air traffic management.
- **Testing and training (6%):** This segment includes laboratory testing, simulation training systems, visual environments and modeling.
- **Health care IT (5%):** Acquisitions in health care IT continued with defense companies seeking to diversify their service offerings. Health care IT includes implementation services, operational and risk management services, business process outsourcing and enterprise content management.

In keeping with recent trends, businesses offering relevant cybersecurity services with access to growth areas of DoD spending continued to command higher valuations than the industry average. Publicly available valuation multiples for defense technology deals have seen businesses change hands at around 2.5x revenue and 10.5x EBITDA in 2012, while smaller traditional government contractors have recently changed hands at around 0.5x revenue and 7.5x EBITDA. In contrast, the acquisition of intelligence technology experts BreakingPoint Systems by Ixia went for 4.0x revenue and 20.7x EBITDA. Around 30% of BreakingPoint's revenue comes from the government sector and the company's U.S. government security certifications will allow Ixia to extend its offerings into this area.

Likewise, Riverbed Technologies purchased OPNET Technologies, a network performance management solutions provider, for 4.8x revenue and 25.9x EBITDA. The deal let Riverbed expand into OPNET's customer base, which includes government and defense agencies, to provide a full suite of integrated services. In these transactions, the acquired company secured high valuations by providing expert cybersecurity services that allowed them to earn EBITDA margins of around 19%. This far exceeds the 5% and 10% EBITDA margins typical of traditional government contractors.

Businesses offering high-margin cybersecurity services with access to growth areas of DoD spending continue to command higher valuations than the industry average.

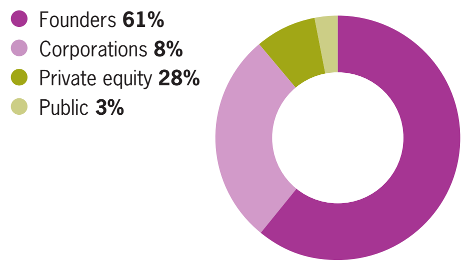
Government IT providers made notable acquisitions in defense and health care technology markets in 2012. ManTech deepened its offerings in cybersecurity by acquiring HBGary, a developer of security software and malware threats, for $24 million. Elsewhere, KEYW acquired Rsignia, a provider of advanced cybersecurity solutions to government customers. Acquisition activity in the fast-growing health care technology segment continued in 2012, as companies expanded service offerings outside defense technology, including:

- SAIC's purchase of health care IT provider maxIT Healthcare for $493 million. Following its acquisition of Vitalize Consulting Solutions in 2011 for $198 million, the combined business established SAIC as a player in the health care technology industry;
- ManTech's first acquisition into the growing health care technology market with the purchase of Evolvent Technologies, which provides IT solutions to the federal government ($40 million). This acquisition allowed ManTech to diversify its service lines while adding Evolvent's federal customer base in the health sector; and
- CACI also expanded its presence in health care technology with the acquisition of Emergint Technologies for an undisclosed sum. The addition of Emergint was intended to improve CACI's capabilities in key areas of its service line.

Prime defense contractors remained active in the subsector, with acquisitions being spread across a number of categories, including:

- Boeing's acquisition of Miro Technologies, a software provider specializing in enterprise asset and supply chain management, that will be subsumed into Boeing's Defense, Space & Security business; and
- Raytheon's purchase of software security specialists Teligy, which provides additional cybersecurity capabilities to its intelligence, defense and federal customers

Sellers of North American defense technology businesses by ownership type – 2012



Transactions where target is headquartered in U.S. or Canada.
Sources: Company press releases, certain financial information provided by S&P Capital IQ.

Private equity accounted for 20% of buyers in 2012. The number of private equity acquisitions declined by nearly half (from 22 in 2011 to 12 buyers in 2012) as financial sponsors looked to other industries with stronger growth prospects. Notable deals include the purchase of innovative solutions operators ATS Corp. by Frontenac Company and PNC Mezzanine through Frontenac's portfolio company, Salient Federal Solutions ($76 million, 0.8x revenue, 7.6x EBITDA), and The Jordan Company's purchase of VT Services, a provider of engineering support services for mission critical systems ($99 million).

The number of divestitures by small, privately owned businesses accounted for more than half (61%) of all sales in the subsector. Sales by private equity accounted for 28% of all defense technology deals during the year, with public and corporate divestitures making up the remainder of sellers (11%).

Illustrative defense technology transactions

Date	Target	Description	Acquirer [ultimate parent]
Dec-12	CDL Systems	Software products for unmanned vehicle platforms.	Lockheed Martin
Dec-12	LMN Solutions	Provides systems engineering services to government.	National Security Partners
Dec-12	Novonics	Training systems for decision-making in high-stress environments.	Camber
Dec-12	MorganFranklin	Comprises defense and health software support services.	SRA International
Nov-12	Rsignia	Provides cybersecurity solutions and services.	KEYW Corp.
Nov-12	Versant	Object-oriented database management system products.	Actian [Garnett & Helfrich Capital]
Nov-12	Emergint Technologies	Provides information management and IT services.	CACI International
Nov-12	Xpect Software	Provides data analysis and management solutions.	Intelligent Software Solutions
Nov-12	Chandler/May	Tactical computing and electronic systems.	Lockheed Martin
Nov-12	Appro International	Develops supercomputing solutions.	Cray
Nov-12	SafeNet	Comprises distribution of mission-assurance Type 1 solutions.	Undisclosed buyer
Nov-12	JDA Software Group	Provides enterprise software solutions worldwide.	RedPrairie
Oct-12	OPNET Technologies	Application and network performance management solutions.	Riverbed Technology
Oct-12	Miro Technologies	Provides enterprise software solutions.	Boeing
Oct-12	Teligy	Custom software and hardware design and development.	Raytheon
Oct-12	ARINC	Aviation and maritime engineering services.	Booz Allen Hamilton
Oct-12	RNB Technologies	Provides systems engineering, test and evaluation and IT services.	Oasis Systems
Sep-12	Tiburon Technologies	Custom integration and implementation of corporate systems.	EMC Corporation
Sep-12	Sensage	Security information and event management software solutions.	KEYW Corp.
Aug-12	Black Oak Technology Group	Offers cybersecurity solutions.	Commonwealth Tech. [Tetra Tech.]
Aug-12	Bulova Technologies Ordnance Systems	Defense contracting services.	L.C. Bowman
Aug-12	Fidelis Security Systems	Cyberattack prevention solutions for government and military.	General Dynamics Advanced Info. Sys.
Aug-12	Infoscitex	Provides technology services and products.	DCS
Aug-12	Servigistics	Enterprise software solutions for service lifecycle management.	Parametric Technology
Aug-12	New World Apps	Outsourced IT services to the U.S. intelligence community	Layered Technologies
Jul-12	Austin Digital	Develops flight operational quality assurance solutions.	GE Aviation Systems
Jul-12	OptiMetrics	Specialized research and engineering services to armed forces.	DCS
Jul-12	GeoEye	Provides geospatial information and insight for decision-makers.	DigitalGlobe
Jul-12	AeroTech	Operates as an aerospace/defense services contractor.	Tactical Air Defense Services
Jul-12	maxIT Healthcare	Provides clinical IT implementation services.	Vitalize Consulting [SAIC]
Jul-12	Invention Machine	Innovation software and services for A&D industry.	IHS
Jul-12	Geosemble Technologies	Solutions to visualize relevant data geographically.	TerraGo Technologies
Jul-12	BreakingPoint Systems	Security and performance testing products and services.	Ixia
Jul-12	Catapult Technology	Provides IT services to state departments.	DC Capital Partners
Jul-12	Space Computer	Produces real-time signal processing systems and software.	ITT Exelis Geospatial Systems
Jun-12	Delta Solutions and Tech.	Provides federal financial management and technology solutions.	CACI International
Jun-12	M.J. Harden Associates	Provides geospatial mapping and digital imagery services.	GMR Aerial Surveys
Jun-12	Plex Systems	Develops online SaaS for manufacturing companies.	Francisco Partners Management
May-12	Kimball Consulting	Provides software engineering services to intelligence agencies.	Schafer Corporation
May-12	Mxi Technologies	Provides software, support and services to commercial airlines.	Moelis Capital Partners
May-12	VT Services	Design, fabrication and installation services for C4ISR.	The Jordan Company
May-12	Interfacing Technologies	Software tools that model and manage business processes.	ODESIA Group
May-12	Xedar Corporation	Develops and maintains information systems.	IHS
May-12	GTSI	Provides information technology hardware and solutions.	UNICOM Systems
Apr-12	Millennium Systems Services	Provides logistical and programmatic support services.	Systems Products and Solutions
Apr-12	Valor Concepts	Security consulting and systems integration services.	Exceed Corporation
Apr-12	Inmedius	Captures, creates, manages and deploys information.	Continental Graphics [Boeing]
Apr-12	Delphi Research	IT engineering.	TSG Sol. [Tactical Survey Group]
Apr-12	ALON	Provides IT and mission support programs for the federal govt.	XL Associates
Apr-12	ElanTech Systems	Offers software engineering services.	Noblis
Apr-12	Dell Services Federal Gov.	Support services such as records distribution and maintenance.	FCi Federal
Mar-12	2020 Company	Enterprise technology and performance optimization solutions.	Acentia [Snow Phipps et al.]
Mar-12	FGM	Provides technical solutions to protect, share and act on data.	Novetta Solutions [Arlington Capital]
Mar-12	Nova Datacom	Information security and business continuity services.	Copper River Information Technology
Mar-12	Ingeo Systems	Provides electronic document recording solutions.	Corporation Service Company
Mar-12	MCA Solutions	Develops service parts planning and optimization software.	Servigistics [Parametrics Tech.]
Feb-12	HBGary	Develops security software for U.S. government agencies.	ManTech International
Feb-12	Whitney, Bradley & Brown	Provides technical and management consulting services.	NetStar-1 Holdings [Lake Capital]
Feb-12	ATS	Provides software and systems development service.	Salient Federal Sol. [Frontenac, PNC]
Feb-12	Atrium Solutions	Provides enterprise content management [ECM].	Prolific [Semanticspace Tech.]
Feb-12	Mabec Solutions	Consulting services to the federal government.	The Buller Group
Jan-12	Evolvent Technologies	Health care IT services.	ManTech International
Jan-12	Frontline Solutions	Provides program and acquisition management support.	ASI Government [Excellere Partners]
Jan-12	GCR	Aviation consulting services and technology solutions.	Clearview Capital

Sources: Company press releases, certain information taken from Capital IQ Inc.

Defense electronics:

M&A activity softens after 2 years of strong growth

M&A activity in defense electronics declined 11% after two years of strong growth. The subsector recorded 62 transactions in 2012, equaling the average number of deals for the preceding 5-year period from 2007 to 2011. Publicly disclosed transaction multiples remained solid during the year due to a combination of fewer disclosed deals and buyers seeking to acquire high-growth companies. As a result, transaction valuation multiples were considerably higher than median public company valuation multiples, which finished the year at 7.2x EBITDA (versus 8.0x EBITDA at the start of the year). Disclosed aggregate deal value for the subsector halved, as transactions were dominated by lower middle-market deals, with only one transaction over $500 million. While the subsector's overall financial performance slowed in 2012, it posted increased EBITDA earnings (5%) and revenue (2%) for the year.

North American defense electronics M&A activity

Transactions where target is headquartered in U.S. or Canada.
Sources: Company press releases, certain financial information provided by S&P Capital IQ.

The number of strategic acquirers in defense electronics remained steady at around 80%, with buyers comprising established defense electronic players (Ultra Electronics, Safran, Teledyne); prime defense (General Dynamics, Lockheed Martin); large electronics manufacturing services (EMS) companies (Flextronics, Mercury Systems); specialty A&D components/systems (HEICO, Curtiss-Wright Controls); and nontraditional players (3D Systems, Research In Motion).

Sector M&A included the following segments:

- **Secure communication (31%)** — Includes product offerings within secure satellite and wireless network communication, signal amplification and radar systems.
- **Intelligence, surveillance and reconnaissance technologies (ISR) (26%)** — Includes secured technologies within vision systems, electro-optics and advanced sensors, as well as air traffic management.
- **Traditional electrical components and systems (16%)** — Includes interconnect devices, circuit boards and other EMS products.
- **GPS, asset-tracking and sonar/detection electronics solutions (11%)** — Includes satellite-based asset-tracking solutions, avionics interface systems and black box technology.
- **Advanced power systems (10%)** — Includes power converters/inverters, portable power systems, battery chargers, transformers and rechargeable battery packs.
- **Unmanned aircraft vehicles (UAVs), scientific analysis and testing solutions technologies (6%)** accounted for the remaining activity.

Unsurprisingly, major players in the defense electronics market were behind some of the biggest deals in 2012. MacDonald, Dettwiler and Associates acquired satellite manufacturing experts Loral Space & Communications for $875 million. The acquisition is expected to make the Canadian-based company a key player in the U.S. commercial communications market. Elsewhere, French jet-engine maker Safran picked up Goodrich's electric power systems division for around $400 million to capitalize on the DOJ's directive that UTC divest assets after its mega-acquisition of Goodrich in 2011. The acquisition of Goodrich's former division is an important part of Safran's strategy to be a leading supplier of aerospace electrical power systems. In another large deal, Teledyne's acquisition of LeCroy Corp. for $292 million was intended to help expand its portfolio of analytical instrumentation solutions and accelerate its high-end oscilloscope programs.

As in previous years, there were a number of buyers that acquired multiple targets in the subsector. Teledyne and General Dynamics topped the list with three acquisitions each, as well as HEICO acquiring two companies. Notable deals include General Dynamics' acquisition of secure mobile-device experts Open Kernel Labs to leverage and expand its offerings, and HEICO's purchase of Ramona Research, manufacturer of radio-frequency and microwave amplifiers, which fits into the company's strategy of acquiring growing niche businesses in the A&D market.

Despite expected declines in DoD spending, the unmanned aerial vehicle/unmanned aerial systems (UAV/UAS) market is expected to avoid cutbacks to its program. Originally used for tactical reconnaissance, UAVs/UASs now play an important role in enhancing the ISR capabilities of the DoD and are central to detecting hostile threats. The UAV/UAS market is expanding into other applications, such as Homeland Security and non-federal agency sectors as the capabilities and depth and breadth of offerings increase. Products range from micro UAVs that fit in the palm of a hand to drones the size of military aircraft.

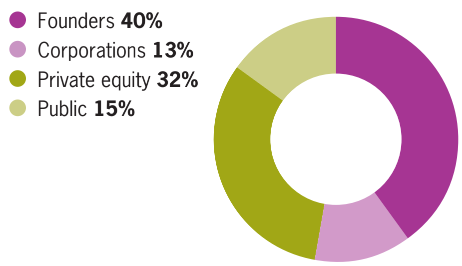
According to a recent report by the Teal Group, entitled *World Unmanned Aerial Vehicle Systems, Market Profile and Forecast 2012*, the global UAV/UAS market is expected to nearly double from $6.6 billion in 2013 to $11.4 billion in 2023, valuing the market at $89 billion over the next 10 years.

Such strong growth is expected to drive new entrants to a market which is already highly concentrated. Four companies account for nearly 60% of the market: Lockheed Martin, Northrop Grumman, Textron and General Atomics Aeronautical Systems (ultimately owned by General Dynamics). M&A activity in the UAV/UAS industry is expected to expand in the future and there were two notable deals during the year that highlight the breadth and diversity of the sector:

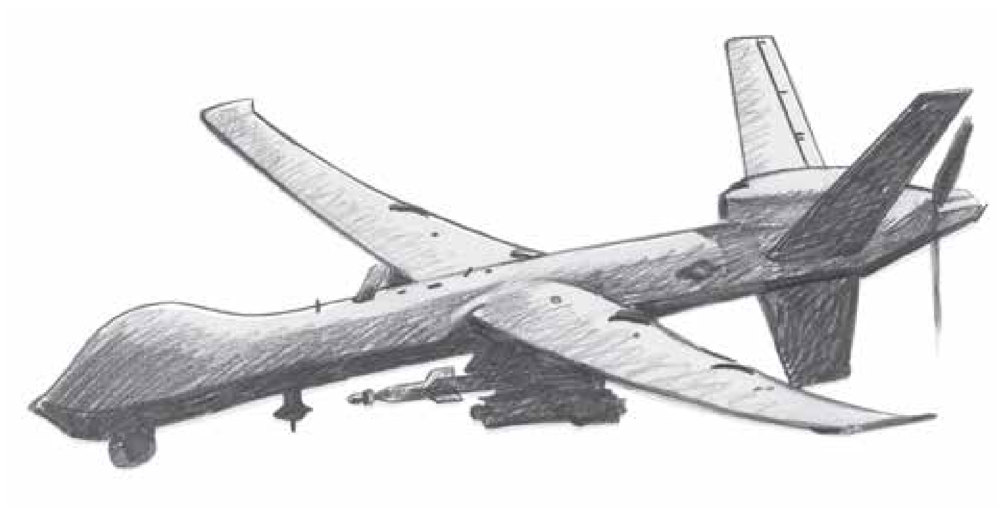
- Lockheed Martin's purchase of Procerus Technologies, a manufacturer of small and light micro-autopilot systems to help expand its portfolio of surveillance and reconnaissance applications
- Kratos' acquisition of Composite Engineering, a producer of high-performance aerial target systems ($155 million, 1.6x revenue, 9.8x EBITDA). Kratos had previously supplied some of the electronics used by Composite Engineering in their unmanned target drones.

Sales by founders remain the largest proportion of sellers (40%) in the subsector, followed by private equity (32%), public companies (15%) and corporations (13%). Sales by private equity increased more than 50% in 2012 (20 sales in 2012 versus 13 sales in 2011) and were driven in part by General Partners crystallizing returns. Notable examples include Taglich Private Equity's (and other investors') sale of electronic sensors and throttle control engineers, and Williams Controls to Curtiss-Wright Corp.

Sellers of North American defense electronics businesses by ownership type – 2012



Transactions where target is headquartered in U.S. or Canada.
Sources: Company press releases, certain financial information provided by S&P Capital IQ.



Illustrative defense electronics transactions

Date	Target	Description	Acquirer [ultimate parent]
Dec-12	Applied Physical Sciences	Offers acoustic and sonar systems.	General Dynamics Electric Boat
Dec-12	Lightworks Optics	Manufactures integrated optical systems and components.	Exotic Electro-Optics [II-VI Inc.]
Dec-12	Astrolab	Manufactures and assembles RF/microwave military components.	HUBER+SUHNER
Dec-12	Broad Reach Engineering	Offers radiation-hardened avionics and electronics.	Moog
Dec-12	MilesTek Corp.	Manufactures connectivity products for military avionics.	L-Com
Dec-12	USI Electronics	Distributes electronic components for military market.	Avnet Electronics Marketing
Dec-12	A123 Systems	Advanced chemistry batteries and low-volume cell manufacturing.	Navitas Systems
Dec-12	Micross Components	Manufactures and distributes specialty electronics solutions.	Insight Equity
Nov-12	CVG-Avtec Systems	Processor solutions for the satellite ground station.	Ingenicomm
Nov-12	Diversified Technology	Embedded computing and power hardware solutions.	ZNYX Networks [New Vista Capital]
Nov-12	Onyx EMS	Electronic manufacturing services for aerospace systems.	Sparton
Nov-12	Williams Controls	Electronic throttle controls and electronic sensors.	Curtiss-Wright Controls
Oct-12	Goodrich Electric Power	Distributes power distribution systems.	Safran
Oct-12	RedBlack Communications	Designs client communication and electronic system solutions.	BCF Solutions
Sep-12	Hunter Technology	Provides PCBs for aerospace and defense application.	The Bare Board Group
Sep-12	Savi Technology	Provides asset management solutions and services.	Affiliates of LaSalle Capital
Sep-12	Aero-Instruments Company	Manufactures air data sensors for aircraft applications.	TransDigm
Sep-12	Open Kernel Labs	Provides systems software and virtualization technology.	General Dynamics Broadband
Aug-12	LEMO Canada	Manufactures and distributes electronic components.	LEMO
Aug-12	MicroStrain	Designs and manufactures micro-displacement sensors.	LORD
Aug-12	Texas Memory Systems	Designs and manufactures enterprise data storage systems.	IBM
Jul-12	Max-Viz	Manufactures enhanced vision systems.	Astronics
Jul-12	Futurecom Systems Group	Manufactures RF coverage extension systems for DoD.	McWane
Jul-12	Avaak	Develops low-power wireless video networking technology.	Netgear
Jul-12	Azonix	Manufactures and offers rugged computers and displays.	Cooper Industries [Eaton]
Jul-12	Dimension Technologies	Conceives and develops optical technologies.	3D Icon
Jun-12	Space Systems/Loral	Manufacture and integration of satellites and satellite systems.	Macdonald Dettwiler & Associates
Jun-12	Nitronex	Development, manufacture and supply of RF power transistors.	Gaas Labs
Jun-12	Network Equipment Tech.	Networking equipment for real-time communications.	Sonus Networks
Jun-12	Vuzix	Tac-Eye head-mounted displays for military and defense.	Undisclosed buyer
Jun-12	Micronetics	Manufacture and sale of microwave and RF components.	Mercury Systems
Jun-12	RFI	Solutions for EMI/EMC/RFI, pulse and power problems.	Ultra Electronics Defense
May-12	BlueView Technologies	Develops imaging sonar solutions.	Teledyne RD Instruments
May-12	LeCroy	Oscilloscopes and communication protocol analyzers.	Teledyne Technologies
May-12	Universal Circuits	Offers printed wiring boards and panel formats.	Advanced Circuits [Allied Capital]
May-12	Instruments For Industry	Designs, manufactures and installs RF amplifiers.	Teseq [Aventic Partners]
May-12	Composite Engineering	High performance aerial target drone systems.	Kratos Defense & Security Solutions
May-12	IPWireless	Long-term evolution [LTE] wireless broadband solutions.	General Dynamics C4 Systems
May-12	Garwood Laboratories	Product qualification and development testing services.	National Technical Systems [Mill Road]
Apr-12	Ticom Geomatics	Large-scale enterprise ISR systems and QRCs.	Six3 Systems
Apr-12	ACR Electronics	Safety and survival products to aviation and military markets.	JF Lehman & Company
Apr-12	Paramount Industries	Produces defense-aerospace hardware and electronics.	3D Systems
Apr-12	Moritz Aerospace	Designs and manufactures systems for aircraft.	Radiant Power [HEICO]
Apr-12	Precision Photonics	Precision optical components, coatings and assemblies.	IDEX
Apr-12	Xollai	Provides robotic vision and sensory solutions.	ReconRobotics
Apr-12	Cosense	Ultrasonic sensors and systems.	Measurement Specialties
Apr-12	Optech	Advanced lidar and imaging-based survey instruments.	Teledyne Technologies
Mar-12	Ramona Research	Makes radio frequency and microwave amplifiers.	HEICO Electronic Technologies
Mar-12	Echotec Sonar	High-definition omni sonar systems.	Northstar Electronics
Mar-12	Stellar Microelectronics	Provides electronics manufacturing services.	Flextronics International
Mar-12	Paratek Microwave	Adaptive radio frequency front-end component solutions.	Research In Motion
Mar-12	Artis	Technologies for defense systems.	Plasan North America [Plasan Sasa]
Mar-12	Mitec Telecom	Manufactures radio frequency communication systems.	Alga Microwave
Feb-12	Elcom Technologies	Manufactures RF modules and broadband subsystems.	Frequency Electronics
Feb-12	AccuSpec Electronics	Offers electronic manufacturing services for military market.	Armstrong Group of Companies
Jan-12	Versawave Technologies	Manufactures and distributes modulation components.	Optelian
Jan-12	HiRel Systems	Custom electronic components and power assemblies.	Vishay Intertechnology
Jan-12	Procerus Technologies	Autopilot systems for mini and micro unmanned aerial vehicles.	Lockheed Martin
Jan-12	Catalyst Manufacturing	Provides contract electronic manufacturing services.	AsteelFlash Group SA [NexiCap Partners]
Jan-12	Fire Sentry	Manufactures electro-optical fire and flame detectors.	Honeywell International
Jan-12	Channel Technologies Group	Provides transducers and underwater acoustic products.	Blue Wolf Capital Partners
Jan-12	Vista Research	Solutions in remote sensing and detection systems.	Aerostar International [Raven Ind.]

Sources: Company press releases; certain information taken from Capital IQ Inc.

SBIR-funded businesses:

Continue to be acquired by large corporations. Program reauthorized permitting PE ownership. SBIR funding declines but legislation increases allocation amounts.

Large defense corporations continued to acquire SBIR-funded businesses to obtain growth technologies for inclusion in their own product and service offerings. Similar to 2011, defense technology companies (Teledyne Technologies, Exelis), defense components manufacturers (Moog), large industrial firms (3M, IDEX), prime defense companies (Lockheed Martin), A&D specialists (Astronics) and government IT contractors (Macdonald Dettwiler & Associates, ManTech) continued to acquire businesses that had been awarded SBIR funds from the federal government.

Typically, acquired SBIR businesses are past the research and development phase and are actively manufacturing or marketing their products, allowing larger defense acquirers to leverage resources and aggressively grow the newly acquired product/technology. The target company's ability to deliver a marketable product is important, as SBIR funding typically winds down after the acquisition since the target no longer qualifies as a small business. This is evident by transaction activity in 2012 — only two businesses maintained their SBIR status post-transaction. Large defense companies are content to have SBIR funding finance small businesses' research until they reach final product development, production and proven market adoption.

The number of acquired businesses that have historically received SBIR funding increased to 35 in 2012 (versus 30 in 2011, 23 in 2010 and 22 in 2009), with targets focused on products, systems and services within the growth areas of advanced materials, cybersecurity, imaging, sensors and imaging, radio frequency, secure communications, testing and engineering, unmanned aerial vehicles and vision systems. The majority of the targets acquired in 2012 operate in the defense electronics sector, accounting for 54% of transaction volume. The defense technology sector accounted for 32% and the components sector was responsible for the remaining 14%.

SBIR-funded businesses continued to be acquired by large defense firms to secure growth technologies for inclusion in their own product and service offerings.

Large defense companies are content to have SBIR funding finance small businesses until they reach final product development, production and proven market adoption, at which point they become more attractive acquisition opportunities.

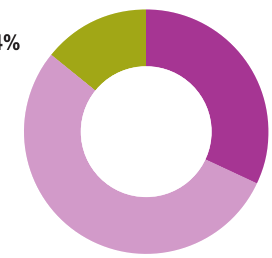
Notable transactions include:

- Teledyne Technologies' acquisition of high-resolution acoustic imaging provider BlueView Technologies to enhance its products in the marine group and solutions in underwater vehicles;
- Lockheed Martin's acquisition of unmanned aerial systems companies Chandler/May ($25 million revenue, 150 employees) and Procerus Technologies to further develop its portfolio of advanced unmanned aerial vehicles; and
- Astronics' purchase of Max-Viz, a developer of enhanced vision systems for fixed- and rotary-wing aircraft for $10 million.

Public companies continue to make up the majority of buyers (43%) of SBIR businesses, with private companies accounting for more than a third (37%). The number of private equity firms acquiring SBIR-funded businesses doubled in 2012, with seven acquisitions accounting for 20% of deal volume. Of those transactions, three were direct investments and the remainder were private equity-backed acquisitions through existing platforms. Further interest in SBIR businesses by private equity is likely following changes to the eligibility rules in 2013. The new amendment allows businesses that are majority-owned by multiple private equity firms, venture capitalists or hedge funds to participate in the SBIR program, provided they meet certain criteria. One such condition states that no single financial sponsor can own more than 50% of the SBIR business. The new amendment was made effective on Jan. 28, 2013.

SBIR acquisitions by target type (2012)

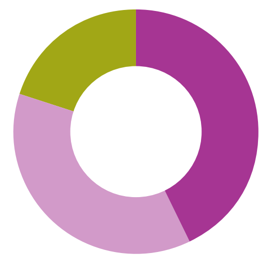
- Defense technology **32%**
- Electronics and electrical components **54%**
- Components and materials **14%**



Sources: DoD SBIR filing and company press releases, certain financial information provided by S&P Capital IQ.

SBIR acquisitions by buyer type (2012)

- Public companies **43%**
- Private companies **37%**
- Private equity **20%**



Sources: DoD SBIR filing and company press releases, certain financial information provided by S&P Capital IQ.

After nearly a decade of growth, SBIR funding is declining in tandem with cuts to the overall DoD budget. Funding for the SBIR program grew rapidly in the first 10 years of the new millennium, doubling from $555 million in 2000 to $1.22 billion in 2009, as U.S. forces built up military presences in Iraq and Afghanistan. However, with the White House's declaration to reduce foreign combat missions and the war on terror winding down, SBIR spending decreased 17% to $1.04 billion by the end of 2011. In an effort to shelter SBIR from further significant cutbacks, the passing of the National Defense Authorization Act for Fiscal Year 2012 included provisions to increase SBIR amounts by around 0.1% per year through FY 2017. This additional funding was intended to safeguard the program from being severely affected by further DoD spending cuts.

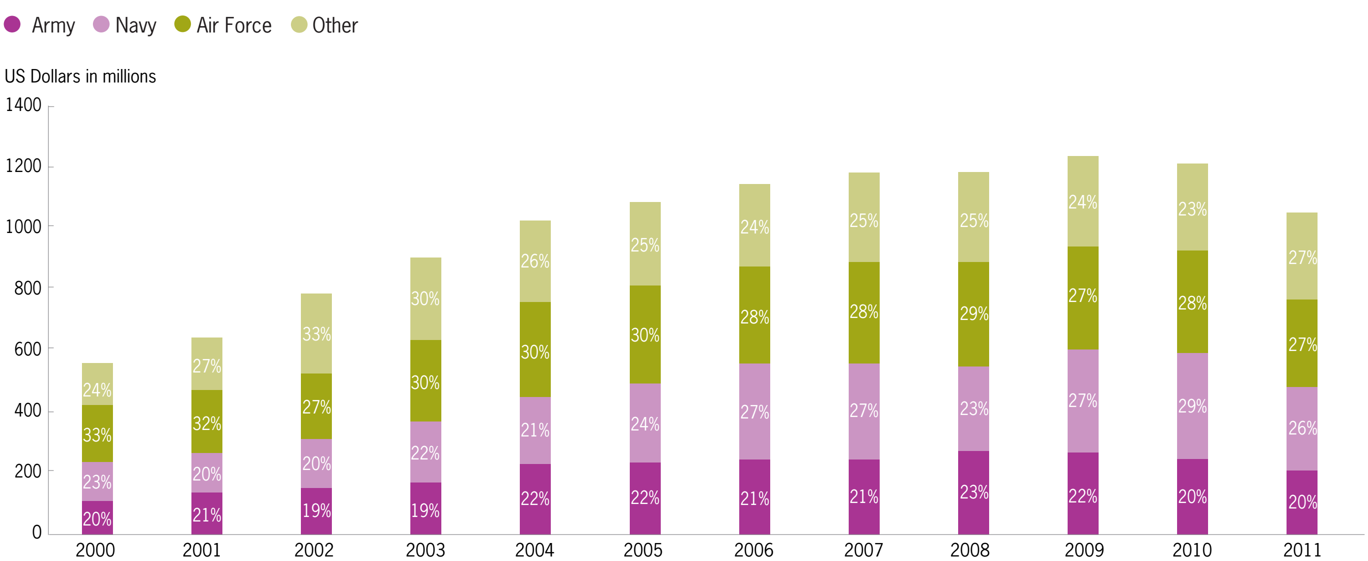
Major acquirers of SBIR-funded businesses (2006–2012)

Number of SBIR firms bought by each company

Defense technology		**Prime Defense**	
L-3 Communications	8	Raytheon	6
Ultra Electronics	3	Lockheed Martin	6
API Technologies	3	Boeing	5
Rockwell Collins	3	BAE Systems	3
ManTech	3	Safran	3
CAE	2	General Dynamics	2
Thales	2	Finmeccanica	2
Components		**Government IT**	
Teledyne	4	SAIC	6
3M	3	QinetiQ	3
Textron	3	MacDonald, Dettwiler	3
Moog	2	CACI	2

Sources: DoD SBIR filing and company press releases, certain financial information provided by S&P Capital IQ.

Department of Defense: SBIR annual budget (2000–2011)



Source: Department of Defense SBIR filings.

The operating environment

Aerospace market outlook:

A 2-speed industry takes shape as commercial aircraft sales take off

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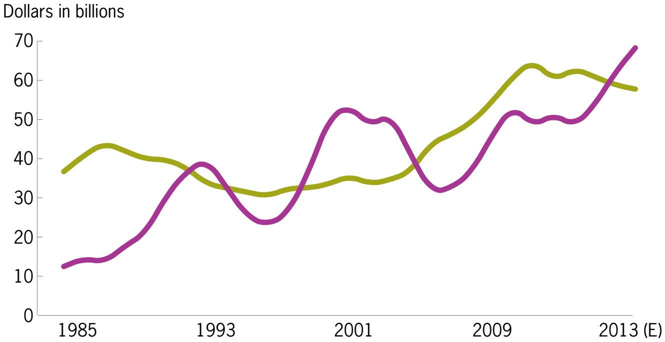
U.S. civil and military aircraft sales (1984–2013)



Source: Aerospace Industries Association (AIA).

The U.S. aerospace industry grew by 3.4% in 2012, despite significant economic and defense spending headwinds, according to the Aerospace Industries Association's (AIA) annual review. Commercial aircraft sector revenues (up 14%) were driven by a 37% rise in commercial aircraft sales by Boeing, as civil aircraft manufacturers ramped up production to satisfy record order books. For the first time in a decade, civil aircraft sales exceeded its military equivalent in 2012 and are expected to increase 11% in 2013, accounting for nearly 55% of all sales in the next 12 months (versus 44% in 2010).

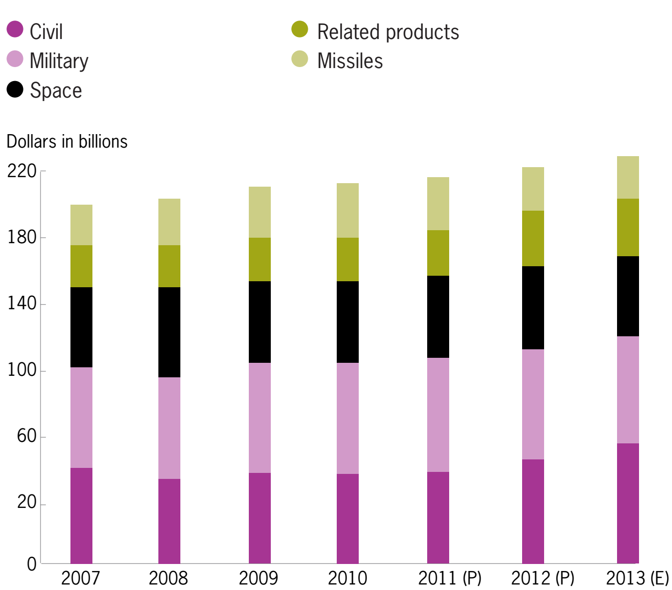
In what for now increasingly looks like a two-speed aerospace industry in the U.S., rapid growth in the commercial aircraft sector is being tempered by contractions in military aircraft and missiles sales as defense cuts start to take effect. U.S. military aircraft revenues declined 3% in 2012 and are expected to drop at least another 2% in 2013. Missile sales decreased 1.5% in 2012, with a further contraction of nearly 6% expected in 2013 as the number of ongoing military operations decline from the peak levels seen at the height of the U.S. military's presence in Afghanistan and Iraq.

Long-term growth prospects for military aircraft sales remain uncertain, with cuts to defense budgets occurring in the U.S. and internationally. DoD spending is expected to be cut by 20% in the next two years — from around $643 billion in 2012 to $512 billion in 2014. In the short-to-medium term, military aircraft manufacturers will look beyond the Pentagon to overseas markets for growth opportunities.

We expect the export of U.S. military aerospace goods to be an area of focus in the coming years. The U.S. aerospace market is already a major net exporter of goods, recording a trade surplus of $63.5 billion in 2012. This trade surplus is expected to continue for the next few years, buoyed by civil aircraft sales and the prospect of arms export reforms. In an effort to boost U.S. arms exports, there is a growing movement in Washington to make significant changes to the U.S. Munitions List (USML).

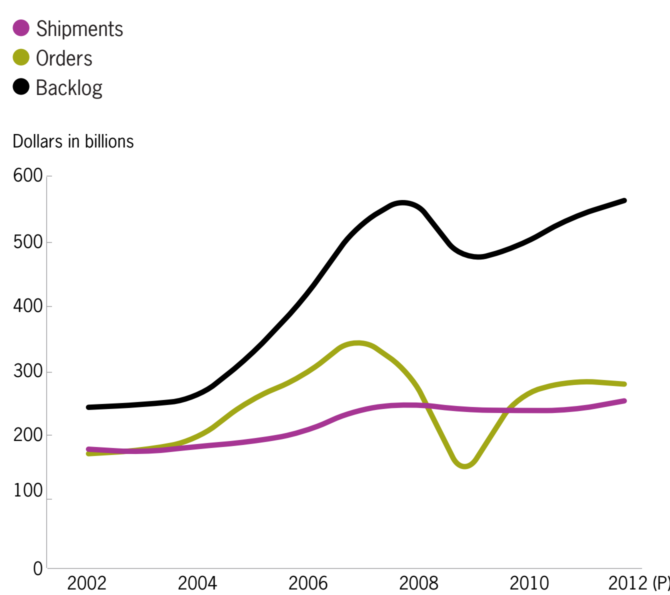
The sale of commercial satellites by U.S. manufacturers currently comes under the USML remit. We expect that commercial satellites and related products will be removed from the USML to help increase exports. Moves are also afoot to relax exports of UAVs/UASs. Manufacturers of UAVs/UASs are keen to avoid a repeat of the strict rules imposed on commercial satellite exports in the 1990s, which resulted in U.S. satellite producers losing their dominant position in the industry.

U.S. aerospace industry sales by segment



Source: Aerospace Industries Association (AIA).

U.S. aerospace, backlog, orders and shipments



Sources: U.S. Census Bureau, *Manufacturers' Shipments, Inventories and Orders*, and Aerospace Industry Association (AIA) estimates.

Aircraft Leasing Companies	Transaction activity in 2012	Total Fleet
GE Capital Aviation Services	No major activity	1,347
ILFC	Acquired by consortium of Chinese investors for $4.23 billion	933
CIT Aerospace	No major activity	286
AerCap	Share buyback from Cerberus Capital for $278 million	271
BBAM	Onex Corp. purchased 50% stake in BBAM for $165 million	251
Aviation Capital Group	Raised $240 million in growth capital	237
Boeing Capital Corporation	No major activity	231
AWAS	No major activity	230
RBS Aviation Capital	Acquired by Sumitomo Mitsui Financial Group for $7.3 billion	213
BOC Aviation	No major activity	151
Macquarie Airfinance	No major activity	140
Aircastle	Share buyback from Fortress Investment Capital	136
Total		**4,426**

Sources: SEC filings, S&P Capital IQ and company press releases.

Sales in the space industry were flat in 2012 and are expected to increase slightly by 2.6% in 2013 as they face a number of threats to future growth. Sequestration (deferred to March 1, 2013) remains the biggest threat to the NASA budget, which faces spending cuts of $1.5 billion in 2013.

Aerospace backlog levels rose by 5% in 2012 to $527 billion. The volume of shipments also increased (8%) to $216 billion. Total U.S. aerospace orders declined slightly to $242 billion.

Aircraft leasing companies are positioning themselves for growth as commercial airlines increasingly depend on the industry to provide alternative financing for deliveries of fuel-efficient planes. According to Fitch Ratings, leased aircraft account for 35% of the total jet market, up from 25% in 2000. As mentioned in the MRO section of this report, high-profile investments involving financial institutions dominated the aircraft leasing industry in 2012.

Half of the top 12 aircraft leasing companies were involved in transaction activity, as illustrated by the accompanying table. The industry could, however, be susceptible to possible threats, which would include a fall in demand leading to surplus planes; lower fuel prices resulting in airlines slowing their transition to fuel-efficient aircraft; higher interest rates driving capital to alternative investments; or an erosion in confidence reducing the sizable capital inflows required to support growth. Ultimately, shifts in plane purchases by leasing companies could have sizable knock-on effects for OEMs and their suppliers.

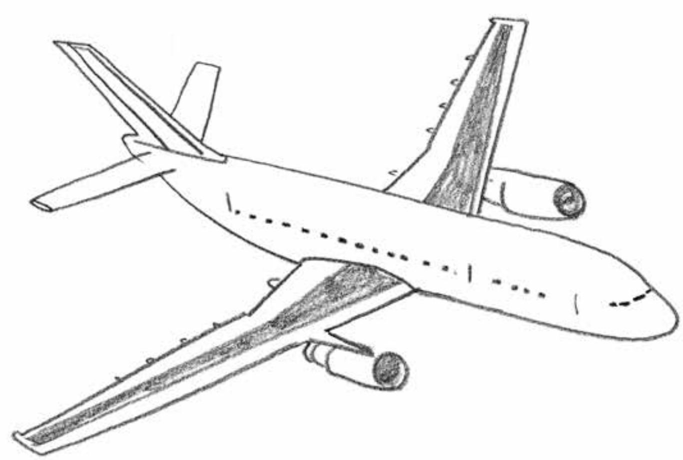
Aerospace outlook

The continuing battle to be the world's largest aircraft manufacturer has heated up. Airbus has been the largest aircraft manufacturer since 2003, but Boeing took back the No. 1 position in 2012. Boeing delivered 601 planes (versus 580 deliveries by Airbus) boosted by higher production rates. The introduction of the newly overhauled 737 Max accounted for the majority of Boeing's 1,203 new orders during the year, nearly double the orders recorded by Airbus. This reverses the trend of the previous year, when Airbus recorded more than 1,400 orders as it released the single-aisle A320neo.

Long-term industry reports, Boeing's Current Market Outlook 2012–2031 and Airbus' Global Market Forecast 2012–2031: Navigating The Future, agree that world passenger traffic growth will continue its historic growth at an average annual rate of 5% for the next 20 years. Boeing believes that long-term demand for new airplanes will total 34,000 units from 2012 to 2031, valuing the market at $4.5 trillion. Airbus anticipates demand will be 17% lower over the same period, with about 28,200 new aircraft needed for a total market value of around $4 trillion. The main difference between the two aviation manufacturing giants' outlooks centers on the composition of single-aisle and large aircraft required for the next two decades.

Single-aisle airplanes will account for the majority of new deliveries in the industry. Boeing predicts 23,240 (68% of total demand) new deliveries of this model from 2012 to 2031. Airbus also expects single-aisle aircraft will dominate the market, however, it believes 19,520 units will be delivered, a difference of 16%. Both companies agree that the Asia-Pacific region will lead demand for single-aisle planes, accounting for around a third of new deliveries. Twin-aisle airplanes continue to be the most profitable market segment for the airline manufacturers. Boeing and Airbus believe twin-aisle planes will account for around 45% of total market value even though they will represent just 25% of deliveries over the next 20 years.

There is a significant difference of opinion regarding very large aircraft (VLA) orders. Airbus maintains there will be considerably more long-haul travelers, resulting in 1,710 new deliveries. Boeing believes the number of VLAs ordered will be less than half of Airbus' estimate, with 790 deliveries in the same period. Airbus anticipates more VLAs will be needed due to increased urbanization (accounting for 60% of the world's



population in 2030). Further urbanization, Airbus argues, will drive VLA orders as higher economic growth leads to increased demand for international air travel, especially in emerging economies. While Boeing agrees that increased globalization will lead to more air travel, it believes rising fuel costs over the next 20 years will motivate airlines to operate the most-efficient aircraft, resulting in more modest increases in plane size. Consequently, Boeing believes airlines will opt for twin-aisle airplanes over VLAs to accommodate long-distance international travel.

China's state-owned commercial jetliner, Commercial Aircraft Corporation of China (COMAC), faces operational delays to its breakthrough model, the C919. The aircraft is supposed to compete directly with Boeing and Airbus in the 150-plus passenger jet segment and is widely expected to be cheaper than rival models because of lower labor costs. Boeing and Airbus have already started to respond to this threat by consolidating supply chains and improving production rates ahead of the C919's entry to the market. The first deliveries of the C919 are expected in 2016, but delays in the certification of its regional airliner, the ARJ21, are expected to have consequences for completing the larger airliner on time. In the meantime, orders for the C919 continue, with 380 confirmed at the end of 2012. This order backlog consists primarily of Chinese airlines and leasing companies with 20 orders from GE's aircraft leasing division — one of the few non-Chinese bookings.

China has made significant inroads in its fighter aircraft program in the past 12 months. In late 2012, the Chinese government successfully tested its new stealth fighter, the J-31. This comes after the well-publicized maiden flight of its first stealth fighter, the J-20, in early 2011. It appears likely that both the J-20 (similar to the F-22) and the J-31 (similar to the U.S. F-35 JSF) will be developed, making China the second country after the U.S. to develop two stealth fighter programs. According to industry experts, both the J-20 and J-31 are still a number

Airbus has been the largest aircraft manufacturer since 2003, but Boeing took back the No. 1 position in 2012.

of years away from final production, as the Chinese defense industry faces significant technological barriers, including the production of reliable high-performance jet engines. Given China's rapid military developments and the U.S. military's strategic shift to the Asia-Pacific region, there may be calls to increase military aircraft spending. The F-35 JSF continues testing, with 41 planes delivered and another 60 planes expected over the next two years. The DoD expects to have acquired 365 planes by the time flight tests end in 2017. The F-35 program is forecast to deliver 2,443 aircraft by 2040 at a cost of around $400 billion, making it the most expensive weapons system in military history.

Twin-aisle airplanes continue to be the most profitable market segment for the airline manufacturing giants, accounting for around 45% of total market value, even though they represent just 25% of expected deliveries over the next 20 years.

Chinese acquisition efforts in the United States are set to continue after the high-profile purchase of AIG's aircraft leasing company, ILFC, by a group of Chinese investors for $4.23 billion. This follows previous M&A transactions by Chinese investors, including the purchase of small aircraft developers Cirrus Aircraft for $210 million in 2011 and Teledyne's sale of general aviation engine manufacturer Continental Motors for $186 million in 2010. Chinese-owned Superior Aviation Beijing was also involved in a high-profile but unsuccessful attempt to acquire U.S.-based company Hawker Beechcraft from creditors for $1.79 billion in 2012. The U.S. government remains highly sensitive to transactions that may involve foreign ownership of U.S. defense businesses.

Defense outlook:
2013 and beyond

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Vice Adm. Lou Crenshaw is a principal with Grant Thornton LLP and the Aerospace and Defense practice leader. He retired from the U.S. Navy in 2007 after more than 30 years of service to his country. Crenshaw is a graduate of the U.S. Naval Academy and a fellow in the National Academy of Public Administration, which was chartered by Congress as an independent, nonprofit coalition of top public management and organizational leaders created to help tackle the nation's most critical and complex challenges. Prior to joining Grant Thornton, Crenshaw was the senior resource and requirements manager for the U.S. Navy, where he was responsible for overseeing an annual budget of $130 billion.

The DoD budget declined by around 7% during the year. This is in line with plans to cut $480 billion in defense spending over the next 10 years.

It's been a wild ride for the defense budget over the past several years. In 2011, my predictions on the DoD budget were all about uncertainty. There was no clarity of the overall budget direction of the department and funding was subject to the whims of an endless progression of continuing resolutions. In contrast to 2011, last year's budget outlook was all about certainty. The DoD's funding was in place and spending levels were relatively stable. As the year wore on, however, more and more attention was focused on the impact of the Budget Control Act of 2011 and the failure of the Joint Select Committee on Deficit Reduction (Super Committee) to reach a suitable agreement on deficit reduction.

U.S. overseas arms deals

Source: Congressional research.

For most of 2012, the DoD maintained that no planning was under way to deal with the threat of sequestration and the $480 billion in additional cuts to be levied against the defense budget if Congress failed to put a fix in place. As FY 2012 ended (September 2012), Congress had yet to send a defense authorization or appropriations bill to the president for signature, and the DoD began execution of the Fiscal Year 2013 Continuing Resolution. While this analysis is focused on defense-related issues, the fate of a large portion of the aerospace industry is shaped by defense spending. Given the prospect of decreased defense spending in 2012, many in the aerospace industry looked to the commercial sector and overseas markets to offset the expected decrease. In general, this has proved to be an effective strategy given the moderately increased activity in commercial aerospace. Overseas markets also have the potential to develop substantially due in large measure to the provisions of the defense strategy that stress Foreign Military Sales (FMS) to our partners. The data on the arms deals the United States has brokered with foreign countries show a significant upturn in 2011, and as of mid-2012 sales had already hit $50 billion, according to the U.S. State Department. Expect this trend to continue into the future.

A review of the bidding

As of January 2013, several key developments had taken place:

- On Sept. 28, 2012, the President signed a six-month continuing resolution (CR) that funded the federal government through March 27, 2013.

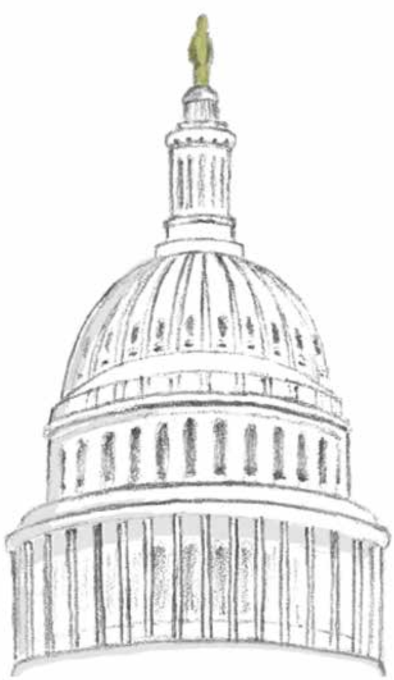
- Around the beginning of December, the DoD finally acknowledged that planning was under way for dealing with the effects of sequestration. This acknowledgment reflected the practical mood throughout Washington that the prospects of a grand bargain to fix sequestration were rapidly fading.

- On Jan. 2, 2013, Congress passed the American Taxpayer Relief Act of 2012, which included provisions for the delay of implementation of sequestration until March 1, 2013. As a result of the extension, the $63 billion in cuts for FY 2013 the DoD was facing under sequestration was reduced to $45 billion, but with only about seven months to implement. An important wrinkle to consider is the lack of discretion the DoD will have under sequestration. Under the guidance sent out by the Office of Management and Budget, each line item in the budget will be decremented by roughly 10%. In application, this means that some programs will become unexecutable — you can't buy 90% of a nuclear submarine.

The DoD has reacted to budgetary challenges by protecting uniformed personnel programs and initiatives supporting the new defense strategy that shifts U.S. military focus to the Asia-Pacific region.

- Also on Jan. 2, 2013, the president signed the National Defense Authorization Act for Fiscal Year 2013, which authorized the expenditure of $633 billion for 2013. This law is mainly used to set policy, authorize weapons system procurement, and mandate end strength numbers for the active and reserve forces; it does not allow funds to be spent. The legal authority to obligate and expend funds must come from either a CR or an appropriations bill.

- On Jan. 10, 2013, Deputy Secretary of Defense Ashton Carter sent a memorandum to the services and defense agencies entitled, "Handling Budgetary Uncertainty in Fiscal Year 2013," directing immediate spending constraints in order to deal with the potential funding cuts associated with sequestration. Carter also provided some policy guidelines for use in developing longer-range budget plans.



Planning for sequestration

In his memorandum of Jan. 10, 2013, Deputy Secretary Carter provided some key guidance on how the DoD was to plan for life under sequestration. Regardless of the outcome of the issues involved in debt ceiling negotiations or sequestration, his guidance offered some insights into how the DoD plans to allocate its remaining resources in FY 2013 and beyond. The memo gave the following long-term planning guidance:

- Exempt military personnel funding from sequestration
- Fully protect wartime funding
- Fully protect Wounded Warrior programs
- To the extent feasible, protect family-related programs
- To the extent feasible, protect programs most closely associated with the new defense strategy
- Reduce the civilian workforce with a variety of options, including hiring freezes and furloughs of up to 30 days
- To the extent feasible, protect funding associated with readiness; make cuts focused on later-deploying units
- Protect investment funded in Overseas Contingency Operations (OCO)
- Take prudent steps to minimize disruption and added costs by avoiding penalties associated with potential contract cancellations

Several immediate action items directed by the deputy secretary will also have a significant impact on certain government vendors:

- Immediate reduction in base operating funding, including the curtailment of facilities maintenance, restoration and modernization
- Cancellation of third- and fourth-quarter maintenance availabilities and aviation and ground depot-level maintenance activities by Feb. 15, 2013
- Curtail administrative expenses
- Review contracts for possible cost savings

The impact on the vendors that supply parts and specialized labor to support the maintenance and upkeep of ships, airplanes and vehicles will be significant and lasting. Cancellation of the last half of the year's maintenance activities will idle many repair facilities and will be difficult to undo. In addition, defense contractors can expect increased contract reviews by contract officers with a focus on performance and ways to reduce contract obligations and limit the exercise of contract options. As an aside, there are some in the industry who feel that canceling third- and fourth-quarter maintenance was intended as a shock and awe tactic to spur Congress into action, and that it was likely to be reversed. My sense is that this is not the case and genuinely reflects the difficult financial position of the DoD regarding the O&M accounts.

2013 budget in flux

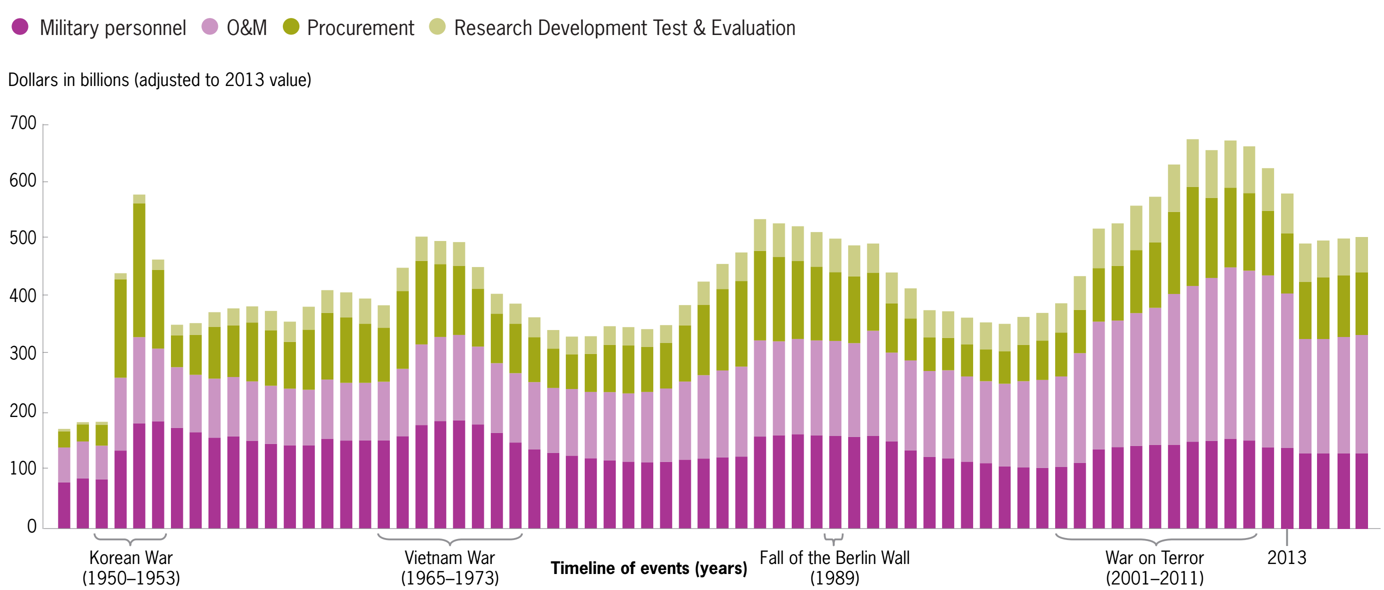
The National Defense Authorization Act for Fiscal Year 2013 authorized $633 billion in defense spending, including $88.5 billion in OCO funds. Currently, DoD funding is through a CR that expires on March 27, 2013. The CR funding was slightly above the president's 2013 budget, and therefore there was not a significant decrease in spending for the first half of 2013 despite the threat of sequestration. In fact, the opposite occurred, especially in the O&M accounts where the unspoken tactic was to spend it while you have it instead of saving for a rainy day. While is it impossible to predict the outcome of the current congressional debates related to the U.S. debt ceiling, sequestration and the CR, it is certain that there will be a significant slowdown in spending. The American Taxpayer Relief Act of 2012 delayed the onset of sequestration to March 1, 2013, and adjusted the potential sequestration reduction from $62 billion to $45 billion for the rest of 2013. That number defines the upper limit of impact to the DoD budget. Even if a deal is reached on sequestration, the general feeling around the Beltway is that the DoD budget will be reduced by $150 billion–$250 billion over 10 years. Given those figures, it is possible that the remaining 2013 budget could be reduced by as little as $15 billion. For planning, I would expect to see a figure closer to the $45 billion reduction, but with more discretion on where to make the cuts.

As of January 2013, the DoD was already overspending in the O&M accounts to the tune of several billion dollars. Given that approximately one-third of the DoD budget (personnel) was deemed off-limits, we can expect the most significant cuts to be felt in the remaining two-thirds of the budget, namely procurement and O&M. The initial impact to the O&M accounts is known based on Deputy Secretary Carter's guidance to cancel all third- and fourth-quarter depot-level maintenance. However, the industry should expect further cuts in the O&M accounts on the operations side, including civilian personnel furloughs and reductions to contracts and the people supporting them. Procurement accounts that are performing poorly will be most at risk, associated with the "old" strategy, as well as those that can be delayed without major impact (typically modernization and service-life extension projects).

Spending trends

The chart reflects the DoD trends since the Korean War, adjusted to 2013 dollars for comparison. The significant drop in O&M funding after 2013 occurs because OCO funds have not been included. Given the current timeline for force withdrawal from Afghanistan, the effects of OCO will have less impact on the O&M line. As mentioned earlier, there are too many unknowns to make an accurate prediction of what will happen to the DoD budget. However, given the guidance on planning for 2013 and beyond, and assuming a solution to sequestration provides for around $25 billion–$30 billion per year in cuts, it seems reasonable to assume that the net effect of phasing out of OCO funding and the implementation of sequestration cuts will result in funding as reflected in the chart. If there is no fix to sequestration, the numbers will get larger, with most of the cuts in O&M and procurement spending.

Department of Defense Total Obligational Authority by title (1948–2017)



Source: Department of Defense.

The new defense strategy and the budget

Key to Deputy Secretary Carter's guidance for dealing with the 2013 budget is the focus on protecting funding for uniformed personnel and those programs "most closely associated with the new defense strategy." It is important that those in the defense industry understand the relevant business impacts of the "new defense strategy." The strategy is outlined in a document entitled, *Defense Budget Priorities and Choices*, released by the DoD in January 2012. The areas that are most relevant to the defense industry are:

- **Investments toward the Asia-Pacific and Middle East regions.** These investments would generally be infrastructure and supply chain related in order to support the shift of U.S. forces from the east coast, Atlantic and Europe. Examples include increased spending in parts and bases, which support operations in the Asia-Pacific region; shipping agreements with companies active in the region; and construction of overseas facilities intended to support forward-deployed forces.

- **Investments in advanced technology capabilities** needed for the future with an emphasis on addressing anti-access threats. Most notable in this category are Special Operations forces, unmanned air systems, sea-based unmanned platforms and advance ISR systems. Clear winners in this area will be anything related to supporting special operations, MRO of unmanned systems and naval systems in general. Companies that are producing goods and services related to the old defense strategy (i.e., Cold War, post-Cold War) can expect significant cuts in the demand for their products.

- **Cyberoperations** was one of the few areas that experienced a net growth in funding in 2012, and the trend continues in 2013. The cybermission area continues to be a critical war-fighting capability desired by the DoD, and investment levels will be sustained in the near term. There are a large number of smaller companies in this marketplace and robust M&A activity will be the order of the day as companies seek to readjust their portfolios to embrace this promising market segment.

- **Other capability enhancements.** Several other mission areas will see continued investment and will receive priority above old strategic systems. Power projection systems, including new bombers, continued aircraft carrier production, enhanced weapons (cruise missiles, for example) and intelligence systems will most likely see some cuts, but not to a significant degree as the DoD seeks to retain a robust power projection capability. Certain missile defense capabilities will also be protected, especially those directly supporting homeland defense.

- **Consolidation of medical command.** There is a proposal under evaluation that would create a new Defense Health Agency, consolidating all aspects of health care, including base operations, infrastructure and supply chain issues. This will cause those vendors in the military health care domain to rethink their market strategies.

The 3 R's

All things considered, the defense business environment will be a challenging one for industry. It is clear that budgets will be shrinking, regardless of the outcomes of several key issues facing the country. It is only a question of degree. The DoD has offered some hints — some subtle and some not so subtle — about where it intends to spend its increasingly limited resources. Agile, dynamic companies will see this environment as one ripe with possibilities, not only in terms of selling goods and services to the DoD, but also in the business opportunities presented by smart acquisitions and divestitures. When the dust settles, there will be three themes within the defense industry and federal agencies in general: regrets, reductions and rethinking (the 3 R's).

Regrets:

- Short-term efforts to save money prior to FY 2013 did not provide the savings necessary to deal with the magnitude of cuts that came in the end.
- Planning for sequestration was delayed in hopes of a grand bargain. When planning did begin, there were few options available.
- Saving money by awarding contracts on a lowest-cost, technically acceptable basis led to a focus on price, thereby potentially promoting a culture of mediocrity.
- Shortening contract terms, thereby putting unreasonable demands on already oversubscribed contracting officers, and increasing the bid and proposal costs of vendors.

Reductions:

- Little corporate knowledge on how to plan for reductions in funding.
- Personnel pay freezes, furloughs and reductions will drive better performers out of the DoD, exacerbating problems with an aging workforce.
- Reductions in training funds will bump against the demand for a more professional workforce and increasing professional certification requirements.
- Reductions in maintenance and infrastructure funding, building a large bow wave of funding requirements in 2014.
- More focus on how to reduce government costs by limiting vendor profits.

Rethinking:

- The current defense strategy must be rethought to reflect affordability.
- Rethinking entitlements will become an obsession and distract from larger issues.
- Looking to the past to deal with the future will bring a new mindset to the budget process.
- Reprioritizing portfolios as industry players seek to add new defense strategy capabilities and downplay activities that are seen as Cold War-related.

The new normal

The defense sector will be a challenging one for the government and private sector, with no one exempt from the tyranny of the budget ax. But the future is not without opportunities for those dynamic companies with an eye toward growth, even in tough times. Those dynamic companies will profit by reacting early to the signals the DoD has sent, and will focus on new and different ways of executing strategy and delivering complementary capabilities and services. The new normal will result in at least half a decade of turmoil in the defense industry, as large primes seek to recraft their market positions and the second- and third-tier suppliers hang on for the ride. Above all else, the U.S. defense market is still the largest on Earth, and a budget north of $500 billion, coupled with robust overseas sales, will leave enough for a prosperous future.

European update:

A view from 'across the pond'

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EADS-BAE: The deal that never was

The biggest news in 2012 for the European aerospace and defense industry was a nonevent. The abandoned merger of Europe's two largest aerospace/defense businesses serves to illustrate some of the challenges facing an industry in desperate need of consolidation. According to *Jane's Defense & Security News*, Europe's 3,376 companies with exposure to the defense sector generate an average revenue of $235,000 per employee, compared to an average of $309,000 per employee for a similar number of U.S. companies. Europe's addressable defense market of $66 billion (in 2011) is less than one-third the size of the U.S. market — and shrinking. The imperative to merge has never been stronger. Similarly, fragmentation in the civil aviation market has left primes and their tier-one suppliers increasingly concerned about their dependence on numerous small companies for critical components. Furthermore, a lack of scale results in inefficient processes and prevents many companies from investing in the R&D necessary to keep pace with larger competitors. Everyone knows that consolidation is required at all tiers of the European aerospace and defense industry. Making it happen is another matter.

As a strategic transaction, the rationale for combining the UK's BAE Systems and French-German/Spanish EADS was compelling:

- BAE's 95% exposure to defense and security combined with EADS' 75% commercial aviation bias would have resulted in an approximately equal split between the two sectors.
- The geographic spread of revenue would have been much more evenly balanced by combining BAE's strength in the coveted North American defense market with EADS' European bias.
- The merger would have provided opportunities to combine the two organizations' investments and capabilities in high-growth segments, such as unmanned systems and cybersecurity/cyberwarfare.
- The combined business would have been the world's largest defense company, giving it the reach and depth to bid on major defense contracts worldwide.

Although there were questions about the economic benefits of the combination, most notably from BAE's largest shareholder, Invesco Perpetual, what ultimately killed the deal was the insurmountable task of navigating the complex European political landscape. The combined stake in EADS held by the French, German and Spanish governments amounted to more than 50%, while the UK government held a golden share in BAE Systems, effectively allowing it to veto a merger. The support of the French, German and UK governments was critical to the success of the deal. While none of the governments involved indicated that they would not ultimately support the merger, each identified concerns and stipulations as preconditions to their support. In particular, the UK government indicated that it would require maximum 9% direct shareholdings in the combined entity for each of the French and German governments in order to remove their ability to exert significant influence or control over the company. The UK government was also known to be seeking guarantees on defense sovereignty matters. Notwithstanding their different stances on certain matters, the British and French governments appeared to be in favor of the deal. But it was Germany — specifically Chancellor Angela Merkel — that ultimately killed the merger. Putting together a deal to combine Europe's largest aerospace and defense organizations could have been achieved if not for political interference. However, even if the intra-European differences could have been resolved, there were potential complications related to BAE's U.S. interests and how they would feature in the enlarged group.

The failure of the BAE-EADS combination illustrates the challenges to achieving the economies of scale essential to a strong European defense sector. Any transformational consolidation activity is therefore likely to remain within national borders. It is, however, possible that we may see further assets pooled into joint venture vehicles owned by contributing organizations. The effect is to consolidate operations at the systems level, thus achieving many of the benefits of a merger. This was how the successful missile venture MBDA was formed. Having flirted in 2012 with the most audacious merger the industry has seen in decades, Europe's defense sector will continue to compromise the benefits of full-blown consolidation in order to protect national interests.

Commercial aerospace: Let the good times roll

In the commercial aerospace world, Europe's subsystem and component manufacturers continue to prosper, as Airbus and its aircraft engine peers Rolls-Royce and GE-Snecma seek to increase production rates. The massive order backlogs held by Airbus and Boeing are putting pressure on suppliers of all sizes to increase their output. As we have been saying for several years, the greatest challenge for component suppliers — many of which are producing single-source components — is access to finance for capital expenditures and working capital investments. Recently, we have seen a noticeable improvement in the availability of asset-based lending, but this has been restricted to receivables financing in most cases, leaving a significant inventory funding requirement.

Private equity has been behind much of the aerospace M&A activity in recent years, which has resulted in many of the larger independently owned assets being held within maturing funds. Examples of UK deals, which represent the majority of such activities, include the following:

- AIM Aviation (composites, interiors) — Lloyds TSB Development Capital
- Airline Services Limited — Lloyds TSB Development Capital
- Bromford Industries (machined components) — Darwin Private Equity
- Doncasters — (cast, forged, machined components) — Dubai International Capital
- Dunlop Aircraft Tyres (aircraft tires) — AAC Capital Partners
- Firth Rixson (forged components) — Oak Hill Capital Partners
- Gardner Aerospace (machined components) — Better Capital
- MB Aerospace (legacy component supply chain management) — Lloyds TSB Development Capital
- Mettis Aerospace (forged components) — Chamonix Private Equity
- Pattonair (OEM supply chain management) — Exponent Private Equity
- SHIMTECH Industries (airframe components) — Bridgepoint Development Capital

We expect a number of these investments to be realized by their private equity owners within the next couple of years, as the commercial aerospace cycle approaches its peak. Most of these companies have a strong position on either Airbus or Rolls-Royce platforms, and therefore represent an interesting strategic proposition to U.S. corporations with a strong Boeing/GE/P&W bias.

This time last year, we commented on the desire of Europe's OEMs, most notably Airbus and Rolls-Royce, to see the consolidation of their respective supplier bases in order to realize the economic benefits of economies of scale and mitigate the risks inherent in a fragmented supply chain. The rationale remains compelling and the desire is just as strong. However, there have been very few strategic acquisitions in 2012 that would indicate material progress toward this objective. Perhaps the most notable supply chain consolidation deal of the year was Gardner Aerospace's acquisition of French aerospace Group Aria SAS. The combination will result in a group with 2012 sales in excess of $160 million and more than 1,300 employees, making Gardner Aerospace Holdings one of Europe's largest independent suppliers of aerospace detail parts. The enlarged company is well-positioned to benefit from the A350 program. Avingtrans plc was also active in 2012, acquiring Aerotech Tubes and certain assets from PFW to facilitate the group's growth ambitions. Shortly after these deals were completed, Avingtrans announced that its Sigma Precision Components business had secured a 10-year Long Term Agreement with Rolls-Royce for $130 million.

There were several notable European aftermarket deals in 2012, including LDC's acquisition of Airline Services and the acquisition of 60% of TES Aviation by Mitsubishi Corporation and Development Bank of Japan. These transactions reflect the appetites of both strategic and financial investors for exposure to the attractive growth characteristics of the global airline sector. We expect this trend to continue with an emphasis on emerging markets' activity.

Federal regulations:

Be prepared for what lies ahead

Julian Rosenberg
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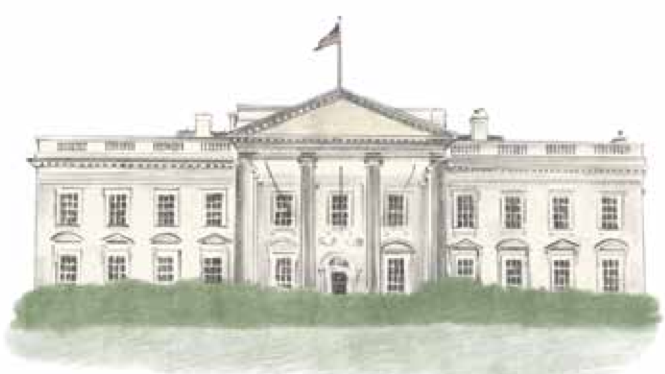
Grant Thornton LLP



Be prepared. Words many of us have heard all our lives. This is good advice for government contractors (GC). The GC environment is more uncertain than we've experienced in a very long time (maybe even greater than the 20%-plus interest rates of the late 1970s). Contracts are being terminated or not renewed, options are not being exercised, and small businesses are being forced to comply with regulations that require them to hire more support personnel. We're seeing small contractors being bought by large contractors. Many contractors are trying to diversify into the areas that they think are up and coming and will be more in demand by the feds. And the country's economic ills continue to be blamed on federal employees and contractors. Oh, and by the way, you make too much money.

With all the budget issues, sequestration, Afghanistan, Africa and the Middle East, it's no wonder GCs are nervous. Now the government is looking to recover money from contractors. Enter the Defense Contract Audit Agency (DCAA) and the Defense Contract Management Agency (DCMA). These organizations have always been entrusted to assure the government pays a fair and reasonable price for goods and services, and contractors have always tried to comply. But things seem different now — more aggressive, a little more accusatory.

Business systems

Whining about the auditor who lacks experience or the contracting officer who left and never informed his/her replacement of the agreements you thought were in place won't alleviate the issues. The only way to survive is to be prepared. How, you say, and prepared for what? The DCAA and DCMA are using compliance with business systems as their weapons. I recently consulted with a client whose accounting system had been deemed inadequate by the DCAA, and a report was issued and sent to all the company's customers. The problem was the client was a subcontractor and had no prime contracts. The company fixed the issues and tried to get the DCAA back to review the accounting system again. In the meantime, it was assigned to a different branch office, and the branch manager retired soon after the reassignment. Remember, as a subcontractor, the company had no legal relationship with the DCAA. After the smoke cleared, the new branch manager admitted he had no idea why the original audit had been conducted or why the report had ever been issued. Still, the DCAA insisted there was nothing the agency could do to get the report off the street or return to audit the corrective actions since the contractor was not a prime.

There are six systems: accounting; cost estimating; earned value management (EVMS); material management and accounting (MMAS); property control; and purchasing, down from nine, with each having a series of criteria that must be met for the system to be considered an adequate system. The regulations were revised because there was too much confusion and inconsistency. The intention is to improve the effectiveness of government oversight. This should result in reduced costs from the contractor to the government. The new regulations allow the contracting officer to withhold payment if a "significant deficiency" is found. According to the Defense Federal Acquisition Regulation Supplement (DFARS) and Procedures, Guidance and Information (PGI), a significant deficiency is a shortcoming in the system that materially affects the ability of government officials to rely upon information produced by the system needed for management purposes. A system is deficient if it fails to meet one or more systems' criteria.

Criteria are listed in *DFARS 242.75 — Contractor Accounting Systems and Related Controls*. Not having an adequate system can also lead to a contractor not getting additional task orders or contract awards. All contractors should be prepared by reviewing the systems' criteria and performing a gap analysis between where their systems are and where they need to be to be deemed adequate. Then they should develop a corrective action plan and follow it.

The GC environment is more uncertain than we've experienced in a very long time, maybe even greater than 20%-plus interest rates of the late 1970s.

Mergers and acquisitions

All indications are that M&A activity will continue. As the feds pare down projects, some smaller companies may find it easier to be bought or to merge than to move in different markets than they have in the past. Also, I keep hearing about companies with a lot of cash on hand wanting to get into the IT and cybersecurity spaces. If you are thinking about being acquired, you need to be prepared. Due diligence is a serious endeavor taken on by acquiring companies. When the company being acquired is a government contractor, this throws a whole new wrinkle into the mix.

During due diligence, we look at contract and task order documents, modifications, funding letters, DCAA reports, incurred cost submissions, and all correspondence with Authorized Contracting Officers. And this is just to start. On a recent engagement, I asked for documents that the seller's CFO refused to provide. No reason, he just said no. This was the company's disclosure statement — obviously a document that makes it easier for the buyer to understand how the seller accounts for direct and indirect costs, among other things. Needless to say, I was surprised and was about to report back to the buyer that the seller was withholding key documents. The CFO must have sensed my surprise because he produced the document. It still created a sense of suspicion in the buyer that a key document would not be easily provided. If you don't have the needed documents in full, complete and orderly fashion, it will delay the process, as well as possibly taint the deal. Be prepared by having all documents in a manner that can be easily reviewed.

Compensation

Over the past year or so there have been two court cases that found DCAA methods for determining the reasonableness of executive compensation to be flawed. A decision by the Armed Services Board of Contract Appeals, in a case against J.F. Taylor, concluded that there are "statistical flaws in the government methodology for determining reasonable compensation."

The DCAA has had enough time to address these cases and make changes to their methods. So far, this has not happened. Some speculate that the DCAA is just ignoring these cases and continuing as before. If the DCAA questions the reasonableness of your executives' compensation, you need to be prepared to rebut them. Using appropriate survey data is paramount and having good job descriptions for your executives is essential. Matching surveys and job descriptions are also key. The DCAA is tasked with making sure the government is paying a fair and reasonable price for goods and services. This more often than not results in the agency recommending the lower end of reasonable. Matching surveys with your industry and job descriptions will help make it truly reasonable. The FAR and DCAA guidance on what makes a good survey is vague, confusing and frankly not easy to verify. Some surveys may be better for a specific industry while others concentrate on specific geographic locations.

According to compensation experts, a quality compensation survey should meet the following criteria:

- Conducted by a reputable third-party administrator with compensation expertise
- Apply systematic, reliable survey methodology
- Data should remain confidential
- Survey and responding companies should abide by antitrust laws
- Provide a participant list
- Contain representative peer companies
- Have adequate sample sizes
- Be statistically valid
- Collect individual incumbent data versus average data by job
- Have high-quality job matches (not just title matching)
- Include comprehensive data elements (i.e., base, bonus, total)
- Apply sound compensation methodology and use accepted, consistent compensation definitions
- Exclude self-reported data
- Include relevant data cuts (i.e., geography, size, industry).

Terminations for the convenience of the government

The clause is there in every contract. With the government expected to cut programs, it's possible one of your contracts may be fully or partially terminated for the convenience of the government. FAR Part 49 outlines all the steps to be taken by the government and contractor.

Bottom line — be prepared. If you get a termination notice, stop work and notify your subcontractors and vendors to do the same. Set up a separate project number to accumulate the cost of terminating the contract; many costs that are usually indirect may now be direct for the purpose of the termination. Tally your inventory. For all intents and purposes, your terminated fixed-price contract just became a cost-reimbursable contract. The government wants to make you whole by reimbursing you for the money you've spent and the expenses you have incurred related to shutting down the contract. Your claim must be auditable by the DCAA.

Basic safeguarding of government information

Be prepared. A proposed FAR clause would mandate "basic safeguarding" measures for information "provided by or generated for" the government that "resides on or transits through [contractor] information systems." Required protective measures would include actions and prohibitions regarding public computers, public websites, electronic communications, voice and fax communications, physical and electronic barriers, mobile media, intrusion protection, and subcontractors, including mandatory flow-down clauses. The clause would apply to nearly all federal contracts and orders — including those for commercial items and commercially available off-the-shelf items — when the contractor's information system may contain information provided by or generated for the government. You may already be performing some of these safeguards. Review your policies and procedures and get prepared.

As has been the case forever, contracting with the federal government to sell your services and products is not easy, and in spite of some sentiment, doesn't make everyone wealthy. But if you can understand and comply with the rules and regulations, it's not a bad living — and you can feel good about supporting the needs of our country.

> Due diligence is a serious endeavor taken on by the acquiring companies. When the company being acquired is a government contractor, this throws a whole new wrinkle into the mix.

Highlights from *18th Annual Government Contractor Industry Survey*

Grant Thornton's *18th Annual Government Contractor Industry Survey* presents a wealth of financial and nonfinancial information provided by government contractors across the country. The government contractors that participated in this survey are small, medium and large companies that represent a cross-section of the industry. A summary of the survey information is presented here.

Summary of findings

Revenue from government contracts

During the past year, revenue from government contracts grew for 36% of survey participants, while 26% experienced no significant change and 38% experienced reductions in revenue. This is the first time in many years of our tracking revenue from government contracts that a higher percentage of respondents experienced reductions in revenue from government contracts than those that experienced growth. In addition, the percentage of revenues coming from the federal government for surveyed companies dropped significantly, from 93% to 84%. This fall was concentrated in DoD contracts, which fell from 63% to 47% of firm revenues, while being partially offset by an increase in the share of revenue from other federal agencies. We assume the major reductions in revenue from federal businesses are caused by several factors, including reduced defense expenditures, changing priorities of the current administration, and government in-sourcing programs for which the government recruited contracted employees to become government employees.

Profit before interest and taxes

Profit rates reported by survey participants have plunged, compared to the profit rates reported in the past several surveys. In the 18th annual survey, 60% of respondents reported either no profit or profit in the 1–5% range. This compares to 37% in the 17th annual survey, 50% in the 16th survey, 45% in the 15th survey and 37% in the 14th survey.

Workforce trends

The number of full-time employees has increased among 42% of survey participants and decreased among 32%, a significant decline over the previous year, when 47% had added full-time employees and 26% were reducing their headcount. Turnover was elevated, with 45% of respondents reporting turnover of at least 11%, and the sector as a whole reported a median turnover rate of 8.5%. The median average wage increase for full-time employees over the past year was 3%, consistent with the results in the past two surveys. Median health care costs rose to 9-10% of labor costs from 7-8% in the previous survey.

Ratio of indirect-charging headcount to total headcount and trends in indirect cost rates

The ratio of indirect-charging headcount to total headcount was 12.5% in this year's survey, which continues the slightly upward trend noted in the previous survey. Indirect cost rates as a whole are increasing at 42% of the surveyed companies and decreasing at 17% of the companies, while 41% report no significant change in indirect cost rates. The 17% of respondents reporting decreases in their indirect cost rates is far lower than the 23% reported last year.

Accounting for uncompensated overtime

Sixty percent of companies reported that their exempt personnel work uncompensated overtime, lower than the 65% reported in the 17th annual survey. Seventy-eight percent of survey participants account for uncompensated overtime by computing a diluted hourly rate (compression method) to allocate labor costs to cost objectives. The remaining 22% of participants apply a standard hourly rate (standard/variance method) to the hours reported and record the variance to overhead. In a cost-reimbursable environment, the use of the compression method can result in free hours to the client and diminished profits for the contractor.

Proposal win rates

Survey participants report a 30% win rate on proposals submitted in a competitive environment for new work, which is consistent with win rates reported in prior years. The win rate jumps to 50% when the company was the incumbent on the previous contract for the same work. Companies bidding as a special business unit also reported a jump in the win rate to 50%. The number of companies reporting bid and proposal costs at over 5% revenue nearly doubled to 21%, possibly as a result of increased aggressiveness among companies in anticipation of reductions in contract work.

Out-of-scope work

We asked respondents to rate the effectiveness of their procedures for identifying out-of-scope work. Eighty-two percent of respondents consider their procedures to be very effective or somewhat effective. These results are consistent with prior surveys. Eighty-five percent of surveyed companies report that the government either frequently or occasionally requests that they perform out-of-scope work without a contract modification. Only 16% of respondents report that they always refuse such requests. Such requests by government personnel are not consistent with the government's own procurement regulations, and the frequency of such requests should be a matter of serious concern for government officials.

This is the first time in many years of our tracking revenue from government contracts that a higher percentage of respondents experienced reductions in revenue from government contracts than those that experienced growth.

Earned value management systems

On major programs, the government spends a significant amount of money on program reporting using earned value management systems EVMS. Thirty-one percent of surveyed participants report having contracts that require EVMS. Only 41% of the surveyed companies with EVMS reporting requirements believe that EVMS is a cost-efficient management tool. Further, only 34% of companies with EVMS requirements ever receive meaningful feedback from government personnel with respect to information in the EVMS reports. These results are consistent with previous surveys. A supermajority of 73% indicates that they would not use EVMS if it weren't required by the terms of the contract.

Cost-effectiveness of compliance regulations

We asked companies for their opinions on the cost-effectiveness of the compliance requirements for business ethics and conduct. Forty-one percent believe the compliance program requirements are reasonable and cost-effective, while 59% believe they are excessive and not cost-effective. This assessment is consistent with the results of last year's survey, and measurably higher than those of the previous two surveys, which both reported that 52% of respondents believed the regulations to be reasonable and cost-effective. A full 27% of companies observed violations of the procurement regulations by government employees themselves.

Business systems

Twenty-nine percent of surveyed companies report making improvements to their business systems in order to comply with the government's new standards for acceptable business systems. Thirty-three percent report the government has recently audited their business systems. The consequences of a negative audit result can be far-reaching, going beyond payment withholdings on existing contracts.

Relationship with DCAA auditors and contracting officers

Unfortunately, the majority of surveyed companies have an adverse opinion of the DCAA and its work: 53% believe that the DCAA's audit conclusions are arbitrary and not appropriately referenced to procurement regulations. Further, 60% believe that the DCAA is inflexible and rarely receptive to contractor rebuttals. Participants have a higher regard for contracting officers than they do for the DCAA. Sixty percent of surveyed companies report that contracting officer positions are substantiated with appropriate regulatory reference, and 56% find their contracting officers to be flexible and receptive to contractor rebuttals.

Government efficiency in resolving contract issues

Only 18% of survey participants believe contract issues are resolved efficiently, continuing a trend of year-by-year decline on this question. Eighty-two percent believe that the government is inefficient in dealing with contract issues, and of these, 56% blame the delay on the DCAA, while 26% believe the contracting officer causes the delays. The most frequently challenged cost is executive compensation, with other areas of focus including consultant expenses, legal expenses and labor-charging practices. Despite the significant government effort incurred in investigating contractors' finances, 61% of respondents reported that the questioned costs amounted to less than 1% of their revenue. Consistent with the results of last year's survey, 79% of participants were very or somewhat satisfied with the ultimate resolution of contract issues.

Executive compensation

In cases where a company's executive compensation was challenged by the DCAA, the company's position was sustained 30% of the time, and a reasonable compromise was achieved in another 30% of cases. During 2012, the Armed Services Board of Contract Appeals (ASBCA) decided two cases on executive compensation in which the ASBCA decided in favor of the contractors because of the DCAA's flawed statistical analysis techniques. The arguments presented in support of the contractors' positions mirrored the guidance on executive compensation that has been presented in Grant Thornton's annual surveys for many years.

Mergers and acquisitions

M&A environment

In previous surveys, we have reported that M&A is a favored strategy for exiting the business as a seller or growing the business as a buyer. The number of business combinations in the government contracting industry has accelerated during the past two decades, beginning with the consolidations that occurred in the industry at the end of the Cold War with the former Soviet Union. The increase in the use of IDIQ (indefinite delivery/indefinite quantity) contracts since the procurement streamlining in the 1990s has also contributed to an increase in M&A activity, by forcing companies to work together on large teams and reducing the number of new business opportunities from non-IDIQ orders. Further, the fluctuating value of the dollar has helped make government contractors attractive targets for foreign companies, particularly when the dollar is weak in comparison to other countries' currencies.

We asked companies about their expectations for the M&A environment over the next 12 months. An overwhelming 84% of respondents expect the M&A environment to improve or at least stay the same, while only 16% expect it to worsen. This result is almost identical to last year's survey.

M&A during the past year

Five percent of surveyed companies were involved in M&A during the past year. This is less than half of the 12% reported in last year's survey. Of these M&A transactions, 80% involved the purchase or sale of an entire company, while the remaining 20% involved only specific contracts.

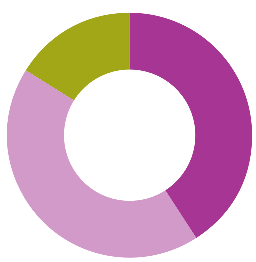
Due diligence

Government contracts carry different risks and uncertainties than those found in commercial businesses; due diligence procedures must be tailored to identify and quantify these unique risks. A history of excellent performance does not guarantee future business, because almost all new contracts for follow-on business must go through a rigorous competitive process that often puts a greater emphasis on price than on past performance. Further, many source selection decisions may be formally protested by disappointed bidders, adding another risk unique to government contracting. Changing government priorities may cause government programs to be reduced or terminated. Government audits performed years after the acquisition may raise significant cost or compliance issues that could diminish revenue and profitability, and in some cases could limit a company's ability to pursue new government contracts.

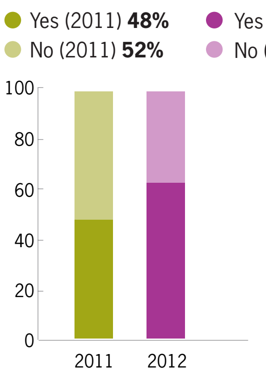
We asked whether companies had walked away from transactions as a result of due diligence; 63% of respondents answered in the affirmative. This is a significant increase over the 48% reported in last year's survey, and a sign of greater caution on the part of buyers.

Expected change in the environment for M&A for the next 12 months

- Improve **41%**
- No Change **43%**
- Worsen **16%**



Walked away from potential acquisition as a result of due diligence



Contract novation

A government contractor cannot assign a contract to another company without government approval. If the company being sold will be dissolved and absorbed into the acquiring company, the buyer and seller may endure a burdensome contract novation process. This process requires the submission of the purchase agreement to the government contracting officer, declarations from both companies' boards of directors, audited financial statements, opinions of legal counsel, evidence that security requirements have been met, and other information.

In our experience with M&A involving government contractors, many companies forgo the novation process and maintain the seller's corporate identity for a period of time after the acquisition. In such cases, the transaction is usually handled as a stock sale, and the seller maintains its corporate identity as a subsidiary or other form of operating segment within the buyer's organization. A frequently used strategy is to phase out the selling company as its contracts conclude and to compete for follow-up work under the buyer's name. This phased approach seems to work well in terms of integrating the operations of the seller and buyer. We have also noted that M&A agreements occasionally include earn-out provisions under which the final price is determined in part by the performance of the seller after the acquisition. Delaying contract novation can be helpful in earn-out situations in order to maintain separate accountability for the two companies during the earn-out period. There may still be legal obligations on the part of the companies involved to at least notify the government of the purchase transaction. Timely disclosure to the government is always a good way to fend off surprises down the road.

Other information in the 18th Annual Survey

The highlights presented are only brief excerpts from the information provided in the full survey. If you wish to participate in next year's survey or would like information about purchasing the full results of the 2012 survey, contact Lou Crenshaw, National Aerospace and Defense Industry practice leader, at 703.837.4430 or lou.crenshaw@us.gt.com.

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