Executive Summary

Industry Overview
Introduction
Market Size
Market Share
Regulatory Environment

Market Trends
Start-ups Threaten Larger Incumbents
Regulatory Uncertainties Overshadow the Segment
The Buzz from Parcel-Toting Drones
The Obsession with Armed Flying Robots
The Lucrative UAV Micro Segment

Applications
Defense
Transport
Infrastructure
Agriculture
Public Safety
Inspections

Market Challenges And Opportunities

Large Players To Watch
AeroVironment Inc (NASDAQ: AVAV)
BAE Systems Plc (LSE: BA)
Elbit Systems Ltd (TLV: ESLT and NASDAQ: ESLT)
Leonardo SPA (BIT: LDO)
General Dynamics (NYSE: GD)
Lockheed Martin Corporation (NYSE: LMT)
Northrop Grumann Corporation (NYSE: NOC)
Safran SA (EPA: SAF)
Thales SA (EPA: HO)
The Boeing Company (NYSE: BA)

Mid Sized Players To Watch
Turkish Aerospace Industries Inc
Aviation Industry Corporation of China (AVIC)
Da-Jiang Innovations (DJI) Science and Technology Co., Ltd
General Atomics Aeronautical Systems Inc (GA-ASI)
Israel Aerospace Industries Ltd

Small Players To Watch
FLIR Systems (NASDAQ: FLIR)
Denel SOC Ltd (Denel Dynamics division)
Xi’an Aisheng (ASN) Technology Group
Aeronautics Ltd
Aurora Flight Sciences (acquired by Boeing)

Key References

Less than a decade ago, few people had heard of drones or Unmanned Aerial Vehicles (UAVs), but today thousands of UAVs fly in the skies globally. Mainly driven by US military demand, the technical potential of UAVs has particularly developed in the last decade. From laboratory concepts to battle-tested proven systems, these improvements are opening new commercial opportunities, creating new markets and driving high growth rates. At the same time safety and security concerns have grown for regulators, legislators, companies and consumers. Despite these concerns and a range of market obstacles, the global market for UAV is forecast to expand and strengthen in the next decade, with growth more intense, especially as the sector develops to new horizons.

The UAV market has traditionally been narrowly focused but it is rapidly diversifying. Given the pace at which technology and the effectiveness of aircraft are improving, and as sensor and automation technologies mature, commercial applications will rapidly grow over the next ten years. The commercial segment of the market will lead the growth of UAVs as regulators around the world ease restrictions and allow the seamless integration of UAVs in daily lives. It presents a multi-billion-dollar market opportunity over the next decade, which mostly remains untapped currently. UAVs will touch everyone from law makers to companies to everyday consumers.
INDUSTRY OVERVIEW

Introduction

Unmanned Aerial Vehicles (UAVs), Unmanned Aerial Systems (UAS) or Remotely Piloted Aircraft (RPA) — the official International Civil Aviation Organization (ICAO) term for such aircraft — are multi-rotor helicopters or planes with no human pilots that are controlled by onboard computers by the remote control of a pilot on the ground. Most commonly known as drones, they have been used since the 1900s, initially by the US military for target practice.

Military applications still dominate the global UAV market, but the achievements of UAVs in military operations have boosted demand for drones in North America, Middle East and the Asia-Pacific. The fast development of the UAV global market place is having a big impact on a range of mainstream industries. Apart from defense, its applications also include environmental management, crisis management, agriculture, policing and crowd monitoring, civil engineering, pollution monitoring, fisheries protection, disaster management, telecommunications maintenance, oil and gas exploration, mineral exploration, mine safety, geophysical surveys and mapping.

The UAV market has traditionally been narrowly focused but it is rapidly diversifying. Given the pace at which technology and the effectiveness of aircraft are improving, and as sensor and automation technologies mature, commercial applications will rapidly grow over the next ten years. According to report by the Teal Group, by 2020 UAV military market will account for 72% of the entire market followed by consumer at 23% and civil at 5%.

Market Size

The UAV sector is set to be the sector with the most dynamic growth in the aerospace industry globally in this decade. According to the Teal Group, global spending on unmanned aerial vehicle (UAV) programs is expected to more than triple over the next decade in military, commercial, and consumer markets. In light of solid growth rates, the Teal Group forecasts global spending will rise from the current estimated US$5.4 billion in 2016 to US$20.3 billion by 2025, with revenues over the period expected to total some US$135 billion. Military UAV R&D could add a further US$26 billion to the total over the same period.

The civil UAS market is expected to grow faster than the military market over the next decade. The worldwide military market for UAS is estimated to grow from US$3.6 billion in 2017 to US$9 billion in 2026, a CAGR of about 11%. Overall, total revenue anticipated to be generated over the next ten years is US$75 billion. The US is expected to account for about 57% of the total military R&D spending and about 31% of military procurement through to 2026. The high level of military R&D spending is forecast to be due to the bigger and higher-value systems procured by the US. The military UAS market growth will be led by unmanned combat aerial vehicles and high altitude long endurance UAVs. The largest market segment over the next decade will be High Altitude Long Endurance UAVs, which will account for a third of the period’s sales.

The worldwide civil UAS market is expected to reach US$11.8 billion by 2026, from US$2.8 billion in 2017. Over the next decade, the civil market will grow at a CAGR of 15.4% and will generate US$73.5 billion in revenues. Civil UAS promises to be the most dynamic growth sector with commercial segment expected to lead the growth. The worldwide commercial UAS market is projected to grow from US$512 million in 2017 to US$6.5 billion in 2026. Construction, agriculture, real estate photography are among the sectors driving the commercial UAS market.

In 2016, Americas accounted for about 55% of the total UAV sector globally, followed by EMEA at 27% and Asia at 18%. The emergence of the commercial UAS market, growing demand from governments to better patrol borders, and continued consumer drone growth all promise to drive more than a quadrupling of the non-military market over the next decade.
The world UAV sector is highly concentrated with a small number of companies holding most of the market share compared to other industries. Our estimates show there are more than 500 companies globally, with more than 200 commercial UAV companies, while the other 300 develop UAV for the military industry. AeroVironment, BAE Systems, Elbit Systems, Finmeccanica, General Dynamics, Lockheed Martin, Navmar Applied Sciences, Northrop Grumman, Safran, Textron, Thales, Boeing, Tital Aerospace, TAI, AIA and Aviation Industry Corporation of China are among the biggest players in the UAV market.

A number of start-ups have made their mark on the market in recent years, however, and are challenging the dominance of the incumbent players. High-profile UAS start-ups like California-based 3D Robotics and San-Francisco-based drone maker, Skycatch have already raised millions of dollars in funding. 3D Robotics raised $53 million in Series D funding in 2Q17, while Skycatch raised US$36.4 million in funding.

PrecisionHawk, a commercial drone company, raised $75 million in January 2018. Prior to that in December 2017, Kespry an industrial drone maker raised $33 million in Series C funding. According to CBInsights, an estimated $454 million was invested into UAV startups in 2016 alone. Large well-funded corporations like General Electric (NYSE: GE) and Qualcomm (NASDAQ: QCOM) are investing to help fund the take-off of commercial UAVs.

Amazon (NASDAQ: AMZN) is also potentially looking for ways to be able to deliver items to customers via UAVs. It has already implemented a few demos delivering packages in the US. Recently, drone delivery start-up Flirtey raised US$16 million in funding. Flirtey was the first company to attain FAA approvals to conduct a drone delivery in the US in 2015. Last year, Flirtey used its unmanned aerial vehicles to deliver Slurpees from 7/11 to people of Nevada. The start-up has also delivered pizzas to Dominos customers in New Zealand.

According to Gartner, about 3 million drones were anticipated to be sold globally in 2017, a YOY increase of 39%. In revenue terms, the total value of sold drones is expected at US$6.0 billion in 2017, a 34% YOY increase. North America represented the largest market by size in 2017.

Chinese drone maker, DJI with its Phantom brand leads the market in the US$500-$1000 range with about 72% share in North America, followed by Parrot and Yuneec each with 7% share. According to research firm Skylogic, in the US$1000-$2000 range DJI has a market share of ~70% and in the price range of US$2000-$4000 DJI has 70% market share in North America.

Drones are taking off in a big way. Once the preserve of the military, UAVs are now widely popular in the commercial sector, thanks to consumer-grade UAVs that become increasingly sophisticated and cheaper. As a result of a sales boom, UAVs are clogging the airspace, snarling air traffic and raising concerns among aerospace authorities in the process. In the US, aircraft pilots have reported an increase in close calls with drones. According to the FAA, there were approximately 1800 close occurrences in 2016, up 50% from about 1200 such incidents reported in 2015.

Due to the rising concern about the issue and the FAA’s incapability to do much to tame it, plus the fine line that exists between acceptable domestic use and the invasion of privacy, drones are now flying into an area of the law that is confusing and complex.

There are different sets of rules governing the uses of commercial UAVs around the world. In the US, the FAA approved a set of regulations governing UAV use in the country. The exemptions granted on August 12, 2015, under Section 333 of the FAA Modernization and Reform Act of 2012, allows the Transportation Department to wave requirements for FAA approval for drone flights that are operated outside of restricted airspace and below 200 feet. Many of the exemptions given are for aerial filming for motion pictures, precision agriculture and real estate, as well as the use of drones for the inspection of power lines and towers, railroad infrastructure and bridges.
In May 2017, a US court declared the recreational drone owners will no longer have to register with FAA. The ruling does not apply to the commercial drone operators such as real estate photographers, cell-tower inspectors also companies such as Amazon, which plan to use drones for delivery. The FAA noted that, between August to December 2107, over 28,000 people applied to become a professional drone pilot and 22,959 licenses were issued.

Canada has had safety regulations in place that govern the use of UAVs since 1996. A recreational pilot operating a drone weighing less than 35kg does not currently require either a license or a special flying permit. It, however, must follow a list of Transport Canada safety guidelines, such as staying nine kilometers from an airport, flying under 90 meters and always keeping the craft within eyesight.

Unlike the US that imposes a universal ban on all commercial drone operations, with some exemptions — by issuing only 1,000 such allowances — Transport Canada, in contrast, granted 1,672 permits in 2014, 945 in 2013 and 345 the year earlier. As of June 2016, Transport Canada has issued 3,000 permits for commercial drone applications. That’s more than all of 2015 combined, when they issued 2,500.

Australia requires no registration of recreational drones. Recreational drone operators must comply with Civil Aviation and Safety Authority (CASA) rules that allow drones to be flown only within a visual line of sight. There are other restrictions on the maximum altitude, vicinity near airports and flying over crowded places.

The regulations allow commercial operators to fly drones weighing less than 2kg without a license. Operators must still adhere to all the existing rules for recreational drone use such as not to fly within 5.5km of an airport, above 400 feet or within 30m of buildings, railways or vehicles, and always to have line of sight of the drone.

Drones that are less than 20kgs in the UK can fly in normal airspace for private use as long as the operator is not planning to use data or images from the flight acquired by flying close to people or objects. The Civil Aviation Authority (CAA) requires all UAVs to remain 150 meters from crowded events or large assemblies, 50m from an individual or building, and stay within line of sight, which is 500m horizontally and 122m vertically. Drones that weigh more than 20kgs are currently banned from flying in civilian airspace other than in a large zone in west Wales and a smaller one over the military base at Boscombe Down.

Despite regulatory developments, UAV businesses will find ways to push for development within the limits of the law, as they work on to soften legislative restrictions. The commercial use of drones will pick up — because of and despite regulatory developments. This is as long as companies and individuals are able to prove such use will not violate standards of safety and privacy.
MARKET TRENDS

Start-ups Threaten Larger Incumbents

Over the past 20 years, the UAV sector has expanded and opened up to a whole new level of competition and innovation that had not been seen in the market. While large incumbents, especially the Big Three — Boeing, Lockheed Martin and Northrop Grumman — have won a big slice of the available UAV deals, new and smaller entrants are increasingly winning against the big companies for UAV contracts, thus challenging their respective market positions.

A number of smaller start-up companies have burst onto the scene in recent years, threatening the market positions of the larger incumbents. Non-defense companies eager to diversify and get a slice of the fast growing market have funded some start-ups. In 2017, venture capitalists placed US$200 million in funding to drone related companies. These included software, hardware as well as services companies. Companies such as AirMap, Flirtey have received millions of dollars in recent times.

Several counter drone companies now offer ways to detect and counter threats posed by hostile drone flights. In March 2017, Airspace Systems rolled out a mobile-command system that can help customers fend off rogue drone flights. Several other similar companies such as Dedrone, D-Fend Solutions and DroneShield have been gaining traction. Dedrone uses a combination of microphones, sensors and frequency scanners to detect drones, and then takes counter measures like catching them with nets or jamming their signals.

According to CBInsights, UAV startups have raised more than $1.6 billion in funding since 2012. Of which majority of funding has gone to the US companies followed by China in the second place. The two largest drone funding deals outside the US have been raised by Chinese drone manufacturers DJI Innovations and YUNEEC.

Shenzhen-based DJI Innovations tops the list with a $75 million Series B from Accel Partners, while Shanghai-based YUNEEC takes second place with a $60 million round backed by Intel Capital. Other significant funding rounds include $53 million Series D round by 3D Robotics and $34 million Series B round by Swift Navigation. Besides these, Airware, Aeryon Labs, Liquid Robotics, Clearpath Robotics have all raised significant money.

3D Robotics, a San-Diego company, attracted a US$53 million in funding which was closed in May 2017. The company was launched in 2012 and is backed by Qualcomm Inc's (NASDAQ: QCOM) venture capital division that has invested US$50 million.

After progressing in the past four years Airware, a creator of hardware, software, and a cloud services platform for commercial drone development and operation, raised more than US$90 million in venture capital to date. The most recent funding round came from the venture capital arm of Caterpillar Inc. Earlier backers of Airware included Google Ventures, First Round Capital, Firelake Capital, RRE Ventures, Shasta Ventures, Promus Ventures, Kleiner Perkins Caufield & Byers (KPCB) and Andreessen Horowitz.

Other start-ups like PrecisionHawk, DroneDeploy, Skydio and Vires Aeronautics, AAI, Insitu, General Atomics Aeronautical Systems and AeroVironment have also catapulted from small to mid-tier suppliers to prime providers capable of designing and integrating complete ubiquitous UAV systems. The falling cost of product development, which enable UAV firms to more easily try out their ideas and demonstrate new hardware, are the main factors in the groundswell of investments.

Regulatory Uncertainties Overshadow the Segment

UAV vehicles have evolved swiftly in recent years, particularly since making the leap from military technology to consumer gadgetry. The technology they use could be useful for myriad business opportunities. For example, UAVs are being used in many sectors, like the agriculture, construction, energy, mining and entertainment, as well as
geological surveys and, utility safety and maintenance, thanks to their ability to shoot aerial photos and video, as well as collect other data cheaply.

The growth of the UAV market, however, has drawn considerable attention from regulators and legislators eager to mitigate the complexities involved in the growth of the number of aeronautical vehicles in the skies. For instance, in the US there has been delays and confusion regarding the rules set by FAA. With the courts and Congress getting involved in regulation, clarity around the regulatory landscape is yet to emerge.

According to the Department of Transportation’s Inspector General, because of the delays, the US risks of losing the initiative in the development of commercial UAS. If one or more countries gain an advantage because of the overly rigid regulatory environment, the country could be in a situation of playing catch-up in terms of its commercial UAV market. Also because of the stringent yet uncertain legal framework, most of drone activity is being conducted outside the US. However, the recent executive order by White House to expand testing of drones to include flights over people, night time operations and flights out of sight of the operator could be a significant step. The order would allow companies and governments to operate drones in ways that are currently restricted by the FAA.

The commercial potential of UAV continues to attract big investors and venture capital. For example, Amazon’s plan to invest in its Amazon Prime Air program to create a delivery system utilizing UAVs received a lot of attention when it was announced in 2014.

This is just one of the many proposed uses for UAVs however. Within the next ten years, it is expected that more than 32,000 drones will be flying for commercial operations worldwide. For the US, the potential economic impact of UAVs, according to the Association of Unmanned Vehicle Systems International, could reach approximately US$13.7 billion within the next three years and create more than 100,000 employment opportunities, once the FAA drafts comprehensive drone regulations — for instance rules that limit flights to daylight and visual-line-of-sight operations, height restrictions, operator certification, optional use of a visual observer, aircraft registration and marking, and operational limits. The economy will also benefit and may top up to US$82 billion between 2015 and 2025.

The Buzz from Parcel-Toting Drones

In a few decades from now, we may look back and remember a time before flying robots delivered consumer orders. At least this might be the case if delivery drones turn out the way most retailers — as well as service providers — envision them. A delivery drone, or also known as a parcelcopter, is an UAV utilized to transport goods, packages and foodstuffs, and recently, the delivery systems have been a hot future state plans among vendors.

For instance, 7/11 stores have already started delivering slurpees via drones to their customers in Nevada through a pilot experiment with the drone delivery firm Flirtey. Amazon is seriously considering using drones to deliver orders across short distances, with the company taking a clearer step towards reaching that objective. Amazon demonstrated the Prime Air Drone delivery to the public in March 2017. The company has proposed to use a portion of the airspace above suburbs and cities for drone delivery.

The plan suggests high-speed UAVs be restricted to a vicinity covering a height of 200 to 400 feet off the ground. An additional a 100-foot area above this corridor would be designated as a no-fly zone to act as a barrier against traditional aircrafts. Similarly, Google’s Project Wing, would also enable people to get products delivered “in short order”, even in the most populated areas. Project Wing is current conducting tests in Australia delivering Mexican food and medicine and has signed up 150 users in its early tests.

Canada is also quickly putting rules around the use of UAVs and granting licenses for commercial drone services. In February 2018, Done Delivery Canada Corp received federal government compliance certificate for commercial drone delivery service. The company plans to deliver various goods, including mail, food, medical supplies and general goods.

Putting the parcelcopter concept into service will take some time because of the many setbacks. The major setback for this concept in the US is that there is no specific flight system where there needs to be a specific path for the
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

drone to travel and deliver in a populated area — and this needs to be solved. Once resolved, the big benefit should be that these delivery-by-drone systems could be commonplace within the next decade. Open season on the open skies could arrive sooner than expected.

The Obsession with Armed Flying Robots

The use of a UAV as a weapon first became known in World War II. After the war, little development occurred in drone technology and most remotely piloted vehicles were used for target practice. The US military’s first major spending on UAVs began after the Vietnam War, and over the past two decades, the country has become the world’s pre-eminent user and supplier.

Military UAVs in the US have gone through meteoric growth over the past decade. Development has taken a quantum leap — from lab concept to battle-tested proven technology. Today, America’s comparative advantage in UAVs, however, is being battered as technological know-how disseminates throughout the international system. While existing technology has started to lag, global competitors are playing catch up in research and development (R&D) for drone technology.

No country has ramped up its UAV research in recent years faster than China, where every major company for the Chinese military has a R&D center and funding allocations dedicated to drones. In recent years, the country has pumped considerable amounts of funds and engineering brainpower into the technology — a field previously dominated by the US and Israel. Much of the work done, however, remains secret, but the large number of drones created underlines not only the country’s willpower to catch up in the sector — by building comparable combat and surveillance models like the Predator and the Global Hawk — but also the desire to trade the technologies globally.

Israel, second after the US in drone technology, has flown armed UAV models but few details are available. India has also revealed its intention to develop drones that will fire missiles and fly at 30,000 feet, followed by Russia, which has revealed models of UAVs with weapons (although there is little evidence that they are currently operational). In the UK, former Prime Minister David Cameron revealed in July 2015 that he wanted spending on military drones to increase.

As such, military markets for drones with hit capability are expected to grow rapidly. According to Teal Group, the global spending on military UAVs could top $100 billion over the next ten years.

The Lucrative UAV Micro Segment

The new generation of UAVs is being developed to improve monitoring of many kinds of systems. From tracking bush fires in Australia to observing traffic in the US, infrared cameras to track missing people at night, and laser spectroscopy used to monitor air pollutions, UAVs are using a lot of the new up-to-date miniature sensor technology.

All of this requires more focus on the integration of sensor systems in an airborne device that is severely constrained in power and weight. Changing the sensor architecture or even take the control sensors out entirely, allowing the size of the UAV to reduce dramatically. This has created a new class of ultra-small UAV sensors.

Lockheed Martin’s Lockheed Sanders MicroSTAR series of prototypes is one of the many examples of a mini UAV. The battery-operated MicroSTAR designs resembled kid’s toys. The device has winglets instead of the single vertical plane tail, and a nose mounted propeller. MicroSTAR featured a five-gram navigation system that could give directions by the ground station, but could also automatically keep on a heading or orbit a target.

Despite the advancements, the current micro UAV market remains constrained, largely due to regulatory frameworks on unmanned operations in airspace. But once regulatory restraints are loosened and clarified, the potential of this technology will be unlocked. Mini UAVs are set to become one of the major contributors to both the economy and technology. Market growth, however, still very much depends on the pace of UAV development in different countries, thanks to the wide range of applications and the added value related to these unmanned machines.
APPLICATIONS

Defense

Defense will continue to the largest market for UAVs for the foreseeable future. UAVs can play an important role in counter terrorism and counter insurgency activities. They can be deployed in highly dangerous missions thereby saving personnel lives. The UAVs are also being used in difficult terrains for intelligence gathering and surveillance. They provide high resolution images and videos which can significantly help ground troops. Drones have been used by militaries of many countries to conduct strikes against terrorists.

Transport

UAVs are increasingly used in transport activities such as e-commerce parcel delivery, food delivery and medicine delivery. Of these, e-commerce delivery is getting the maximum attention with large companies such as Amazon already doing pilot tests. Amazon has been experimenting Amazon Prime Air, which seeks to automate last-mile delivery of packages using drones. Another promising area for UAVs is the delivery of food. It could be used in heavily populated urban areas for food delivery by restaurants and also could be used to deliver foods to difficult terrains including oil rigs and remote islands. Medical logistics is another area where UAVs can be used to transport medicines and can also be used as flying defibrillators.

Infrastructure

UAVs can assist in the management of various kinds of infrastructure, specifically construction sites. In the pre-construction phase, drones can survey the land and provide accurate field data and images. They are able to capture high-resolution videos and images, which can significantly improve the speed and quality of the design process. In the construction phase, drones can inspect the sites and provide accurate information regarding the progress of the construction. The data received could be used by investors and property owners to monitor if the project is progressing as per original schedule or not.

Agriculture

One of the largest projected applications of UAVs in agriculture. Drones can be used by farmers to monitor their crops. UAVs can survey a farmland faster and at a lower cost than airplanes/satellites and also provide better data and images to farmers. The current altitude restrictions for UAVs limit the area that it can survey, but if the altitude restrictions ease a little, the area could expand and provide greater benefits to farmers. Japan has been using UAVs for crop dusting for more than 20 years now and drones account for more than 90% of crop dusters. In the contrary, in the US, the FAA allowed the use of UAVs for agriculture in January 2015.

Public Safety

This area again presents huge opportunities for UAVs. Drones can be used for law enforcement, search and rescue missions, firefighting and medical services. In the US, more than 160 agencies acquired drone in 2016, more than the double the number that obtained UAVs in 2015 and more than in the last three years combined.

Most of these agencies are police/sheriff departments followed by fire departments. In Indiana and Maryland, police have successfully used drones to catch suspects and thieves. In Oakland, the fire department used drones to hot spots, which were not extinguished during a firefighting mission.

Further, drones can collect information, data and images on natural disasters such as floods, hurricanes and wild fires. UAVs have great potential for surveying storm damage and locating people after natural disasters. Following the nuclear accident at Fukushima, the Japanese are using drones to map radiation levels to determine which areas are safe to occupy.
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

Inspections

UAVs can be used for inspections in areas such as wind turbines, oil pipelines, power lines, railroads and more. Oil & gas companies can use a drone to conduct the required monthly inspection of their pipelines. Instead of hiring a helicopter, which is costly, companies can use drones to do the same at lower cost. Similarly, UAVs can inspect wind turbines, several hundred feet in the air, removing the need for an individual to physically reach the place. Archaeologists can use UAVs to inspect the sites and also patrol for looters.
MARKET CHALLENGES AND OPPORTUNITIES

Opportunities

UAV industry presents tremendous opportunities for investors, companies as well as government. UAV technology has reached a maturity point that has placed it at the forefront of aerospace manufacturing. As UAV companies around the world make drones more accessible, the UAV sector — despite the undeveloped regulatory framework — is set to develop into one of the most dynamic growth industries this decade. There are some 450 UAV companies worldwide behind this growing multibillion-dollar industry, with the number growing.

Both the military and commercial markets are set to grow rapidly in the next few years, as the US economy continues to recover, technology continues to diffuse around the world, as designs become more streamlined and efficient and as more industries adopt existing business processes for UAV use.

The non-military, especially the commercial drone segment, is set to grow the fastest with projections of mid to high teens growth over the next the next decade. The latest developments in computer vision, machine learning, cloud and data analytics are expected to push drone deployment in the mainstream commercial sector. In the US and many other places around the world, the regulations either remain too restrictive or are yet to be given a final shape, which has been a deterrent in the pace of UAV adoption.

With the explosion of interest in building and operating unmanned aircraft systems, the use of UAV technology is set to generate more high-tech jobs, with millions in tax revenues and tens of billions in economic impact. According to figures by the Teal Group, the UAS global market could cumulatively provide a US$135 billion opportunity over the next ten years and create more than 100,000 high-paying jobs in the process.

Combined with forecast global growth in aerospace, UAV technology is moving ever faster forward as the market continues to flourish. Industry will need to consider how to best to integrate UAVs into their businesses.

Challenges

Safety, privacy and regulatory barriers remain key challenges for the rapid adoption of UAVs. The most urgent challenge for the governments is to ensure that the drone operations remain safe. For this to happen, a separate air traffic management for UAVs need to be created to avoid collision with other flying objects. Privacy is another key concern that needs to be addressed. UAVs collect massive amounts of data including video and images, which sometimes could result in the invasion of personal privacy. The growth and evolution of the UAV industry has outpaced the development of rules and systems to govern their use. This uncertainty weighs on innovation and commercial adoption, unless there is more clarity on the rules.
LARGE PLAYERS TO WATCH

AeroVironment Inc (NASDAQ: AVAV)

Investor information: http://investor.avinc.com
Headquarters: United States
Address: 800 Oaks Drive, Suite 210, Monrovia, California 91016, United States
Phone: +1-626-3579983
Fax: +1-626-3599628

Established: July 1971, California, United States
Re-established: December 2006, Delaware, United States

Key Executives:
Wahid Nawabi (President, Chief Executive Officer)
Teresa Covington (Senior Vice President, Chief Financial Officer)
Kirk Flittie (Vice President and General Manager, Unmanned Aircraft Systems)
Ken Karklin (Vice President and General Manager, Efficient Energy Systems)

Number of Employees: 661 (total full-time as of April 30, 2017)
Market Capitalization: US$1,192.9 million (as of February 23, 2018)

Reporting Period: Fiscal Year Ended April 30
Email Notification for Company Results: YES (http://investor.avinc.com/alerts.cfm?)

Company Overview

AeroVironment is an American technology company in Monrovia, California, and Simi Valley, California. Primarily involved aerospace and tech, the company designs, develops and produces a number of unmanned aircraft systems (UAS) and efficient energy systems (EES).

The company operates through two business segments: Unmanned Aircraft Systems — focuses mainly on the design, improvement, manufacturing, support and operation of UAS and tactical missile systems that provide situational knowledge, multi-band communications, force protection and other mission effects to the operations of the customers — and Efficient Energy Systems (EES) — works on the design, development, production, marketing, support and operation of electric energy systems.

Additionally, AeroVironment also offers electric vehicle charging systems, services, and related solutions for plug-in passenger and fleet vehicles. It also supports PosiCharge industrial electric vehicle charging systems for electric material handling vehicles and airport ground support equipment; power cycling and test systems for developers and manufacturers of electric vehicles; as well as battery packs, electric motors, and fuel cells.

It serves US Department of Defense, including the US Army, Marine Corps, Special Operations Command, and Air Force, as well as commercial, consumer, and government customers.

Revenue for the 2Q18 (fiscal 2018 three months ended October 28, 2017) was $73.8 million, an increase of 47% compared to second quarter fiscal 2017. For 1H18 revenue stood at $117.6 million, up by 36% YOY. For FY18, the company expects revenue between $280 million to $300 million.

Key Products

AeroVironment is probably most well-known for developing a series of lightweight droids and then solar-powered vehicles. The company is actually the Pentagon’s main supplier of small robotic planes — including the Raven, Wasp
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

and Puma over the last decade. As such, AeroVironment and the Pentagon signed a strategic partnership with defense giant Lockheed Martin to pursue opportunities together in unmanned aircraft development. The deal announced in February 2014 has seen the two companies working together to develop their robotic Global Observer aircraft — an aircraft of about 175 feet and is built to stay aloft for a week at a time at 65,000 feet — which will greatly expand the reach of military spy planes.

As AeroVironment walks the line between aerospace and tech, it also produces:

- **The Switchblade** — an advanced direct fire missile system with high precision capabilities, minimizing collateral damage in hostile environments.
- **UAS Solutions for Public Safety and Commercial users** — where UAS devices help protect the public, monitor wildlife, manage resources or advance research by providing immediate situational awareness, enabling better decision-making.
- **Digital Data Link (DDL) products** — provide secure communications and interoperability between small platforms and remote terminals.
- **Kestrel Moving Target Indication (MTI) software** — automatically detects moving objects, which is normally too small for human eyes to see; viewed through electro optical full motion video; and provide real-time and forensic operation support.
- **VAMPIRE (Visualization and Mission Planning Integrated Rehearsal Environment) flight simulator software** — provides critical training capabilities that are accessible regardless of weather, airspace, or tactical limitations.
- **AeroVironment’s “Mantis” suite of gyro stabilized, gimbaled sensor payloads** — available for unmanned aircraft systems, manned aircraft, ground vehicles and watercraft. These gimbaled, micro multi-sensor payloads come with a high-resolution color and an infrared thermal video sensor, as well as a laser illuminator (pointer), all integrated into a multi-axis sphere.
- **Shrike VTOL** — a man-packable, Vertical Take-Off and Landing Micro Air Vehicle (VTOL MAV) system. It is a portable, reliable and quiet unmanned aerial platform designed for front-line day/night intelligence, surveillance and reconnaissance (ISR).
- **The Ground Control System (GCS)** — provides a common command and control solution for AeroVironment’s family of small UAS. Small, lightweight, and combat proven, the GCS displays real-time video from the air vehicle’s payload cameras to personnel on the ground.
- **Snipe Nano** - is a latest Tactical UAV providing defenders with critical information whenever and wherever it is needed.
- **Quantix** — combined with the advantage of vertical lift-off and horizontal flight for seamless operations and maximum coverage offering a robust and reliable solution for aerial inspections, mapping and actionable insights.

Apart from the abovementioned products, the company also produces Tactical Missile Systems, EV Charging Solutions, Power Cycling and Test Systems and product support services to its customers. The company sells its commercial UAS and EES products through sales force, through retailers, resellers, industrial battery and lift-truck dealers, distributors and representatives.
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

Stock Price Performance

Table 1: LTM Price Performance vs. S&P 500

![Graph showing stock price performance]

Source: Nasdaq

Most Recent Annual Reports

2017 Annual Report:

2016 Annual Report:

Quarterly Financial Statements

First Quarter 2017: http://investor.avinc.com/results.cfm?Quarter=1&Year=2017
Third Quarter 2017: http://investor.avinc.com/results.cfm?Quarter=3&Year=2017

Other Key Financial Data

Table 2: Key Financial Data

<table>
<thead>
<tr>
<th>Key Financial Data</th>
<th>2nd Quarter ended October 28, 2017</th>
<th>2nd Quarter ended October 29, 2016</th>
<th>Change (%)</th>
<th>Annual 2017</th>
<th>Annual 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>US$73.8 million</td>
<td>US$50.11 million</td>
<td>47%</td>
<td>US$264.87 million</td>
<td>US$264.10 million</td>
</tr>
<tr>
<td>Unmanned Aircraft Systems (UAS)</td>
<td>US$63.98 million</td>
<td>US$40.82 million</td>
<td>56.73%</td>
<td>US$228.94 million</td>
<td>US$233.74 million</td>
</tr>
</tbody>
</table>

March 2018
### Net Profit Margin

|            | 9.5% | (8.3%) | NM  | 4.7% | 3.4% |

### Operating Margin

|            | 13.9% | (9.0%) | NM  | 5.6% | 4.0% |

### Return On Assets

|            | 6.0%  | (2.9%) | NM  | 2.2% | 1.7% |

### Return On Equity

|            | 7.1%  | (4.8%) | NM  | 3.3% | 2.5% |

### Shareholders’ Equity


### Backlog

|            | US$127.1 million | US$119.6 million | 6.27%  | US$78.0 million   | US$65.8 million   |

**Note:** Some figures may not sum to total due to rounding

### Key Customers


### Recent Orders

- **3 January 2018:** The company announced joined venture with HAPSMobile Inc to develop solar powered HALE Unmanned Aircraft System for commercial use. Net development cost is expected to be $65 million.
- **9 October 2017:** The company announced the receipt of a contract award from the United States Navy for continuation and expansion of its Blackwing small Unmanned Aerial Vehicles (UAV) program. The contract is worth $2.5 million.
- **1 June 2017:** The Australian Defense Force (ADF) awarded AeroVironment a contract worth US$36.5 million for the company’s Wasp AE small unmanned systems to be delivered over the span of three years.
- **16 October 2016:** The Netherland Ministry of Defense awarded AeroVironment a contract worth US$10.3 million for small UAS, upgrades and support services to be delivered within six months.
- **3 October 2016:** US Army awarded AeroVironment a contract worth US$22.8 million for Lethal Miniature Aerial Missile Systems (LMAMS) and support services to be delivered within 12 months.

### Research and Development

**Table 3: Research and Development Spending**

<table>
<thead>
<tr>
<th>Period</th>
<th>2nd Quarter ended October 28, 2017</th>
<th>2nd Quarter ended October 29, 2016</th>
<th>Change (%)</th>
<th>Annual 2017</th>
<th>Annual 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>US$7.2 million</td>
<td>US$8.5 million</td>
<td>-18%</td>
<td>US$33.04 million</td>
<td>US$42.29 million</td>
</tr>
</tbody>
</table>
BAE Systems Plc (LSE: BA)

Investor information: http://investors.baesystems.com/
Headquarters: United Kingdom
Address: Stirling Square 6 Carlton Gardens, London, SW1Y 5 AD United Kingdom
Phone: +44-1252-373232
Fax: +44-1252-383991

Established: 1977

Key Executives:
Sir Roger Carr (Chairman)
Charles Woodburn (Chief Executive Officer)
Peter Lynas (Group Finance Director)
Jerry Demuro (President, Chief Executive Officer of BAE Systems, Inc.)

Number of Employees: 83,100 (year-end average staff as of December 31, 2016)
Number of Shareholders: 100,000 ordinary (as of December 31, 2016)
Market Capitalization: GBP 18.39 billion (as of February 23, 2018)

Company Overview

BAE Systems operates as a defense, aerospace, and security company worldwide and is among the world’s largest defense contractors. The company was formed on 30 November 1999 by a £7.7 billion merger of two British companies, Marconi Electronic Systems (MES) — the defense electronics and naval shipbuilding subsidiary of the General Electric Company — and British Aerospace (BAe) — an aircraft, munitions and naval systems manufacturer.

BEA is currently engaged in delivering a range of products and services for air, land and naval forces, as well as advanced electronics, security, information technology solutions and support services. It operates through five principal business segments: Electronics Systems; Cyber & Intelligence; Platforms & Services (US); Platforms & Services (UK); and Platforms & Services (International). The company now operates in the UK, the US, Europe, Canada, Australia, the Asia-Pacific region, Middle East, Saudi Arabia, Africa, and Central and South America.

In September 2017, the company in collaboration with Cranfield University revealed a new technology concept – named Adaptable UAVs – which can alternate between the two different flight modes (rotary mode and fixed mode) in the same mission. On 13 December 2017, BAE systems and The University of Manchester completed first phase of flight trial with MAGMA, a small scale Unmanned Aerial Vehicle (UAV) with unique flight control technology.

For FY17, BAE reported revenues of £18.32 billion, up 3% YOY.

Subsidiaries


Key Products

THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

HAMMER® Precision Targeting System, 45nm ASICS, LRASM Long-Range Sensor, Digital Light Engine Head-Up Display (HUD), Adaptive Radar Countermeasures (ARC) and M777

**Key UAV Products**

- **SPRINT** – designed to operate from a significant range for ground moving target indicators, dismount moving target indicators and coherent change direction performance demonstrated for group 3 unmanned aerial systems.
- **DEMON** — designed to fly without using conventional ‘flaps’ (elevators or ailerons), using jet propelled blasts of air blown over the trailing edges of its wings to maneuver.
- **Taranis** — unmanned combat aircraft system which is under the control of a human operator, is capable of undertaking sustained surveillance, marking targets, gathering intelligence, deterring adversaries and carrying out strikes in hostile territory.
- **Intelligent Landing System** — a technology which allows UAVs to autonomously locate a suitable landing strip and land safely without relying on GPS, remote piloting, special equipment on the ground, surveying of the landing site, and other external systems.
- **Mantis** — a twin-engine unmanned aircraft.
- **SIGINT** – gathers information with the help of adversaries electronic signals. Analyses and evaluates the raw data from foreign communication systems, radars, and weapon systems and transforms into actionable intelligence.
- **MAGMA** –

**Stock Price Performance**

**Table 4:** LTM Price Performance vs. FTSE 100 Index

![Chart showing stock performance](image)

*Source: London Stock Exchange*

**Most Recent Annual Reports**


Other Key Financial Data

Table 5: Key Financial Data

<table>
<thead>
<tr>
<th>Key Financial Data (in GBP million)</th>
<th>Annual 2017</th>
<th>Annual 2016</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>18,322</td>
<td>17,790</td>
<td>2.99%</td>
</tr>
<tr>
<td>Net Income</td>
<td>884</td>
<td>938</td>
<td>-5.75%</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>4.7%</td>
<td>5.1%</td>
<td>-40bps</td>
</tr>
<tr>
<td>Operating Margin</td>
<td>8.6%</td>
<td>8.3%</td>
<td>30bps</td>
</tr>
<tr>
<td>Return On Assets</td>
<td>4.4%</td>
<td>4.3%</td>
<td>10bps</td>
</tr>
<tr>
<td>Return On Equity</td>
<td>21.4%</td>
<td>29.0%</td>
<td>-760bps</td>
</tr>
<tr>
<td>Shareholders' Equity</td>
<td>4,741</td>
<td>3,438</td>
<td>37.89%</td>
</tr>
<tr>
<td>Backlog</td>
<td>41.2 billion</td>
<td>42 billion</td>
<td>-1.9%</td>
</tr>
</tbody>
</table>

Note: Some figures may not sum to total due to rounding

Key Customers


Table 6: Sales and Revenue by Location (in millions of £)

<table>
<thead>
<tr>
<th>Location</th>
<th>Sales 2017</th>
<th>Sales 2016</th>
<th>Percentage Change</th>
<th>Revenue 2017</th>
<th>Revenue 2016</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic Systems</td>
<td>£3,635</td>
<td>£3,282</td>
<td>10.7%</td>
<td>£3,635</td>
<td>£3,282</td>
<td>10.7%</td>
</tr>
<tr>
<td>Cyber &amp; Intelligence</td>
<td>£1,820</td>
<td>£1,778</td>
<td>2.36%</td>
<td>£1,820</td>
<td>£1,778</td>
<td>2.36%</td>
</tr>
<tr>
<td>Platforms &amp; Services(US)</td>
<td>£2,928</td>
<td>£2,874</td>
<td>1.87%</td>
<td>£2,825</td>
<td>£2,783</td>
<td>1.50%</td>
</tr>
<tr>
<td>Platforms &amp; Services(UK)</td>
<td>£7,682</td>
<td>£7,806</td>
<td>-1.58%</td>
<td>£7,624</td>
<td>£7,699</td>
<td>-0.97%</td>
</tr>
<tr>
<td>Platforms &amp; Services(International)</td>
<td>£4,138</td>
<td>£3,943</td>
<td>4.95%</td>
<td>£3,136</td>
<td>£3,037</td>
<td>3.25%</td>
</tr>
<tr>
<td>HQ</td>
<td>£287</td>
<td>£233</td>
<td>23.17%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Some figures may not sum to total due to rounding

Recent Orders

- **5 February 2018**: BAE systems has secured a three-year contract with US Air Force worth $37 million for support services for aircraft, weapon and electronic equipment.
- **16 August 2017**: BAE Systems was awarded a contract by US Navy for support and automated systems support services worth $18.34 million.
- **27 July 2017**: BAE Systems received a $72.6 million contract modification for integration and technical support for the Air Force’s Minuteman III intercontinental ballistic missile.
- **12 June 2017**: BAE Systems was awarded a contract worth $180.5 million from the US Navy to continue producing Advance Precision Kill Weapon Systems.
- **19 April 2017**: BAE Systems was awarded a contract by UK Ministry of Defense for manufacturing a submarine worth GBP 1.4 billion.
- **3 April 2017**: BAE Systems was awarded a contract by US Army for technical support and sustainment of M88 recovery vehicles. The contract is worth US$112 million.
- **12 January 2017**: BAE systems received a US$542 million contract for 145 ultra-lightweight howitzers to the Indian Army.
Elbit Systems Ltd (TLV: ESLT and NASDAQ: ESLT)


Headquarters: Israel
Address: Advanced Technology Centre, P.O.B. 539 Haifa, 31053 Israel
Phone: +972-4-8315315
Fax: +972-4-8316644

Established: 1966

Key Executives:
Michael Federmann (Chairman of the Board)
Bezhalel Machlis (President and Chief Executive Officer)
Joseph Gaspar (Executive Vice President and Chief Financial Officer)
Yuval Ramon (Executive Vice President and Chief Operating Officer)
Ran Kril (Executive Vice President - International Marketing and Business Development)
Elad Aharonson (Executive Vice President and General Manager – ISTAR Division)
Adi Dar (Executive Vice President and General Manager - CYBERBIT)
Edgar Maimon (Executive Vice President and General Manager - EW and SIGINT Elisra Division)

Number of Employees: 12,470 (total full-time as of December 31, 2016)
Market Capitalization: ILS 21.47 billion (as of February 23, 2018)

Reporting Period: Fiscal Year Ended December 31
Email Notification for Company Results: YES (http://ir.elbitsystems.com/phoenix.zhtml?c=61849&p=irol-alerts&t=&id=&)

Company Overview


Elbit also focuses on the improvement of existing platforms, developing new technologies for defense, homeland security and commercial applications and providing a range of support services, including training and simulation systems. On 14 February 2018, Elbit was recognized by the Ethisphere Institute as one of the 2018 World’s Most Ethical Companies. The company also displayed its latest UAV systems – Skylark 3 and ReDrone at Singapore Airshow held in February 2018.


Its revenue was $3.26 billion for FY16, up 5.1% YOY. For 3Q17 its revenue stood at $800.7 million, up 2.5% YOY.

Subsidiaries

Elbit Systems of America, Elbit Systems Electro-Optics – Elop, Elbit Systems Land and C4I and Elbit Systems EW and SIGINT – Elisra
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

Key UAV Products

- Da Vinci - Da-Vinci is a powerful vertical takeoff and landing (VTOL) small UAS (sUAS), suitable for a variety of missions, terrains and weather conditions.
- Elbit Hermes 90 — an expeditionary, high performance, low cost tactical UAS.
- Elbit Hermes 450 — an Israeli medium size multi-payload UAV designed for tactical long endurance missions. It has an endurance of over 20 hours, with a main mission of reconnaissance, surveillance and communications relay.
- Elbit Hermes 900 — over-the-horizon, persistent multi-mission, multi-payload capabilities with class leading payload carrying capacity of 350 kg. It is capable of performing missions for area dominance, persistent intelligence, surveillance, target acquisition and reconnaissance (ISTAR).
- Elbit Skylark I Le (mini UAS) — man-portable high performance mini-UAS, Skylark ILE has been selected and deployed as the IDF’s battalion level UAS and also has been delivered to over 20 users worldwide.
- Silver Arrow Micro-V — a device powered by twin 3 kW piston engines, one in a nacelle on each wing driving a pusher propeller. It has no landing gear. The Micro-V appears to be too small to carry a full sensor turret, carrying a miniaturized imager in a transparent section built into the middle of its fuselage.
- Silver Arrow Sniper — an aircraft that resembles that of a conventional private aircraft with fixed tricycle landing gear, driven by a nose-mounted propeller and a 28.5 kW (38 horsepower) piston engine. Its only unusual feature is an upright vee-tail.
- Unmanned Surface Vehicle - The Seagull Unmanned Surface Vessel (USV) facilitates end-to-end mine hunting operations including detection, classification, localization, identification and neutralization of bottom, moored and drifting sea mines while taking the sailor out of the mine field.

Stock Price Performance

Table 7: LTM Price Performance vs. S&P 500

![Graph showing LTM Price Performance vs. S&P 500]

Source: Nasdaq

Most Recent Annual Reports

2016 Annual Report: http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9Njc0OTA3fENoaWxkSUQ9MzgzMTMzfFR5cGU9MQ==&t=1
2015 Annual Report: http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9NjE0NDIzfENoaWxkSUQ9MzI4NTc5FR5cGU9MQ==&t=1
2014 Annual Report: http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9NTczMDU3fENoaWxkSUQ9Mjc1Mjg2fFR5cGU9MQ==&t=1
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

Quarterly Financial Statements

First Quarter 2017: http://ir.elbitsystems.com/phoenix.zhtml?c=61849&p=irol-reportsOther

Other Key Financial Data

Table 8: Key Financial Data

<table>
<thead>
<tr>
<th>Key Financial Data</th>
<th>3rd Quarter ended September 30, 2017</th>
<th>3rd Quarter ended September 30, 2016</th>
<th>Change (%)</th>
<th>Annual 2016</th>
<th>Annual 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>US$800.7 million</td>
<td>US$780.8 million</td>
<td>2.54%</td>
<td>US$3.26 billion</td>
<td>US$3.10 billion</td>
</tr>
<tr>
<td>Airborne systems</td>
<td>US$304.3 million</td>
<td>US$305.3 million</td>
<td>-0.33%</td>
<td>US$1.24 billion</td>
<td>US$1.22 billion</td>
</tr>
<tr>
<td>Land systems</td>
<td>US$121.0 million</td>
<td>US$31.8 million</td>
<td>280%</td>
<td>US$408 million</td>
<td>US$558 million</td>
</tr>
<tr>
<td>C4ISR systems</td>
<td>US$274.2 million</td>
<td>US$363.0 million</td>
<td>-24.4%</td>
<td>US$1.2 billion</td>
<td>US$995 million</td>
</tr>
<tr>
<td>Electro-optic systems</td>
<td>US$82.9 million</td>
<td>US$57.9 million</td>
<td>43.1%</td>
<td>US$276 million</td>
<td>US$231.9 million</td>
</tr>
<tr>
<td>Other (mainly non-defense engineering and production services)</td>
<td>US$18.3 million</td>
<td>US$22.8 million</td>
<td>-19.7%</td>
<td>US$113 million</td>
<td>US$96.1 million</td>
</tr>
<tr>
<td>Net Income</td>
<td>US$61.75 million</td>
<td>US$63.57 million</td>
<td>-2.86%</td>
<td>US$238.8 million</td>
<td>US$206.86 million</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>7.7%</td>
<td>8.1%</td>
<td>-40bps</td>
<td>7.3%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Operating Margin</td>
<td>10.3%</td>
<td>8.7%</td>
<td>160bps</td>
<td>10.1%</td>
<td>10.2%</td>
</tr>
<tr>
<td>Return on Assets</td>
<td>4.4%</td>
<td>3.9%</td>
<td>50bps</td>
<td>4.3%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Return on Equity</td>
<td>14.8%</td>
<td>16.9%</td>
<td>-210bps</td>
<td>16.1%</td>
<td>15.5%</td>
</tr>
<tr>
<td>Shareholders’ Equity</td>
<td>US$1.6 billion</td>
<td>US$1.56 billion</td>
<td>3.21%</td>
<td>US$1.56 billion</td>
<td>US$1.39 billion</td>
</tr>
<tr>
<td>Backlog</td>
<td>US$7.6 billion</td>
<td>US$6.8 billion</td>
<td>7.4%</td>
<td>US$6.90 billion</td>
<td>US$6.56 billion</td>
</tr>
</tbody>
</table>

Note: Some figures may not sum to total due to rounding

Key Customers

Israeli Air Force, the United States Air Force, the United States Navy, the United States Army, the United States Marine Corps, the United States Coast Guard, air forces and other branches of the armed forces of the North American Treaty Organization (NATO) member governments and/or European Union (EU) member governments, other governments around the world, Boeing, Lockheed Martin, Bell Helicopters, Raytheon Company, Embraer S.A., European Aerospace Defense and Space Company, EADS-CASA, Alenia Aermacchi S.p.A., Dassault Aviation S.A., Eurocopter S.A., BAE Systems Ltd., Grob Aircraft AG, Hindustan Aeronautics Limited, Bell Helicopters Textron Inc., Sikorsky Aircraft Company and Agusta S.p.A.
Table 9: Revenues by Geographic Region for the Year ended December 31, 2016

Total Revenue: US$3.26 billion

<table>
<thead>
<tr>
<th>Regions</th>
<th>Percentage of Total Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Israel</td>
<td>21.8%</td>
</tr>
<tr>
<td>North America</td>
<td>25.3%</td>
</tr>
<tr>
<td>Europe</td>
<td>19.7%</td>
</tr>
<tr>
<td>Latin America</td>
<td>6.5%</td>
</tr>
<tr>
<td>Asia-Pacific</td>
<td>24.6%</td>
</tr>
<tr>
<td>Others</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

Note: Some figures may not sum to total due to rounding

Recent Orders

- **20 December 2017**: The company was awarded a contract for Life Cycle Contractor Support (LCCS) for the US Army’s C-26 and UC-35 aircraft fleet. The total contract value is anticipated at $176 million.
- **19 December 2017**: Elbit Systems was awarded a follow-on $46 million contract to supply additional DIRCM self-protection system to NATO.
- **26 September 2017**: The company won a $240 million contract with an African country to supply various defense electronic systems including mini-UAS systems.
- **5 July 2017**: Elbit Systems was awarded a contract from European Country for the supply of thousands of Electro-Optic systems for individual infantry soldiers worth $35 million.
- **21 June 2017**: Elbit Systems was awarded more than $20 million contract by an African-based customer to equip a VIP Gulfstream G650 aircraft with J-MUSIC Directed Infrared Countermeasure (DIRCM) systems that include Elbit Systems’ advanced Infrared based Passive Airborne Warning System (IR PAWS).
- **28 May 2017**: Elbit Systems Ltd. received a contract worth $390 million to supply an array of ground electronic intelligence capabilities to a European country.
- **17 May 2017**: Elbit Systems received an order of US$166 million from a prime contractor to provide operator interface and computer processing capabilities for a US Army platform. The contract will be performed primarily in Fort Worth, Texas, over a five-year period.
- **2 April 2017**: Elbit System received a contract from US Navy to provide the Helmet Display and Tracker System (HDTTS) with the Continuously Computed Impact Point (CCIP) algorithm for the MH-60S for US$50 million to be delivered by 2021.
- **2 February 2017**: Elbit received a contract from Army Contracting Command worth US$102 million for the supply of Motor Fire Control Systems to the US Army to be delivered by December 2021.

Research and Development

Table 10: Total Research and Development Spending

<table>
<thead>
<tr>
<th>Period</th>
<th>2016</th>
<th>2015</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>US$255.7 million</td>
<td>US$243.4 million</td>
<td>US$228 million</td>
</tr>
</tbody>
</table>

In July 2015, Elbit Systems announced that it has developed a body sensor which will forewarn pilots and the control tower of possible loss of consciousness in extreme maneuvers or because of oxygen starvation — giving enough time to take evasive action. Known as, Canary — which is a button-sized sensor and related computer, contained within the pilot's helmet — is originally meant for the military market and fighter pilots who will normally experience extreme physiological stress due to sharp turns, high-speed acceleration or possible oxygen starvation at high altitude. Now the device may be soon adapted for civil aviation use as well. Elbit Systems is working with Rockwell Collins to develop the pilot helmet.
Leonardo SPA (BIT: LDO)

Headquarters: Rome  
Address: Piazza Monte Grappa, 4 ROMA, 00195 Italy  
Phone: +39-06-324731  
Fax: +39-06-3208621  

Established: March 18, 1948

Key Executives:  
Giovanni De Gennaro (Chairman of the Board)  
Alessandro Profumo (Chief Executive Officer)  
Gianpiero Cutillo (Chief Financial Officer (Administration, Finance, Control))  
Matteo Attrovio (Information and Communication Technology Officer)  
Andrea Parrella (Group General Counsel (Legal, Corporate Affairs and Compliance))

Number of Employees: 45,631  
Number of Shareholders: As of January 2017, Leonardo largest shareholder was Italian Ministry of Economy and Finances with 30.204% of the total shares.

Market Capitalization: €5.08 billion (as of February 27, 2018)  
Reporting Period: Fiscal Year Ended December 31  
Email Notification for Company Results: N/A

Company Overview

Leonardo SpA is the most important industrial group in the high-technology sector in Italy and one of the main global players in aerospace, defense and security. It operates in seven sectors: Aeronautics — through Alenia Aermacchi, ATR and SuperJet International; Helicopters — through AgustaWestland; Space — through Telespazio and Thales Alenia Space; Defense and Security Electronics — through Selex ES and DRS Technologies; Defense Systems — through OTOMelara, WASS and MBDA; and Transportation — through Ansaldo STS, AnsaldoBreda and BredaMenarinibus.

The company counts more than 360 sites in 22 countries globally, and have major presence in Italy, the UK, the US and Poland. The Group is partially owned by the Italian government, which holds more than 30% of Leonardo’s shares. The company changed its name from Finmeccanica to Leonardo on January 1, 2017

Its sales for 9M17 were €7.98 billion, down 0.6% YOY. The company guidance for revenue for full year 2017 is between €11.5 – €12.0 billion. For FY16, revenue was €12 billion, down 7.6% YOY.

Key Products

SW-4, AW101, AW609, AW109 Trekker, AW169, AW149, AW189, AW139 and AW609, C4ISTAR systems, Galileo, Sentinel-1aand -3 satellites and Telespazio, MU90 Lightweight, A244/S Mod.3 Lightweight Torpedo, BLACK SHARK Heavyweight torpedo, ETR1000, double-decker electric trains, Electric Multiple Unit (EMU), Diesel Multiple Unit(DMU), modern driverless metro and "Sirio" modular trams.

Key Unmanned Products

- nEUROn — the program, a collaborative program between France, Italy, Sweden, Spain, Greece and Switzerland represents an important effort in maturing new technologies and setting the basis for future military unmanned aircraft programs. nEUROn comprises the design, development, manufacturing and flight testing of an aircraft
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

featured by low radar-cross section and low infra-red signature, capable of autonomous flight and of weapon delivery. Although not a prototype, nEUROn may well be considered representative of future combat UAVs.

- **Sky-Y** - powered by a diesel engine and thrust propeller, was specifically developed as demonstrator of innovation technologies for a surveillance and reconnaissance Medium-Altitude, Long-Endurance (MALE) class remotely piloted aircraft. The Sky-Y flew for the first time in June 2007 and held the continental record of 8 consecutive flight hours for UAVs of below 1,000 kg class, achieved at the Vidsel base in Sweden. In May 2015, from Grazzano Air Force Base Leonardo’s Aircraft Division successfully completed, with its Sky-Y, an important testing cycle proving its functionality: a C-27J was intentionally flown close to the Sky-Y at different altitudes and from different directions) to test the capability of the Sky-Y to change course to avoid collision through an automatic manoeuvre. Tests were carried out with an approach of the two aircraft up to 150 metres.

- **V-Fides** – is a wired guidable vehicle capable of performing various types of mission as autonomous vehicle or remote-controlled vehicle

- **Helistark** - is a rotating wing UAV propelled by an internal combustion engine

- **Horus** – is an aerial robotic platform equipped with optical sensors to carry out surveillance and tactical reconnaissance tasks and missions.

- **TRP2HD** - is a dual use UGV with outstanding mobility, speed, load capacity, ease of remote control and effectiveness.

- **IBIS** – it is a small rotary wing UAV system able to carry out surveillance and tactical reconnaissance tasks and missions.

- **SW-4 ‘Solo’** – It is a light single engine helicopter and designed for both piloted and unmanned operations. It is able to carry out intelligence, surveillance and reconnaissance and cargo re-supply. On 27 February 2018 SW-4 completed its maiden flight with no safety pilot onboard at Taranto-Grottaglie Airport (Southern Italy). The aircraft reached an altitude of 1500 ft and up to 60 knots airspeed during the 45-minute flight. All systems performed as expected with excellent controllability and handling qualities during test.

- **AWHERO** – It is a short range tactical rotary unmanned air vehicle whose design complies with international regulations for both civil as well as military operations.

**Stock Price Performance**

**Table 11: LTM Price Performance vs. EURO STOXX 50 Index**

![Graph showing price performance](image)

*Source: MarketWatch.com*

**Most Recent Annual Reports**


**Quarterly Financial Statements**

Second Quarter 2017:
Third Quarter 2017:

Other Key Financial Data

Table 12: Key Financial Data

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>€7.98 billion</td>
<td>€8.03 billion</td>
<td>-0.6%</td>
<td>€12 billion</td>
<td>€12.99 billion</td>
</tr>
<tr>
<td>Net Income</td>
<td>€272 million</td>
<td>€353 million</td>
<td>-22.9%</td>
<td>€487 million</td>
<td>€505 million</td>
</tr>
<tr>
<td>Operating Income</td>
<td>7.2%</td>
<td>7.9%</td>
<td>70 bps</td>
<td>8.1%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Margins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return On Equity</td>
<td>8.2%</td>
<td>10.9%</td>
<td>-270 bps</td>
<td>11.7%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Shareholders’ Equity</td>
<td>€4.460 billion</td>
<td>€4.062 billion</td>
<td>3.55%</td>
<td>€4.3 billion</td>
<td>€4.28 billion</td>
</tr>
<tr>
<td>Backlog</td>
<td>€33.93 billion</td>
<td>€34.58 billion</td>
<td>-1.9%</td>
<td>€34.79 billion</td>
<td>€28.79 billion</td>
</tr>
</tbody>
</table>

Note: Some figures may not sum to total due to rounding

Key Customers

Italian Navy, Canadian Army and the US Navy

Recent Orders

- **16 August 2017**: Leonardo was awarded $32 million contract from the US Naval Sea Systems Command.
- **20 June 2017**: Leonardo was awarded a share of $492 million contract by the US Navy and Space Welfare Systems Command.
- **9 May 2017**: Leonardo announced that IndiGo has signed provisional deal to buy 50 aircraft from ATR worth US$1.3 billion.
- **17 February 2017**: DRS Technologies announced it received a contract worth US$22 million from US Navy to upgrade its communication systems that allow ship commanders to securely share real time tactical data information.

Research and Development

Table 13: Total Research and Development Spending

<table>
<thead>
<tr>
<th>Period</th>
<th>Annual 2016</th>
<th>Annual 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>€1.37 billion</td>
<td>€1.4 billion</td>
</tr>
</tbody>
</table>
General Dynamics (NYSE: GD)

Headquarters: Falls Church, United States
Address: 2941 Fairview Park Drive, Suite 100, Falls Church, VA 22042-4513 United States
Phone: +1-703-8763000
Fax: +1-703-8763125

Established: February 1952, DE, United States

Key Executives:
Phebe N. Novakovic (Chairman and CEO)
John P. Casey (Executive VP, Marine Systems)
S. Daniel Johnson (Vice President; President, Information Technology)
Mark C. Roualet (Executive VP, Combat Systems)
Jason W. Aiken CPA (Senior Vice President, Chief Financial Officer)
Jeffrey S. Geiger (Vice President; President of Electric Boat)

Number of Employees: 98,600 (as of 31 December, 2016)
Number of Shareholders: NA
Market Capitalization: US$66.05 billion (as of February 27, 2018)

Reporting Period: Fiscal Year Ended December 31
Email Notification for Company Results: YES (http://investorrelations.gd.com/investor-information/email-alerts)

Company Overview

General Dynamics is a major aerospace and defense company - formed by mergers and divestitures - that offer a broad range of products and services in business aviation, combat vehicles, weapons systems and munitions, military and commercial shipbuilding, and communications and information technology. Formed in 1952, General Dynamics has grown organically and through acquisitions until the early 1990s, that currently the company has acquired and integrated more than 60 businesses to further strengthen and complement its business portfolio. The Company operates through four business groups:
Aerospace - which produces Gulfstream aircraft, provides aircraft services and performs aircraft completions for other original equipment manufacturers.
Combat Systems - which designs and manufactures combat vehicles, weapons systems and munitions.
Information Systems and Technology — which provides communications and information technology systems and solutions.
Marine Systems - which designs, constructs and repairs surface ships and submarines. Co.’s primary customer is the US government.

For FY17, its revenue was $2.9 billion, an increase of 8.7% from 2016 revenue of $31 billion.

Key Products

Mid- and large-cabin business-jet aircraft, maintenance, refurbishment, outfitting and aircraft services; Wheeled combat and tactical vehicles, main battle tanks, tracked infantry vehicles, blast- and ballistics-protected vehicles together with maintenance and repair services, munitions and propellant, rockets and gun systems, 120mm mortar and 155mm and 105mm artillery projectiles, conventional bomb structures, mortar systems and large-caliber ammunition, nuclear-powered submarines (Virginia Class), surface combatants, auxiliary and combat-logistics ships, commercial ships and design and engineering support.
Key Unmanned Products

- **Tactical Integrated Sensor Information System (TISIS)** — a mission management system to a fully supported turnkey weapon system for fixed-wing, helicopter or UAV platforms. Designed to incorporate off-the-shelf sensors, the system provides a flexible vehicle for integration of a modern mission system.

Stock Price Performance

**Table 14: LTM Price Performance vs. S&P 500**

![LTM Price Performance vs. S&P 500 Chart]

*Source: Nasdaq*

Most Recent Annual Reports


Quarterly Results


Annual Financial Highlights – 2016

Other Key Financial Data

Table 15: Key Financial Data

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>US$8.27 billion</td>
<td>US$7.65 billion</td>
<td>8.1%</td>
<td>US$30.97 billion</td>
<td>US$31.5 billion</td>
</tr>
<tr>
<td>Aerospace</td>
<td>US$1.98 billion</td>
<td>US$1.82 billion</td>
<td>8.6%</td>
<td>US$8.12 billion</td>
<td>US$7.81 billion</td>
</tr>
<tr>
<td>Combat Systems</td>
<td>US$1.74 billion</td>
<td>US$1.66 billion</td>
<td>5.2%</td>
<td>US$5.94 billion</td>
<td>US$5.53 billion</td>
</tr>
<tr>
<td>Information and Technology</td>
<td>US$2.48 billion</td>
<td>US$2.27 billion</td>
<td>9.5%</td>
<td>US$8.89 billion</td>
<td>US$9.14 billion</td>
</tr>
<tr>
<td>Marine System</td>
<td>US$2.06 billion</td>
<td>US$1.89 billion</td>
<td>8.6%</td>
<td>US$8.00 billion</td>
<td>US$8.07 billion</td>
</tr>
<tr>
<td>Net Income</td>
<td>US$636 million</td>
<td>US$570 million</td>
<td>11.6%</td>
<td>US$2.91 billion</td>
<td>US$2.57 billion</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>7.7%</td>
<td>7.4%</td>
<td>30bps</td>
<td>9.4%</td>
<td>8.4%</td>
</tr>
<tr>
<td>Operating Margin</td>
<td>12.5%</td>
<td>10.0%</td>
<td>250bps</td>
<td>13.5%</td>
<td>12.2%</td>
</tr>
<tr>
<td>Return On Assets</td>
<td>7.4%</td>
<td>5.8%</td>
<td>-160bps</td>
<td>7.7%</td>
<td>7.2%</td>
</tr>
<tr>
<td>Return On Equity</td>
<td>26.6%</td>
<td>25.6%</td>
<td>100bps</td>
<td>26.8%</td>
<td>25.5%</td>
</tr>
<tr>
<td>Shareholders’ Equity</td>
<td>US$11.43 billion</td>
<td>US$10.30 billion</td>
<td>6.3%</td>
<td>US$11.43 billion</td>
<td>US$10.30 billion</td>
</tr>
<tr>
<td>Backlog</td>
<td>US$63.2 billion</td>
<td>US$62.20 billion</td>
<td>1.6%</td>
<td>US$63.2 billion</td>
<td>US$62.20 billion</td>
</tr>
</tbody>
</table>

Note: Some figures may not sum to total due to rounding

Key Customers

The US Department of Defense, the US Army, the US Navy, the US Department of State, Government of Canada, National Geospatial-Intelligence Agency, the Department of Homeland Security and the Department of Health and Human Services. General Dynamics also conducts business with government customers globally, for instance Australia, Canada, Germany, Mexico, Spain, Switzerland and the United Kingdom.

Recent Orders

- **6 December 2017**: General Dynamics Electric Boat was awarded $432 million contract by the US Navy for research and development & lead-yard services for Virginia-class nuclear-powered attack submarines.
- **3 August 2017**: General Dynamics Land Systems was awarded $270.1 million of contract from the U.S. Army Contracting Command for tracked combat, assault and tactical vehicles.
- **23 June 2017**: US Navy awarded Electric Boat a $203 million modification to an existing contract to increase design support for the Columbia-class ballistic missile submarine.
- **4 May 2017**: General Dynamics Information Technology unit was awarded a contract to support the Defense Logistics Agency J6 Enterprise Technology Services program with a ceiling limit of US$6 billion for a five-year base period with three option years.
- **5 April 2017**: The UK Ministry of Defense awarded a £330 million contract to General Dynamics United Kingdom Limited to design and develop the next-generation tactical communication and information system as the initial phase of the MORPHEUS programme.
- **21 February 2017**: General Dynamics Information Technology unit was awarded US$155 million contract from the Defense Intelligence Agency to manage enterprise communications for the Combatant Commands and its subordinate units.
- **16 February 2017**: General Dynamics was awarded a US$170 million contract option from the Defense Intelligence Agency to provide a wide range of cyber security services required to defend intelligence networks and systems for the Agency, Combatant Commands and various Military Services.
- **16 February 2017**: General Dynamics Electric Boat unit awarded a contract of US$126.5 million by the U.S. Navy for long lead time material for the first two Block V Virginia-class submarines, SSN-802 and SSN-803.
9 December 2016: General Dynamics Bath Iron Works unit was awarded a US$59 million contract for the continuation of Arleigh Burke-class (DDG 51) Lead Yard Services and Flight III Upgrade design efforts from the US Navy.

Table 16: Backlog Based on Business Segments

<table>
<thead>
<tr>
<th>Segments</th>
<th>2017</th>
<th>2016</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace</td>
<td>US$12.46 billion</td>
<td>US$13.21 billion</td>
<td>-5.6%</td>
</tr>
<tr>
<td>Combat Systems</td>
<td>US$17.61 billion</td>
<td>US$17.8 billion</td>
<td>-1.06%</td>
</tr>
<tr>
<td>Information Systems</td>
<td>US$8.87 billion</td>
<td>US$8.4 billion</td>
<td>5.69%</td>
</tr>
<tr>
<td>and Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine Systems</td>
<td>US$24.21 billion</td>
<td>US$22.72 billion</td>
<td>6.55%</td>
</tr>
</tbody>
</table>

*Note: Some figures may not sum to total due to rounding*

Research and Development

Table 17: Total Research and Development Spending

<table>
<thead>
<tr>
<th>Period</th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>US$521 million</td>
<td>US$418 million</td>
<td>US$395 million</td>
</tr>
</tbody>
</table>

Merger, Acquisition and Alliance Activity

3 May 2017: General Dynamics announced purchase of cyber products division of Phoenix based Advatech Pacific Inc.
Lockheed Martin Corporation (NYSE: LMT)

Headquarters: United States
Address: 6801 Rockledge Drive, Bethesda, MD 20817 United States
Phone: +1-301-8976000
Fax: +1-301-897-6442

Established: August 1994

Key Executives:
Marilyn A. Hewson (Chairman of the Board, President, Chief Executive Officer)
Bruce L. Tanner (Executive Vice President, Chief Financial Officer)
Maryanne R. Lavan (Senior Vice President, General Counsel, Corporate Secretary)
Dana Jackson (Chief Technology Officer, Vice President)

Number of Employees: 97,000 (approximate full-time as of December 31, 2016)
Market Capitalization: US$100.09 billion (as of February 27, 2018)

Reporting Period: Fiscal Year Ended December 31
Email Notification for Company Results: Yes, http://phx.corporate-ir.net/phoenix.zhtml?c=83941&p=emailalerts_home

Company Overview

Lockheed Martin Corporation is a global aerospace and security company principally engaged in the research, design, development, manufacture, integration, and sustainment of advanced technology systems and products. The company also provides a broad range of management, engineering, technical, scientific, logistic, and information services. It serves both domestic and international customers with products and services that have defense, civil, and commercial applications, by operating through its five main segments:
Aeronautics — researches, designs, develops, manufactures, integrates, sustains, supports, and upgrades military aircraft.
Information Systems & Global Solutions — provides technology systems, information technology applications, and management services across a range of applications.
Missiles & Fire Control — provides air and missile defense systems, tactical missiles and air-to-ground precision strike weapon systems.
Mission Systems & Training — provides ship and submarine combat systems.
Space Systems — provides satellites, defensive missile systems, and space transportation systems.

Its sales for FY17 were $51.0 billion, up 8% YOY. For FY18, the company guided for revenues to be in range of $50 - $51.5 billion.

Subsidiaries

THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

Key Products

Fighter aircraft; military transport or tactical airlift aircraft; logistics, upgrades, modifications, and MRO services, ship systems integration — command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) capability, surface ship and submarine combat systems; sea-based missile defense systems; sensors; tactical avionics; port traffic management systems; missile launching systems, aerostat surveillance systems; land-based, air, and theatre missile-defense systems, tactical battlefield missiles, E/O systems, fire-control and sensor systems, precision-guided weapons and munitions, missions operations support, readiness, engineering support, and integration services, simulation and training services, net-enabled situational awareness, communications and command and control capabilities; advanced intelligence processing, satellites, missile systems and space transportation systems.

In February 2018, the company launched “VCSI”, a commercial software that enables operators to simultaneously control multiple unmanned vehicles.

Key Unmanned Products

- **K-Max** — a transformational technology for a fast-moving combat zone that will allow Marines to deliver supplies either day or night to particular areas. The aircraft is able to fly at higher altitudes with larger load than any other rotary wing UAS. With its four hook carousel, the K-MAX UAS can also deliver more shipments to various locations in a single flight.

- **Indago VTOL** — provides military, civil and commercial customers with aerial exploration in crowded areas which are usually unreachable by fixed-wing unmanned aircraft systems.

- **Desert Hawk III** — a rugged air vehicle and a lightweight, portable ground station, which provides operator training, autonomous pre-flight planning, in-flight control of plug-and-play optical and infrared sensors, terrain avoidance measures, the ability to provide real time dynamic in-flight mission and flight profile ret-asking.

- **Persistent Threat Detection System (PTDS)** — a system designed specifically to complete, transportable UAS computing and storage platform. It has the computing power, system resources, data storage, and interface ability to supervise and control multiple UAV Airframes and their associated ISR Payloads.

- **High Altitude Airship** — an un-tethered, unmanned lighter-than-air vehicle that operate above the jet stream in a geostationary position to deliver persistent station keeping as a surveillance platform, telecommunications relay, or a weather observer.

- **Squad Mission Support System (SMSS)** — SMSS is the largest unmanned vehicle deployed with the US ground forces. It leverages robotic technologies for unmanned transport and logistical support for light, early entry and special operations forces. It works out capability gaps by lightening the Soldier’s load and also serves as a power management resource.

- **Transformer TX** — aimed to develop and demonstrate a prototype system that could offer flexible, terrain-independent transportation for logistics, personnel transport and tactical support missions for small ground units. In 2013, DARPA selected the Aerial Reconfigurable Embedded System (ARES) design model to move forward.

- **Remote Minehunting System** — addresses a critical Mine Warfare gap (using unmanned, off board systems to detect, classify, localize and identify bottom and moored mines in littoral regions) without putting sailors or high-value capital ships in the minefield.

- **Martin** — offers a range of civilian and military customers a quick and safe way to conduct subsea surveys and inspections by creating a window below the surface of the water that allows users to manage what they typically cannot see.

- **Expeditionary Ground Control System** — a system designed specifically to be a complete, transportable UAS computing and storage platform. It has the computing power, system resources, data storage, and interface capability to monitor and control multiple UAV Airframes and their associated ISR Payloads.

- **Ares** – a system designed specifically to make ground related transportation from difficult terrain and threats, such as ambushes and improvised Explosive Devices (IEDs).

- **Desert Hawk III** - a next generation UAS designed for portability, quick mission planning, hand launched and skid recovery, multi-mission versatility, enhanced day/night target detection, recognition, identification, greater operational range, endurance and covert operations.
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

- Autonomous Mobility Applique System (AMAS) – is a low cost, low risk autonomy kit for military logistics vehicles providing driver warnings and assist and leader-follower capabilities.
- Orca – is an Extra Long Unmanned Undersea Vehicle. It is currently in design phase.

Stock Price Performance

Table 18: LTM Price Performance vs. S&P 500

![Graph showing price performance over a year](chart.png)

*Source: Nasdaq*

Most Recent Annual Reports


Quarterly Financial Statements

First Quarter 2017: [http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9Mzc1MTE3fENoaWxkSUQ9LTF8VHlwZT0z&t=1&cb=636287178387176739](http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9Mzc1MTE3fENoaWxkSUQ9LTF8VHlwZT0z&t=1&cb=636287178387176739)

First Quarter 2016: [http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MzM1MDI4fENoaWxkSUQ9LTF8VHlwZT0z&t=1&cb=635972657834994413](http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MzM1MDI4fENoaWxkSUQ9LTF8VHlwZT0z&t=1&cb=635972657834994413)
Second Quarter 2016: [http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MzQ0NjYzfENoaWxkSUQ9LTF8VHlwZT0z&t=1&cb=636044945369683175](http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MzQ0NjYzfENoaWxkSUQ9LTF8VHlwZT0z&t=1&cb=636044945369683175)
Other Key Financial Data

Table 19: Key Financial Data 2016

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>US$15.13 billion</td>
<td>US$13.75 billion</td>
<td>10%</td>
<td>US$47.2 billion</td>
<td>US$47.2 billion</td>
</tr>
<tr>
<td>Missiles and Fire Control</td>
<td>US$2.29 billion</td>
<td>US$1.75 billion</td>
<td>31%</td>
<td>US$7.21 billion</td>
<td>US$6.60 billion</td>
</tr>
<tr>
<td>Net Income</td>
<td>-US$642 million</td>
<td>US$988 million</td>
<td>NA</td>
<td>US$2.0 billion</td>
<td>US$5.3 billion</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>NA</td>
<td>7.18%</td>
<td>NA</td>
<td>10.8%</td>
<td>10.7%</td>
</tr>
<tr>
<td>Operating Margin</td>
<td>12.3%</td>
<td>10.4%</td>
<td>190 bps</td>
<td>11.6%</td>
<td>11.7%</td>
</tr>
<tr>
<td>Return On Assets</td>
<td>7.3%</td>
<td>6.5%</td>
<td>80bps</td>
<td>7.3%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Return On Equity</td>
<td>387.0%</td>
<td>159.6%</td>
<td>2274 bps</td>
<td>387.0%</td>
<td>159.6%</td>
</tr>
<tr>
<td>Shareholders’ Equity</td>
<td>-US$609 million</td>
<td>US$1.6 billion</td>
<td>NA</td>
<td>-US$609 million</td>
<td>US$1.6 billion</td>
</tr>
<tr>
<td>Backlog</td>
<td>US$99.93 billion</td>
<td>US$96.2 billion</td>
<td>3.87%</td>
<td>US$99.93 billion</td>
<td>US$96.2 billion</td>
</tr>
</tbody>
</table>

Note: Some figures may not sum to total due to rounding

Key Customers

Department of Defense, Missile Defense Agency, NASA, NAMEADSMA, Office of the Secretary of Defense, Space and Missile Defense Command, the US Air Force, the US Army, the US Navy, the UK Ministry of Defense, British Army, British Royal Navy, British Royal Air Force, United Kingdom, Germany, Italy, Japan and the Netherlands.

Recent Orders

- **31 January 2018**: The company was awarded $81 Million Contract to modernize US Air Force Airborne launch control system.
- **20 December 2017**: The US Air Force provided contracts worth $961 million to upgrade its fleet of 683 Sniper ATP (Advanced Targeting Pods) which include logistics, spares, software and sensor enhancements.
- **14 August 2017**: Lockheed Martin was awarded $8 billion contract from Special Operations Command for logistics support services and expertise to maintain program support and Enterprise management functions for Program Executive Office of the Special Operations Forces Support Activity.
- **10 July 2017**: The US Army awarded a $288 million contract to Lockheed Martin to modernize its live training program.
- **3 July 2017**: The US Government awarded a $5.2 billion contract for a five-year contract for 257 H-60 Black Hawk helicopters to be delivered to the U.S. Army and foreign military sales customers.
- **22 May 2017**: Lockheed Martin received a major contract from kingdom of Saudi Arabia worth US$28 billion which includes air and missile defense systems, aircraft, helicopters and logistical support.
- **20 May 2017**: Lockheed Martin Corp was awarded US$137 million contract from US Naval Air Systems Command for low-rate initial production of Lot 9 F-35 lightening II Joint Strike Fighter Aircraft.
- **1 May 2017**: Lockheed Martin received a US$1.37 billion contract for low-rate initial production of 130 Lot 12 F-35 lightning II fighter planes to be delivered by December 2018.
- **24 April 2017**: Lockheed Martin was awarded US$1.6 billion contract for continuing manufacturing AN/TP-Q-53 counter fire radar.
- **11 April 2017**: US Navy awarded Lockheed Martin a contract of US$372 million to address several issues with F-35 Lightening II.
- **4 April 2017**: Lockheed Martin was awarded US$1.6 billion contract for more mobile radar system by the Pentagon.

**Research and Development**

**Table 20: Total Research and Development Spending**

<table>
<thead>
<tr>
<th>Period</th>
<th>2016</th>
<th>2015</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>US$988 million</td>
<td>US$817 million</td>
<td>US$733 million</td>
</tr>
</tbody>
</table>

**Merger, Acquisition and Alliance Activity**

- **9 March 2017**: Lockheed Martin and MBDA Holdings is planning to form a Joint Venture to manage missile defense program.
- **13 February 2017**: Lockheed Martin and Geoscience Australia have entered into collaboration for research project to show how augmenting signals from multiple GNSS constellations can enhance positioning, navigation, and timing for a range of applications.
Northrop Grumman Corporation (NYSE: NOC)

Headquarters: United States
Address: 2980 Fairview Park Drive, Falls Church, VA 22042 United States
Phone: +1-703-2802900
Fax: +1-302-6555049

Established: 1939, California
Re-established: 1994, DE, United States

Key Executives:
Wesley G. Bush (Chairman of the Board, President, Chief Executive Officer)
Kenneth L. Bedingfield (Corporate Vice President, Chief Financial Officer)
Denise M. Peppard (Corporate Vice President, Chief Human Resources Officer)
Patrick M. Antkowiak (Chief Technology Officer, Corporate Vice President)
Michael A. Hardesty CPA (Chief Accounting Officer, Corporate Vice President, Controller)
Shella C. Cheston J.D. (Corporate Vice President, General Counsel)

Number of Employees: 70,000 (as of December 31, 2017)
Number of Shareholders: NA
Market Capitalization: US$60.93 billion (as of February 27, 2018)
Reporting Period: Fiscal Year Ended December 31

Email Notification for Company Results: YES
(http://investor.northropgrumman.com/phoenix.zhtml?c=112386&p=irol-alerts&t=&id=&)

Company Overview

Northrop Grumman Corporation is an American global security, aerospace and defense technology company formed by Northrop’s 1994 purchase of Grumman. It provides systems, products and applications in unmanned systems, cyber security; command, control, communications and computers intelligence, surveillance, and reconnaissance (C4ISR); strike aircraft and logistics and modernization to government and commercial customers.

The company is made up of four business segments — Aerospace Systems, Electronic Systems, Information Systems and Technical Services. Northrop Grumman conducts most of its businesses with the US Government, principally the Department of Defense and intelligence community. The company also conducts business with foreign, state and local governments and domestic and international commercial customers.

After the Australian Prime Minister, Tony Abbott, announced the Australian Government’s intent to purchase the Triton UAS for high-altitude, long-endurance surveillance missions, Northrop Grumman was awarded on July 30, 2015, the first Australian supplier contract for the US Navy’s MQ-4C Triton UAS initial production lot to Ferra Engineering. Based on the contract, Brisbane-based Ferra Engineering will manufacture mechanical sub-assemblies for the first four Triton air vehicles including structural components.

The company was the fifth-largest defense contractor in the world as of 2015 and employs over 67,000 people globally. Northrop Grumman competes with many companies — for instance BAE Systems, Boeing, Booz Allen Hamilton, Leonardo, General Dynamics, L-3 Communications, Lockheed Martin, Raytheon and Thales — in the defense, intelligence and federal markets.

Its sales for FY17 were $25.8 billion, up 5.3% YoY. For 2018, NOC anticipates revenue to be nearly ~$27 billion.
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

Key Products

Tactical and long-range strike aircraft systems, unmanned Aircraft Systems (UAS), Missile systems, spacecraft systems, electronic and communications payloads, airborne early warning, surveillance, battlefield management, and electronic warfare systems, advanced space-based radar systems, electro-optical early warning and surveillance systems, Fire Control Radars (FCR), integrated electronic warfare capability, communications, and intelligence systems, unattended ground sensors, anti-ship missile defense and surveillance radars, propulsion equipment and missile launch systems; fiber optic sensors, inertial sensors and navigation systems and airborne EO/IR targeting systems net-enabled battle management C4ISR systems.

Key Unmanned Products

- **RQ-4 Global Hawk reconnaissance system** — a high-altitude long-endurance system providing close to real-time high resolution imagery of large geographical areas.
- **MQ-4C Triton** — an aircraft system that provides real-time ISR over vast ocean and coastal areas. In November 2017, LMT delivered the first operational MQ-4C to US Navy. It is expected to deliver a second aircraft later this year.
- **Trans-Atlantic North Atlantic Treaty Organization (NATO) Alliance Ground Surveillance (AGS)** — a system for multinational theatre operations, peacekeeping missions, and disaster relief efforts.
- **MQ-8 Fire Scout** — an aircraft system which provides exceptional situational awareness and precision targeting support. NOC has launched two new systems under the series - MQ-8B and MQ-8C, which can integrate with manned vehicles and help in surveying, detecting and engaging targets.
- **Navy Unmanned Combat Air System (UCAS)** — an unmanned combat air vehicle for carrier-based operations.
- **Common Mission Management System** — provides high performance service based on ground control solutions which allow unmanned mission capabilities possible.
- **Bat Unmanned Aircraft System** – an affordable, medium altitude, multi-mission unmanned aircraft system which can be configured with differently sized fuel tanks and different sensor payloads to meet ever-changing tactical missions, including intelligent, surveillance, target acquisition and communication relay.

Stock Price Performance

**Table 21: LTM Price Performance vs. S&P 500**

![Graph showing LTM Price Performance vs. S&P 500]

*Source: Nasdaq*

Most Recent Annual Reports

THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

Quarterly Financial Statements

Third Quarter 2017: http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MzkxODE2fENoaWxkSUQ9LTF8VHlwZT0z&t=1&cb=636445245112735105


Other Key Financial Data

Table 22: Key Financial Data

<table>
<thead>
<tr>
<th>Key Financial Data</th>
<th>Quarter ended December 31, 2017</th>
<th>Quarter ended December 31, 2016</th>
<th>Percent Change</th>
<th>Annual 2017</th>
<th>Annual 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Income</td>
<td>US$767 million</td>
<td>US$831 million</td>
<td>-7.7%</td>
<td>US$3.29 billion</td>
<td>US$3.19 billion</td>
</tr>
<tr>
<td>Net Income</td>
<td>US$178 million</td>
<td>US$525 million</td>
<td>-66%</td>
<td>US$2.01 billion</td>
<td>US$2.20 billion</td>
</tr>
<tr>
<td>Total Asset</td>
<td>US$34.91 billion</td>
<td>US$25.61 billion</td>
<td>36.31%</td>
<td>US$34.91 billion</td>
<td>US$25.61 billion</td>
</tr>
<tr>
<td>Shareholders’ Equity</td>
<td>US$7.04 billion</td>
<td>US$5.25 billion</td>
<td>34.09%</td>
<td>US$7.04 billion</td>
<td>US$5.25 billion</td>
</tr>
<tr>
<td>Backlog</td>
<td>US$42.87 billion</td>
<td>US$45.3 billion</td>
<td>5.36%</td>
<td>US$42.87 billion</td>
<td>US$45.3 billion</td>
</tr>
</tbody>
</table>

Key Customers

The US Government, Ministry of the National Guard Training Support, the US Armed Forces, National Aeronautics and Space Administration, Missile Defense Agency, the US Air Force, Royal Australian Air Force, Saudi Arabian National Guard and Australian Department of Defence

Recent Orders

- 13 February 2018: The company has been selected by DARPA as a Phase 1 Swarm Systems Integrator for the Agency’s Offensive Swarm-Enabled Tactics (OFFSET) program. The goal is to provide small UAS or UGS in swarms to support complex environment missions. Deal is worth $3.70 million.
- 13 August 2017: Northrop Grumman Systems was awarded $499 million contract by the US Air Force Research Lab for a warfighter under the Aerospace Systems Air Platform Technology Research program.
- 12 July 2017: Northrop Grumman received $409 million contract from US Air Force for next generation thermal, power, and controls.
- 25 June 2017: Northrop Grumman was awarded $353 million contract from US Naval Air System Command for unmanned aircraft system.
- 10 May 2017: Northrop Grumman Systems was awarded US$332 million federal contract by the Missile Defense Agency for enterprise-level technical integration and ballistic missile defense system (BMDS)-level operational integration products and services.
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

- **11 February 2017**: Northrop Grumman was awarded a US$1.88 billion contract for space tracking and surveillance systems by the Missile Defense Agency.
- **18 January 2017**: Northrop Grumman received US$140 million contract for providing battlefield airborne communication nodes for the US Air Force.

Research and Development

**Table 23: Total Research and Development Spending**

<table>
<thead>
<tr>
<th>Period</th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>US$639 million</td>
<td>US$705 million</td>
<td>US$712 million</td>
</tr>
</tbody>
</table>

Acquisition and Merger

- **02 February 2018** - The company announced the approval of European Commission for its acquisition of Orbital ATK for $9.2 billion ($7.8 billion in cash and assumption of $1.4 billion in net debt).
Safran SA (EPA: SAF)

Investor information: http://www.safran-group.com/finance/investor-relations
Headquarters: France
Address: 2, Boulevard du General Martial-Valin, Paris, 75724 France
Phone: +33-1-40608080
Fax: +33-1-40608102

Established: August 1924, France

Key Executives:
Ross McInnes (Chairman of the Board)
Philippe Petitcolin (Chief Executive Officer, Director)
Christian Streiff (Independent Vice Chairman of the Board)
Bernard Delpit (Chief Financial Officer, Member of the Executive Committee)
Jean-Luc Berard (Executive Vice President of Human Resources, Member of the Executive Committee)
Stephane Abrial (Senior Executive Vice President of International & Public Affairs, Member of the Executive Committee)
Eric Dalbies (Executive Vice President of Strategy and M&A, Member of the Executive Committee)
Stephane Cueille (Senior Executive Vice President of R&T and Innovation, Member of the Executive Committee)
Jean-Jacques Orsini (Executive Vice President of Performance and Competitiveness, Member of the Executive Committee)

Number of Employees: 58,300 (year end Average Staff as of December 31, 2017)
Number of Shareholders: N/A

Market Capitalization: €40.21 billion (as of February 27, 2018)
Reporting Period: Fiscal Year Ended December 31
Email Notification for Company Results: N/A

Company Overview

Safran SA is a France-based high-technology company which produces aircraft and rocket engines and propulsion systems. It divides its work into three segments: Aerospace, Aircraft, Defense and Security. The Aerospace includes Aerospace Propulsion (propulsion systems for commercial aircraft, military transport, training and combat aircraft, rocket engines, civil and military helicopters) and Aircraft Equipment (mechanical, hydro mechanical and electromechanical equipment). The Defense division which includes the subsidiary, Sagem, makes optronic, avionic and electronic systems, while its Security segment deals with biometric technologies for fingerprint, iris and face recognition, identity management products, access management and transaction security, including tomographic systems for detection of dangerous or illicit substances in baggage.

The company reported revenues for FY17 at €16.5 billion, up 4.7% YOY. As per the company guidance for year 2018, adjusted revenue are expected to grow on an organic basis in the range 2% to 4%.

Key Products

Key Unmanned Products

Safran is the producer of tactical drone systems in France for over 15 years, building on its expertise in all the enabling technologies needed for development and production. At present, drones that are in service and integrated in the digital battlefield, are those which are able to perform a number of different missions. For instance, surveillance, intelligence, early warning, artillery and gunship guidance, protection, maneuver control, as well as threat detection.

The Patroller, a multi-sensor tactical drone, was designed for land forces, operational support and maritime surveillance. It Features a highly modular design, can be fitted with a wide range of sensors and is easily deployed in foreign theatres of operation. Using its own automatic launch system, it can be deployed from an airport without requiring any change to ground facilities, and offers 24-hour endurance with a payload exceeding 250 kg. The Patroller carries a new-generation very-high-resolution imaging system and the ground station is interoperable with NATO control systems and networks. In April 2016, the Patroller drone won the competition for the French army’s new “tactical drone system” (SDT) program contract.

Stock Price Performance

Table 24: LTM Price Performance vs. EURO STOXX 50 Index

Source: MarketWatch.com

Most Recent Annual Reports


Quarterly Financial Statements

First Quarter 2017: https://www.safran-group.com/finance/key-figures-and-results/results-0/Results
Second Quarter 2017: https://www.safran-group.com/finance/key-figures-and-results/results-0/Results?page=1
Fourth Quarter 2017: https://www.safran-group.com/finance/key-figures-and-results/results-0/Results

First Quarter 2016: https://www.safran-group.com/finance/key-figures-and-results/results-0/Results?page=2
Second Quarter 2016: https://www.safran-group.com/finance/key-figures-and-results/results-0/Results?page=2
Third Quarter 2016: https://www.safran-group.com/finance/key-figures-and-results/results-0/Results?page=2
Fourth Quarter 2016: https://www.safran-group.com/finance/key-figures-and-results/results-0/Results?page=2

Key Financial Data

Table 25: Key Financial Data

<table>
<thead>
<tr>
<th>Key Financial Data</th>
<th>Annual 2017</th>
<th>Annual 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>€16.52 billion</td>
<td>€15.78 billion</td>
</tr>
<tr>
<td>Operating Income</td>
<td>€2.38 billion</td>
<td>€2.38 billion</td>
</tr>
</tbody>
</table>
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

<table>
<thead>
<tr>
<th>Net Income</th>
<th>€2.68 billion</th>
<th>€1.86 billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Asset</td>
<td>€32.24 billion</td>
<td>€31.05 billion</td>
</tr>
<tr>
<td>Shareholders' Equity</td>
<td>€10.62 billion</td>
<td>€6.80 billion</td>
</tr>
</tbody>
</table>

Key Customers

NATO, Korean Air, Sriwijaya Air, London Heathrow Airport, the UK Department of Transport, French Army, the US Transportation Security Administration

Table 26: Revenues by Business Segments for the Nine Months of 2017

Total Revenue: €16.52 billion

<table>
<thead>
<tr>
<th>Segments</th>
<th>Percentage of Total Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Propulsion</td>
<td>58.95% or €9.74 billion</td>
</tr>
<tr>
<td>Aircraft Equipment</td>
<td>32.74% or €5.41 billion</td>
</tr>
<tr>
<td>Defense</td>
<td>8.11% or €1.34 billion</td>
</tr>
</tbody>
</table>

Note: Some figures may not sum to total due to rounding

Recent Orders

- **21 June 2017**: CFM International was awarded a $1.2 billion contract for supplies of LEAP-1A engines to power 20 new Airbus A320neo/A321neo aircraft scheduled to begin delivery in 2019 and LEAP-1B engines to power 22 new Boeing 737 MAX aircraft with deliveries scheduled to begin in 2018.
- **23 May 2017**: CFM International was awarded a US$27 million contract from US Naval Air Systems Command for supplies and service research for the CFM56 engine field assessment.
- **1 February 2017**: CFM International received a US$1.9 billion contract to provide F108 replenishment space parts for the US Defense Logistics Agency.

Table 27: Number of Units Delivered

<table>
<thead>
<tr>
<th>Period</th>
<th>Year 2017</th>
<th>Year 2016</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFM56 Engines</td>
<td>1,444</td>
<td>1,693</td>
<td>-15%</td>
</tr>
<tr>
<td>Leap engines</td>
<td>459</td>
<td>77</td>
<td>6x</td>
</tr>
<tr>
<td>High Thrust Engines</td>
<td>486</td>
<td>686</td>
<td>-29%</td>
</tr>
<tr>
<td>Helicopter Engines</td>
<td>672</td>
<td>714</td>
<td>-6%</td>
</tr>
<tr>
<td>M88 Engines</td>
<td>33</td>
<td>11</td>
<td>3x</td>
</tr>
<tr>
<td>A350 Landing Gear</td>
<td>81</td>
<td>56</td>
<td>45%</td>
</tr>
<tr>
<td>787 Landing Gear</td>
<td>134</td>
<td>128</td>
<td>5%</td>
</tr>
<tr>
<td>A380 Nacelles</td>
<td>49</td>
<td>99</td>
<td>-51%</td>
</tr>
<tr>
<td>A330 Thrust Reversers</td>
<td>106</td>
<td>91</td>
<td>16%</td>
</tr>
<tr>
<td>A320neo Nacelles</td>
<td>235</td>
<td>65</td>
<td>3.6x</td>
</tr>
<tr>
<td>A320ceo Thrust Reversers</td>
<td>504</td>
<td>548</td>
<td>-8%</td>
</tr>
<tr>
<td>Small Nacelles</td>
<td>477</td>
<td>600</td>
<td>-21%</td>
</tr>
</tbody>
</table>

Merger, Acquisition and Alliance Activity

- **22 June 2017**: Safran Electronic & Defense SAS acquired ISEI.
- **19 January 2017**: Safran made an offer to acquire Zodiac Aerospace for €5.6 billion in cash. The cash portion of the transaction and a special dividend would be financed with a combination of cash on hand,
including future proceeds from the disposals of Safran Identity & Security, existing committed undrawn facilities and a €4bn fully underwritten bridge loan. The acquisition was completed on 6 February 2018. Safran now holds more than 88% of share and voting rights in Zodic Aerospace.
Thales SA (EPA: HO)

Investor information: https://www.thalesgroup.com/en/investors

Headquarters: La Défense, France
Address: Tour Carpe Diem, 31 Place des Corolles, CS 20001, 92098, Paris La Défense Cedex, Paris, France
Phone: +33-1-57778000
Fax: +33-1-57778300

Established: 1968, France

Key Executives:
Patrice Caine (Chairman of the Board, Chief Executive Officer)
Pascal Bouchiat (Senior Executive Vice President, Chief Financial Officer)
Pierre-Eric Pommellet (Senior Executive, Vice-President, Chief Operating Officer and Chief Performance Officer)
Pascale Sourisse (Senior Executive Vice President - International Development)
Philippe Keryer (Executive Vice President - Strategy, Research and Technology)
David Tournadre (Senior Executive Vice President of Human Resources)
Millar Crawford (Executive Vice President - Ground Transportation Systems)
Marc Darmon (Executive Vice-President – Secure Communication and Information Systems)
Jean-Loic Galle (Executive Vice President - Space)

Number of Employees: 64,000 (year end average staff as of December 31, 2016)
Number of Shareholders: N/A

Market Capitalization: €19.40 billion (as of February 27, 2018)
Reporting Period: Fiscal Year Ended December 31
Email Notification for Company Results: N/A

Company Overview
Thales Group is a French multinational company that designs and builds electrical systems and provides services for the aerospace, defense, transportation and security markets. It operates in many countries through its divisions, including:
Aerospace — specialized in onboard equipment, electronics and systems for the military markets.
Ground Transportation (Ground Transport Systems) — offers a range of integrated transportation and railway systems.
Defense (Secure Communications & Information Systems Land and Air Systems, Defense Mission Systems) — the division which designs and delivers interoperable and protected information and telecommunications systems for military forces, security forces, and essential operators
Security — which offers the emergence of new types of threats from terrorism to drug trafficking.

The company revenue for FY16 was €14.88 billion, up 5.8% YOY. For 9M17, the company sales were €10.3 billion, up 3% YOY. Order intake for 9M17 was €8.8 billion, down 14% YOY. Thales expects total order intake for full year 2017 to be around €14 billion and EBIT to be in range of €1,480 - €1,500 million.

Subsidiaries

Key Products
Watchkeeper WK450, Eurocat (transport) (renamed to TopSky in 2012) and Search Master and Ocean Master radars.
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

Key Unmanned Products

- Hermes 450 — in support of operations, providing persistent ISTAR coverage and delivering very high visual and IR imagery, day and night.
- Watchkeeper WK450 — world’s most sophisticated tactical ISTAR system and Europe’s largest UAS program. The Watchkeeper is designed to be part of a highly networked system that allows for greater dissemination and exploitation of intelligence, and will be a key component of the network enabled capability.
- MALE UAS — used to identify the position of enemy forces, the mass movement of non-combatant populations, the state of in-theatre infrastructures, as well as to establish lists of targets.
- VTOLS — are becoming a must for future UAS. This system offers a unique level of security and redundancy to allow certification, thus, enables UAV landings with no external pilot – a key advantage for both Army and Navy operations.
- FULMAR — small fixed wing system from Thales Spain/Aerovision, integrated into the Maritime and Land Border Surveillance solution.
- Lightweight Multi-role Missile — a low cost, lightweight, precision strike missile, which has been designed to be fired from a variety of light aircraft, UAVs or micro-lites
- Spy Ranger- is the world’s only capable EO/IR imaging system for transmitting high definition electro optical and infrared imagery in real time.
- Spy Arrow- is a user friendly lightweight portable UAV designed to perform fast and efficient short-range observation and provide stabilized georeferenced video imagery in real time.

Stock Price Performance

Table 28: LTM Price Performance vs. EURO STOXX 50 Index

Source: MarketWatch.com

Most Recent Annual Reports


Half Yearly Financial Statements

Other Key Financial Data

Table 29: Key Financial Data

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>€7.24 billion</td>
<td>€6.84 billion</td>
<td>5.8%</td>
<td>€14.88 billion</td>
<td>€14.06 billion</td>
</tr>
<tr>
<td>Operating Income</td>
<td>€450 million</td>
<td>€398 million</td>
<td>13.06%</td>
<td>€970 million</td>
<td>€809 million</td>
</tr>
<tr>
<td>Net Income</td>
<td>6.21%</td>
<td>5.81%</td>
<td>40 bps</td>
<td>6.51%</td>
<td>5.75%</td>
</tr>
<tr>
<td>Asset</td>
<td>8.8%</td>
<td>8.1%</td>
<td>70 bps</td>
<td>9.10%</td>
<td>8.64%</td>
</tr>
<tr>
<td>Shareholders’ Equity</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>€4.86 billion</td>
<td>€4.94 billion</td>
</tr>
<tr>
<td>Backlog</td>
<td>€31.86 billion</td>
<td>€33.53 billion</td>
<td>-5%</td>
<td>€33.53 billion</td>
<td>€32.29 billion</td>
</tr>
</tbody>
</table>

Note: Some figures may not sum to total due to rounding

Key Customers


Recent Orders

- **17 August 2017**: Thales was awarded a multibillion-dollar contract to service Canada’s new fleet of Arctic offshore patrol ships and joint support vessels. Thales Canada will provide in-service support for the vessels under a contract that could total $5.2 billion over 35 years.
- **27 June 2017**: Thales Defense & Security Inc was awarded contract worth $4.99 million from US Navy Supply Systems Command for the repair and modification of day display modules.
- **11 April 2017**: Thales SA won a EUR 977 million contract for 10 years from the French Defense Ministry.
- **17 March 2017**: Thales Nederland was awarded a US$10.7 million federal contract by the U.S. Naval Sea Systems Command for two missile guidance units, spare parts, technical manuals, training and engineering support services for Japan.

Merger, Acquisition and Alliance Activity

- **17 December 2017**: Thales signed an agreement to acquire Gemalto for a price of €51 per share cum dividend. The transaction is expected to be closed in second half of 2018 once all regulatory approvals are received.
- **11 November 2017**: Thales completed acquisition of Aveillant Ltd, a pioneer in holographic radar technology.
- **19 June 2017**: Thales Alenia Space France SAS agreed to acquire a minority stake in Airstar Aerospace.
- **28 April 2017**: Thales SA signed a definitive agreement to acquire Guavus Inc from Sofinnova Ventures Inc, Artiman Management LLC, Intel Capital, QuestMark Partners, GS Direct, LLC and others for an enterprise value of approximately US$220 million. The transaction is expected to be completed during the third quarter of 2017.
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

The Boeing Company (NYSE:BA)

Investor information: http://www.boeing.com/investors/
Headquarters: United States
Address: 100 North Riverside Plaza, MC5003-1001, Chicago, IL 60606-1596, United States
Phone: +1-312-5442000
Fax: +1-302-6365454

Established: 1916, WA, United States
Re-establish: July 1934, DE, United States

Key Executives:
Dennis A. Muilenburg (Chairman, President, Chief Executive Officer)
Gregory D. Smith (Chief Financial Officer, Executive Vice President, Corporate Development & Strategy)
Bertrand-Marc Allen (President of Boeing International)
Raymond L. Conner (Vice Chairman, The Boeing Company)
J. Michael Luttig (Executive Vice President, General Counsel)
Leanne Ceret (Executive Vice President, President and Chief Executive Officer - Boeing Defense, Space & Security)
Greg Hyslop (Chief Technology Officer, Senior Vice President - Engineering, Operations & Technology)

Number of Employees: 140,800 (full-time as of December 31, 2016)
Number of Shareholders: 113,517 (as of February 1, 2017)

Market Capitalization: US$214.58 billion (as of February 26, 2018)
Reporting Period: Fiscal Year Ended December 31
Email Notification for Company Results: YES (http://www.boeing.com/investors/#/tools)

Company Overview

Boeing, together with its subsidiaries, is an aerospace firm engaged in the design, development, manufacture, sale, service and support of commercial jetliners, military aircraft, satellites, missile defense, human space flight and launch systems and services. Co. provides assistance and services to facilitate aircraft operation to the operators of its commercial airplane models. These activities and services include flight and maintenance training, field service support, engineering services, and technical data and documents. While its main operations are in the US, the company conducts operations in various countries and has a network of international partners, suppliers and subcontractors.

The Boeing Company, incorporated on July 19, 1934, together with its subsidiaries, is an aerospace company. The company engaged in the design, development, manufacture, sale, service and support of commercial jetliners, military aircraft, satellites, missile defense, human space flight and launch systems and services. Boeing also provides assistance and services to facilitate aircraft operation to the operators of its commercial airplane models. These activities and services include flight and maintenance training, field service support, engineering services, and technical data and documents.

The firm operates through five segments: Commercial Airplanes, Boeing Military Aircraft (BMA), Network and Space Systems (N&SS), Global Services & Support (GS&S) and Boeing Capital (BCC).

While its main operations are in the US, Boeing conducts operations in various countries and has a network of international partners, suppliers and subcontractors. Its main competitors are Lockheed Martin, Northrop Grumman, Raytheon, Embraer, Thales, Dassault Aviation, General Dynamics, Airbus, Bombardier and BAE Systems.

The company reported revenues of $93.4 billion in FY17, a decrease of 1 % compared to the prior year period. For 2018, revenues are likely to be in the range of $96-$98 billion as per the company guidance.

March 2018
**Subsidiaries**

Aviall Services, Boeing Aircraft Holding Company, Boeing Australia, Boeing Canada, Boeing Capital Corporation, Boeing Commercial Space Company, Boeing Defence UK, Jeppesen and Narus.

**Key Products**

**Commercial Airplanes Segment**

Boeing’s commercial airplanes segment develops, produces and sells commercial jet aircraft and provides related support services — training, maintenance documents and technical advice — mainly to the commercial airline industry globally. Commercial airplanes production includes the 737 narrow-body model and the 747, 767, 777 and 787 wide-body models. The segment also produces spare parts and provides aircraft modifications services.

**Boeing Military Aircraft Segment**

Boeing’s Military Aircraft segment deals with the research and development, production and modification of manned and unmanned military aircraft and weapons systems for global strike. Products for global strike include EA-18G Growler Airborne Electronic Attack, C-97 Stratofreighter, F/A-18E/F Super Hornet, KC-46 Pegasus, F-15 Strike Eagle and Joint Direct Attack Munition; for vertical lift include CH-47 Chinook, AH-64 Apache and V-22 Osprey.

For unmanned airborne systems products include Insitu RQ-21 Blackjack, YQM-94, CQM-121 Pave Tiger (anti-radar drone), X-45 or Phantom Ray (technology demonstrators), X-46, X-48, X-50 Dragonfly (experimental Gyrodyne UAV), X-51, A160 Hummingbird (development UAV helicopter), Condor, DARPA Vulture, HALE, Insitu ScanEagle, Phantom Eye (in development as high altitude, long range UAV), Phantom Ray, Persistent Munition Technology Demonstrator, SolarEagle, GQM-163 Coyote and MA-31.

**Network & Space Systems Segment**


**Cargo Air Vehicles**

In February 2018, the company unveiled a new “multi-copter” UAV, which can take off and land vertically. This prototype can carry up to 500 pounds and will be useful for future cargo and logistics applications.
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

Stock Price Performance

Table 30: LTM Price Performance vs. S&P 500

Source: Nasdaq

Most Recent Annual Reports


Quarterly Financial Statements


Other Key Financial Data

Table 31: Key Financial Data

<table>
<thead>
<tr>
<th>Key Financial Data</th>
<th>Quarter ended December 31, 2017</th>
<th>Quarter ended December 31, 2016</th>
<th>Percentage Change</th>
<th>Annual 2017</th>
<th>Annual 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>US$25.36 billion</td>
<td>US$23.28 billion</td>
<td>9%</td>
<td>US$93.39 billion</td>
<td>US$94.57 billion</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>12.3%</td>
<td>7.0%</td>
<td>530 bps</td>
<td>8.8%</td>
<td>5.17%</td>
</tr>
<tr>
<td>Operating Margin</td>
<td>12.0%</td>
<td>9.5%</td>
<td>250 bps</td>
<td>11.0%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Total Assets</td>
<td>US$92.33 billion</td>
<td>US$89.99 billion</td>
<td>NA</td>
<td>US$92.33 billion</td>
<td>US$89.99 billion</td>
</tr>
<tr>
<td>Shareholders’ Equity</td>
<td>US$412 million</td>
<td>US$877 million</td>
<td>-53.02%</td>
<td>US$412 million</td>
<td>US$877 million</td>
</tr>
</tbody>
</table>
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

| Backlog | US$488 billion | US$416.2 billion | 17.25% | US$488 billion | US$416.2 billion |

Note: Some figures may not sum to total due to rounding

Key Customers


Recent Orders

- **29 September 2017**: Boeing was awarded $7.7 million contract to supply six ScanEagle unmanned aircraft systems to the government of Iraq.
- **4 August 2017**: Boeing Company was awarded a US$409 million from US Air Force for next general thermal, power and controls.
- **28 July 2017**: Boeing Company was awarded a US$276.6 million contract for engineering work and manufacturing development for the CH-47F Chinook Block II program.
- **10 July 2017**: Boeing Company was awarded US$294 million order from Tassili Airlines for three 737-800 aircraft.
- **20 June 2017**: Boeing and Ryanair finalized an order of 10 737MAXs worth $1.1 billion.
- **23 May 2017**: Boeing Company received a US$1.09 billion undefined modification to a previously awarded contract from the US Missile Defense Agency for the procurement of redesigned kill vehicle development.
- **4 April 2017**: Boeing Company was awarded US$2.2 billion contract to modernize global maritime patrol capabilities for the US Navy, the Royal Australian Air Force and the United Kingdom Royal Air Force.
- **31 March 2017**: Boeing received a US$2.1 billion contract modification by the US Navy for the production and delivery of 17 P-8A Poseidon aircraft.
- **28 January 2017**: Boeing Co. Received a US$2.1 billion contract for 15 KC-46 aerial refuelling aircraft from the US Defense. The new agreement is in addition to the initial US$4.2 billion contract awarded by the Air Force.

Research and Development

<table>
<thead>
<tr>
<th>Table 32: Total Research and Development Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Recent Deals

On October 19, 2017, Boeing announced an investment in US small unmanned aerial vehicle (UAV) and autonomous navigation company Near Earth Autonomy. Further on November 8, 2017, Boeing announced the completion of Aurora Flight Sciences Corporation, a developer of UAVs.

Boeing confirmed it was in discussion for a potential combination with Brazil-based Embraer. According to reports, Boeing will have a 51% stake in the joint company. But there is no guarantee that a transaction will take place.
MID SIZED PLAYERS TO WATCH

Turkish Aerospace Industries Inc

Website: https://www.tai.com.tr/en
Headquarters: Kazan, Turkey
Address: Fethiye Mahallesi Havacýlýk Bulvarý No: 17 Kazan Ankara, 06980 Turkey
Phone: + 90-312-811-18-00
Fax: +90-312-811-14-25

Established: 1984

Subsidiaries
TEI
Cabin Interior

Key Executives:
Oğuz BORAT (Chairman)
Ahmet Bertan NOGAYLAROĞLU (Deputy Chairman)
Temel KOTİL (President, Chief Executive Officer)

Key Products

Unmanned Aerial Vehicles
- TAI Anka-A (TIHA-A) — a MALE ISTAR UAV
- TAI Anka-B (TIHA-B)— a MALE UCAV
- TAI Baykus— a tactical surveillance drone
- TAI Gözcü— a short-range tactical ISTAR drone
- TAI Keklik— a target drone for tracking and non-firing exercise
- TAI Martı— drone made for surveillance
- TAI Öncü— an experimental small-scale drone
- TAI Pelikan (IHA-X2)— a tactical ISTAR drone
- TAI Şahit (IHA-X1)— a prototype tactical drone
- TAI Şimşek— a high-speed target drone
- TAI Sivrisinek VTOL— a reconnaissance and surveillance VTOL UCAV
- TAI Tuma— target drone made for tracking and live firing

Company Overview

Turkish Aerospace Industries, Inc. (TAI) is Turkey’s centre of technology in design, development, modernization, manufacturing, integration and support of integrated aerospace systems — from fixed and rotary wing air platforms to UAV and space systems. Major products and activities of the company includes ANKA UAV System, HURKUS Trainer Aircraft, T129 ATAK Multirole Combat Helicopter, E/O Surveillance, Reconnaissance Satellites, modernization mission conversions and aero structure design-to-build programs.

In January 2018, the company announced it was in discussion with Indonesian state-owned aircraft manufacturer, PT Dirgantara to jointly develop UAVs.
Aviation Industry Corporation of China (AVIC)

Headquarters: Beijing, China
Address: AVIC Plaza, No. 128 Jianguo Road, Chaoyang District Beijing, 100022 China
Phone: +86-10-5835-6515
Fax: +86-10-5835-6516

Established: 1993

Key Executives:
Lin Zuoming (Chairman)
Tan Ruisong (President)
Gu Huizhong (Executive Vice President of Finance, Trade, Logistics, Investment & Leasing)
Geng Ruoguang (Executive Vice President of Air Transport, Non-Aviation Products & Flight Test)
Li Yuhai (Executive Vice President of Defense, Planning & Construction and Import & Export Trade)

Subsidiaries
Comac, Continental Motors, Inc. and Cirrus Aircraft

Key Products
- Electrically powered micro air vehicle (MAV) — a hand-held Chinese UAV with T-tail and high-wing configuration. Propulsion is provided by a propeller driven by a pusher engine mounted behind the wing.
- LIEOE — almost identical to the Northrop Grumman’s RQ-4 Global Hawk, LIEOE is used for reconnaissance, surveillance, and attack missions.
- AVIC Sky Eye — an electrically unmanned helicopter designed to be deployed by artillery or rocket round, for reconnaissance and targeting.
- TL-8 Sky Dragon — used for simulating cruise missiles for Chinese military.
- LT MAV — micro air UAV which is powered by a two-blade propeller driven by an engine.
- FKC-1 — unmanned blimp designed for various industrial, commercial and security applications.
- Liu Feng 1 (LF-1) — micro air vehicle (MAV) is a hand-held UAV.
- Soft-Wing UAV — an unmanned parameter deployed in China for fog disposal or dissipation applications.
- Wing Loong 1 UAS — an unmanned aircraft developed as an integrated multipurpose UAS for medium altitude flying.
- Harrier — is a middle unmanned aerial vehicle system at low speed.
- SW1 — is a light, multipurpose unmanned vehicle with two ways of taking off in terms of inboard and ejection.
- Nighthawk — is a new generation of small short-range unmanned drones mainly used in the battlefield for reconnaissance, target accurate positioning and fighting against damage effect assessment tasks such as correction shots.
- Yunying: is an unmanned military attack drone.

Company Overview

The Aviation Industry Corporation of China (AVIC) is a diversified state-owned aerospace and defence corporation, headquartered in Beijing, China. Originally established under Bureau of Aviation Industry in 1951, AVIC has grown over the years and today manufactures aircrafts, helicopters, avionics and engine components, deals with aircraft leasing and manages the country’s defence systems. It is also involved in non-aviation markets such as heavy machinery and construction. AVIC offers its products and services for customers in the Asia-Pacific, Europe, North America, and Africa.

Formerly known as Aviation Industry Corporation I, the company changed its name to AVIC in November 2008. It became the first aviation manufacturing enterprise and first military enterprise of China to enter the Fortune Global 500 and the Group ranked 330th of the Fortune Global 500 in 2010 and ranked 426th the year earlier. It is ranked 143rd place presently. AVIC is also the parent company of Chinese regional carrier, Joy Air and owns approximately
100 related companies of which nearly 27 are listed companies and employs over 450,000 people. It also has an aircraft support centre in Tanzania.
Da-Jiang Innovations (DJI) Science and Technology Co., Ltd

Website: http://www.dji.com/
Headquarters: Shenzhen, China
Address: 14th Floor, West Wing, Skyworth Semiconductor Design Building, No.18 Gaoxin South 4th Ave, Nanshan District, Shenzhen, China, 518057
Phone: +86-0755-2665-6677
Fax: N/A

Established: 2006

Key Executives:
Frank Wang (Founder and Chief Executive officer)
Roger Luo (President)
Brendan Schulman (Vice President of Policy and Legal Affairs)

Key Products

- **Phantom Series** — a series of quadcopters called the Phantoms that have developed into an integrated flying system with aircraft, camera, Wi-Fi connectivity, a controller and the pilot's mobile device. These UAVs are mainly intended for aerial cinematography and photography applications.
- **Unmanned Helicopter** — a small unmanned helicopter jointly developed by Harbin Institute of Technology (HIT), Hong Kong University of Science and Technology (HKUST) together with DJI. The unmanned helicopter is intended for high elevation missions and is able operate with wind scale of 6.
- **Spreading Wings Series** — a series of hexacopters called Spreading Wings (Gen-Dou-Yun or Gendouyun) use to ferry heavy cameras in aerial photography, search and rescue, and surveillance purposes.
- **Flight Controllers** — professional and amateur flight controllers intended for multi-rotor stabilization control of various platforms or heavy payloads in aerial photography.
- **Ronin Platform** — the company's stand-alone ground-based camera stabilization platform developed for everyday cinematography and aerial film making in professional environments.
- **Flame Wheel Series** — a series of multicopters flying platforms called Flame Wheel (Feng-Huo-Lun or Fenghuolun) for aerial photography in entertainment. There are a total of four electrically powered Flame Wheels — the hexacopter Flame Wheel F550, quadcopters Flame Wheel F330, Flame Wheel F450 and Flame Wheel ARF KIT.
- **Inspire Series** — a professional series of camera quadcopters similar to the Phantom line.
- **Spark** — an affordable consumer drone designed for people to enter the camera drone ecosystem.

Company Overview

DJI is a Chinese technology company founded in 2006 by Frank Wang and headquartered in Shenzhen, Guangdong province, China. The company made its name in the global market by manufacturing commercial and recreational UAV for aerial photography and videography.

DJI pours much of its resources to manufacture a range of products like flying cameras — like its Inspire and Phantom series — flying platforms, flight controllers for multi rotors, accessories for helicopters, camera gimbals — aerial and handheld — and ground stations. These products are for industrial, professional and amateur use.

The company is the largest seller of consumer drones in the world with a global market share of ~70%. It generated sales of ~$2.7 billion in 2017.

Recent Development

In November 2017, DJI announced a partnership with Menlo Park Fire Protection District (FPD) to expand the use of drone technology for public safety. Menlo Park FPD will test customized DJI aerial solutions for emergency response.
General Atomics Aeronautical Systems Inc (GA-ASI)

Website: http://www.ga-asi.com/
Headquarters: California, United States
Address: 14200 Kirkham Way, Poway, California 92064, United States
Phone: +858-312-2810
Fax: +858-312-2801

Established: 1993

Key Executives:
James N. Blue (Chairman and Chief Executive Officer)
David Alexander (President of Aircraft Systems Group)

Key Products
- MQ-1 Predator — MQ-1 Predator is primarily used by the United States Air Force (USAF) and the Central Intelligence Agency (CIA).
- MQ-1C Gray Eagle or Sky Warrior — a MALE UAS developed for the US Army as an upgrade of MQ-1 Predator.
- MQ-9 Reaper — primarily developed for the US Air Force; MQ-9 is an UAS which is capable of remote controlled or autonomous flight operations. It is the first ground-controlled hunter-killer UAV designed for long-endurance, high-altitude surveillance.
- Avenger — a developmental unmanned combat air vehicle built by GA-ASI for the US military. The Avenger is powered by a turbofan engine and its design includes stealth features — like internal weapons storage, and an S-shaped exhaust for reduced heat and radar signature.
- Predator XP — is primarily used by the US Air Force and the US Government and Italian Air Force
- Powler – is used as the GNAT 750 as the basis for a tactical UAV.

Company Overview
General Atomics Aeronautical Systems, Inc. (GA-ASI), an affiliate of General Atomics and designs and manufactures unmanned aircraft systems (UAS), tactical reconnaissance radars and electro optic surveillance systems for the US military and commercial applications globally. The company’s Aircraft Systems business unit is a top designer and manufacturer of Predator A, Predator B/MQ-9 Reaper Gray Eagle Predator C Avenger and Predator XP.

It also produces a range of solid-state digital Ground Control Stations (GCS) and provides pilot training and support services for RPA field operations. The Mission Systems business unit on the other hand, designs, manufactures and integrates the LynxMulti-mode Radar and the highly sophisticated Clawsensor payload control and image analysis software on to both manned and remotely piloted aircraft. It also integrates other sensor and communication equipment into manned ISR aircraft and develops emerging technologies in high energy lasers, electro-optical sensors, and meta-material antennas.

GA-ASI is headquartered in Poway, California and has a number of facilities in the San Diego and Mojave Deserts, as well as various customer locations around the US.

Recent Development
In October 2017, General Atomics secured a $462.1 million contract modification to help the US Army maintain and repair the Gray Eagle unmanned aircraft systems.

In February 2018, the company announced a collaboration with Boeing to build MQ-25 Stingray carrier-based tanker drones for the US Navy.
Israel Aerospace Industries Ltd

Website: http://www.iai.co.il/
Headquarters: Lod, Israel
Address: Ben Gurion International Airport Lod, 70100 Israel
Phone: +972 3 935 3111
Fax: N/A

Established: 1953

Key Executives:
Mr. Joseph Weiss (Chief Executive Officer and President)
Mr. Eyal Younian (Chief Financial Officer and Executive Vice President of Finance)
Mr. David Dagan (Executive Vice President of Operations)
Mr. Nissim Hadas (Executive Vice President of ELTA Systems Ltd. Group)

Subsidiaries
ELTA Systems LTD

Key Products

UAVs manufactured by IAI’s MALAT division

- **RQ-2 Pioneer (with the USA)**—an UAV that had been utilized by the US Navy, Marine Corps, and Army, and deployed at sea and on land.
- **RQ-5 Hunter (with the USA)**—an UAV intended to serve as the US Army’s Short-Range UAV system for division and corps commanders.
- **Heron family of long-endurance UAV**—a medium-altitude long-endurance UAV developed by the Malat (UAV) division of Israel Aerospace Industries, which is capable of MALE operations of up to 52 hours’ duration at up to 10.5 km.
- **Harpy**—Harpy is designed to attack radar systems and is optimized for the SEAD role and it carries a high explosive warhead.
- **I-View**—has fixed landing gear and an 18.6 kW (25 hp) piston engine and is being promoted in civilian markets for forest fire warning, and in this form is appropriately known as the FireBird.
- **Harop**—a SEAD-optimized UCAV is designed to loiter the battlefield and attack targets by self-destructing into them.
- **Ranger**—a tactical UAV system, and the only tactical UAV system certified to fly in civilian airspace as well as over populated areas.
- **IAI Scout**—a reconnaissance UAV.
- **IAI Searcher**—a reconnaissance UAV developed in Israel in the 1980s.
- **Bird-Eye**—family of mini UAV.
- **Panther**—a tilt-rotor UAV.
- **Ghost**—tandem-rotor reconnaissance mini UAV.

Company Overview

Israel Aerospace Industries (IAI) is globally recognized leader and also the largest government owned defense and aerospace company in Israel. It offers space systems, which includes communication and observation, UAV, defense and naval systems, military and civil aircrafts, as well as helicopters maintenance and upgrade services, and cyber defense, maritime, border protection, defense surveillance systems, and crisis and emergency management systems.

As a national center of excellence for advanced technological fields, IAI maintains extensive R&D, engineering, manufacturing and testing capabilities to develop, produce and support complete systems, from the component, sensor and sub system to large scale integrated systems, support systems of expertise. This capability is also
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

reflected by the company’s manpower - IAI is the largest employer of engineers in Israel; R&D makes about a quarter of the company’s annual budget.

IAI is wholly owned by the government of Israel and Since 1953 — or over the past 60 years — IAI delivered, supplied and supported advanced systems to the Israeli Ministry of Defense as well as various customers globally.

The company reported sales for FY16 of $3.5 billion, down 3.5% YOY. For 3Q17, its revenue was $840 million, down 6% YOY.

Other Key Financial Data

Table 3: Key Financial Data

<table>
<thead>
<tr>
<th>Key Financial Data</th>
<th>Quarter ended September 30, 2017</th>
<th>Quarter ended September 30, 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>US$840 million</td>
<td>US$893 million</td>
</tr>
<tr>
<td>Net Income</td>
<td>US$10 million</td>
<td>-US$94 million</td>
</tr>
<tr>
<td>Research and Development Expenses</td>
<td>US$39 million</td>
<td>US$44 million</td>
</tr>
</tbody>
</table>

Note: Some figures may not sum to total due to rounding
SMALL PLAYERS TO WATCH

FLIR Systems (NASDAQ: FLIR)

Website: https://www.flir.com/
Headquarters: Wilsonville, Oregon
Address: 27700 SW, Parkway Avenue, Wilsonville, Oregon 97070, United States
Phone: 
Fax: 

Established: 1978

Key Executives:
James J. Cannon (President, Chief Executive Officer)
Carol P. Lowe (Executive Vice President, Chief Financial Officer)
Paul Sale (Senior Vice President, Chief Human Resources Officer)
Jeffrey D. Frank (Senior Vice President, Global Product Strategy)
Todd M. DuChene (Senior Vice President, General Counsel, Secretary, and Chief Ethics and Compliance Officer)

Number of Employees: 3,436 (as of December 31, 2016)
Number of Shareholders: NA

Market Capitalization: US$6.81 billion (as of February 26, 2018)
Reporting Period: Fiscal Year Ended December 31
Email Notification for Company Results: No

Company Overview

FLIR Systems is a world-leading maker of sensor systems that enhance perception and heighten awareness, helping to save lives, improve productivity, and protect the environment. FLIR’s vision is to be “The World’s Sixth Sense” by leveraging thermal imaging and adjacent technologies to provide innovative, intelligent solutions for security and surveillance, environmental and condition monitoring, outdoor recreation, machine vision, navigation, and advanced threat detection.

FLIR acquired Black Hornet manufacturer Prox Dynamics in November 2016. 4Q17 revenue was $494.8 million, up 4% YOY. For the year 2017, its revenue was $1,800.4 million, up 8% compared YOY. FLIR estimates revenue in 2018 to be in the range of $1.73 to $1.76 billion, an increase of 4-6% over 2017.

Key Products

- **Black Hornet Nano** — a military micro UAV used by the Norwegian and British Army. The UAV is outfitted with a camera, which gives the operator full-motion video and still images. Weighing 16 grams, the Black Hornet helicopter can fly for up to 25 minutes at line-of-sight distances of up to one mile.
- In February 2018, the company has added a night vision capability to Black Hornet.
Table 34: LTM Price Performance vs. S&P 500

Source: Nasdaq

Most Recent Annual Reports


Quarterly Financial Statements


Other Key Financial Data

Table 35: Key Financial Data

<table>
<thead>
<tr>
<th>Key Financial Data</th>
<th>Quarter ended December 31, 2017</th>
<th>Quarter ended December 31, 2016</th>
<th>Percentage Change</th>
<th>Annual 2017</th>
<th>Annual 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>US$494.8 million</td>
<td>US$474.7 million</td>
<td>4.2%</td>
<td>US$1,800 million</td>
<td>US$1.66 billion</td>
</tr>
<tr>
<td>Operating Income</td>
<td>US$77.15 million</td>
<td>US$92.28 million</td>
<td>16.4%</td>
<td>US$289.9 million</td>
<td>US$295.7 million</td>
</tr>
<tr>
<td>Net Income</td>
<td>-US$50.29 million</td>
<td>US$61.5 million</td>
<td>NA</td>
<td>US$107.2 million</td>
<td>US$166.62 million</td>
</tr>
<tr>
<td>Total Asset</td>
<td>US$2,810 million</td>
<td>US$2,619 million</td>
<td>NA</td>
<td>US$2,810 million</td>
<td>US$2,619 million</td>
</tr>
<tr>
<td>Shareholders’ Equity</td>
<td>US$1,834 million</td>
<td>US$1,678 million</td>
<td>NA</td>
<td>US$1,834 million</td>
<td>US$1,678 million</td>
</tr>
</tbody>
</table>

Recent Development

- 13 October 2017: FLIR Systems has been awarded a $US6.8 million fixed-price order to deliver Black Hornet Personal Reconnaissance Systems (PRS) in support of the Australian Army.
Denel SOC Ltd (Denel Dynamics division)

Website: http://www.denel.co.za/
Headquarters: Centurion, Gauteng, South Africa
Address: Nellmapius Drive, Irene, Centurion, South Africa
Phone: + 27-12-671-2700
Fax: +27-12-671-2793

Established: 1992

Key Executives:
Zwelakhe Ntshepe (Acting Chief Executive Officer)
Odwa Mlhwana (Chief Financial Officer)
Jan M. Wessels (Chief Operations Officer)
Stephan Burger (Chief Executive Officer of Denel Land Systems)
Michael Kgobe (Chief Executive Officer of Denel Aviation)
Lugisani Daniel Mantsha (Chairman)

Key Products

Unmanned Aerial Systems (UAS)
- Seeker—is designed to perform tactical reconnaissance in real-time and can conduct day and night surveillance in all threat environments.
- Hungwe—a tactical reconnaissance UAS.
- Skua—a turbojet-engine target drone used to simulate fast-moving attack aircraft during surface-to-air and air-to-air training exercises and weapons tests.
- Bateleur—a MALE UAV, with its primary role being surveillance, with a secondary signals intelligence capability.

Missiles
- A-Darter—a modern short-range heat seeking air-to-air missile.
- R-Darter—a beyond visual range (BVR) air-to-air missile guided by an active radar homing seeker.
- MUPSOW—multipurpose standoff weapon air-launched cruise missile.
- Umkhonto—multi-range infrared homing missile series.
- Seekers—Brazilian MAA-1 Piranha.
- Raptor Precision—a guided glide bomb series.
- TORGOS—an air-launched cruise missile.
- R-Darter—radar guided beyond visual range missile.
- Mokopa—long-range laser guided anti-tank guided missile.
- ZT3 Ingwe—multi-role laser guided anti-tank guided missile.

Company Overview

Denel SOC Ltd is a division of Denel Dynamics, a South African armaments development and manufacturing company wholly owned by the South African Government. It was created when the manufacturing subsidiaries of Armscor were split off in order for Armscor to become the procurement agency for South African Defence Force (SADF), now known as the South African National Defence Force (SANDF), and the manufacturing divisions were grouped together under Denel as divisions.

Located in Centurion, South Africa, the company is an innovative leader in advanced systems technology. Its main business consists of tactical missiles, precision guided weapons, UAV, integrated systems and space solutions. With most of the products designed, developed and manufactured in South Africa, Denel’s products are also in service...
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

with other defence forces in Africa, the Middle East, Europe, Asia and South America. The company also collaborates and partners with several other national governments including Brazil and the United Arab Emirates.

Its revenue for FY17 was R8.05 billion, down by 2% YOY. In November, 2017 South African Government stated it may sale a majority stack in Denel to Government of Qatar.

Other Key Financial Data

Table 36: Key Financial Data

<table>
<thead>
<tr>
<th>Key Financial Data</th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2017 vs.</td>
<td>2016 vs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>R8.05 billion</td>
<td>R8.23 billion</td>
<td>R5.85 billion</td>
<td>-2.18%</td>
</tr>
<tr>
<td>Net Income</td>
<td>R333 million</td>
<td>R395 million</td>
<td>R270 million</td>
<td>-15.69%</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>4.1%</td>
<td>4.6%</td>
<td>4.5%</td>
<td>-50 bps</td>
</tr>
<tr>
<td>Operating Margin</td>
<td>5.9%</td>
<td>4.2%</td>
<td>4.8%</td>
<td>170 bps</td>
</tr>
<tr>
<td>Debt/Equity Ratio</td>
<td>1.2</td>
<td>1.6</td>
<td>1.1</td>
<td>-25%</td>
</tr>
<tr>
<td>Current Asset Ratio</td>
<td>1.4</td>
<td>1.6</td>
<td>1.8</td>
<td>-12.5%</td>
</tr>
<tr>
<td>Shareholders’ Equity</td>
<td>R2.65 billion</td>
<td>R2.32 billion</td>
<td>R1.92 billion</td>
<td>14.22%</td>
</tr>
<tr>
<td>Employees</td>
<td>4,941</td>
<td>5,114</td>
<td>4,559</td>
<td>-3.38%</td>
</tr>
</tbody>
</table>

Note: Some figures may not sum to total due to rounding
Xi’an Aisheng (ASN) Technology Group

Website: N/A
Headquarters: China
Address: Keji 5th Rd, Yanta, Xi’an, Shaanxi, China
Phone: N/A
Fax: N/A

Established: N/A

Key Products

- **ASN-12** — a fixed wing UAV in conventional layout with mid wing designs and propulsion is supplied by a two-blade fixed pitch wooden propeller driven engine.
- **ASN-106** — a fixed wing UAV in conventional layout with low wing configuration with V-tail.
- **ASN-211** — an unmanned ornithopter initially planned as an experimental aircraft for research purposes. Consequently, it was further developed into a scout platform for conducting reconnaissance mission at low altitude within short distance, equipped with imaging, data processing and transmission systems.
- **ASN-213** — a micro air vehicle (MAV) that resembles a scaled down version of ASN-106.
- **ASN-229** — a fixed wing UAV in twin boom layout with a pair of skids as landing gear, which can be replaced by tricycle landing gear system.

Company Overview

ASN Technology Group is a specialized UAV R&D company in China and is also the largest UAV production company, with over 90% of the Chinese UAV market held by ASN.
Aeronautics Ltd

Website: http://www.aeronautics-sys.com/
Headquarters: Yavne, Israel
Address: Advan Nahal Snir 10 street, Yavne, 81101 Israel
Phone: +972-8-9433600
Fax: +972-8-9328912

Established: 1997

Key Executives:
Amos Mathan (Chief Executive Officer)
Eytan Ben Eliyahu (Chairman of the Board)
Shaul Gilad (Chief Financial Officer)
Chaim Hibsher (Chief Technology Executive)

Market Capitalization: ILS 561.5 million (as of February 23, 2018)

Subsidiaries
Commtact Ltd, RT Ltd, CONTROP Precision Technologies Ltd, Zanzottera SRL

Key Products

Unmanned Aerial Systems (UAS)

- **Aerostar Tactical UAS** — involved in civil missions including an oil rig protection program near the shores of Angola, as well as in military leasing programs in the Middle East and in Afghanistan. It is currently having 15 customers globally.
- **Dominator MALE UAS** — a twin-engine MALE UAS based on the Diamond DA-42 aircraft that is involved in a civil UAS program in Canada and operated in cooperation by Aeronautics and CAE.
- **Orbiter 3 STUAS** — an electrically powered, field deployed UAS designed for military and homeland security missions. Managed by three persons, Orbiter 3 is initiated from a vehicle mounted launcher and lands using a parachute and an airbag.
- **Orbiter Mini UAS** — a compact and lightweight electrically powered system, operated by two personnel. It is carried and set out in backpacks or from a small vehicle.

Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR)

- **Skystar Surveillance Aerostat** — a system that provides its users with an “eye in the sky” at the altitude of 300 to 500 meters above the ground level.
- **AISR** — an aerial intelligence surveillance and reconnaissance system that operates onboard fixed wing and rotary wing aircraft.
- **GISR** — a solution that incorporates advanced electro optical sensors, flexible and robust elevation systems and intuitive operator interfaces.

Company Overview

Aeronautics Ltd is an Israeli company that provides comprehensive Defense Solutions and has become known as one of the major global providers of security consulting services and defense applications. The company is also famous for the manufacture and supply of land, surface and air UAS. Aeronautics, formerly known as NETS Integrated Avionics Systems, was founded in 1997. Its headquarters are in Yavne, Israel.

The company puts much of its resources into UAS products, including twin engine medium altitude long endurance UAVs, tactical UAS, compact and lightweight systems for military and homeland security missions, mini UAV systems.
for field level operations, and USVs for home-land security and naval applications. The company’s ISR systems deals with systems such as aerial intelligence surveillance and reconnaissance systems onboard fixed wing and rotor aircraft, ground intelligence surveillance and reconnaissance solutions for military and homeland security missions, lightweight mini aerostat systems for military, homeland security and law enforcement applications and ISR solutions based on hi-end aerostats. The company also provides C4I systems, including ground control station, launch and recovery stations, RPCS, personal ground control stations, remote video terminal C4I systems and provides security arrays. These include law enforcement UAVs, security, homeland security, and emergency support system project and port security array.

The company launched its IPO on August 17, 2017 and was listed at the Tel Aviv Stock Exchange. The company was valued at ILS 928 million.

The company reported revenue for FY16 of $111 million, up 6% YOY. For 9M17, revenue stood at $86.7 million.

On 1 November 2017, the company was awarded a $40 million deal as part of intelligence gathering services project for a foreign customer.
Aurora Flight Sciences (acquired by Boeing)

Website: http://www.aurora.aero/
Headquarters: Manassas, VA, USA
Address: 9950 Wakeman Drive, Manassas, VA, 20110, United States
Phone: + 703-369-3633
Fax: + 703-369-4514

Established: 1989

Key Executives:
Dr. John S. Langford (Chairman, Chief Executive Officer and Founder)
Matt Hutchison (Chief Operating Officer)
Mini Desai (Chief Financial Officer)

Key Products

- **Small Unmanned Aircraft Systems (SUAS)** — a system tailored for use in urban or crowded environments. Aurora’s SUAS are designed to be lightweight, easily portable, deliver long endurance on quiet electric power and provide autonomous operation.
- **Orion** — long-endurance UAS that are capable of providing extreme persistence for military applications, for instance ISR and communication relay.
- **Skate** — the technology merges the simplicity and endurance of a fixed wing platform with the maneuverability and mission flexibility of a VTOL asset.
- **Centraur** — is an optional piloted aircraft which can operate in three modes manned, unmanned and augmented. It is an excellent solution for operations over controlled airspace.
- **LightningStrike** — is the first aircraft in history designed to demonstrate distribution of hybrid electric propulsion ducted fans, innovation synchronous electric drive systems, both tilt wing and canard for vertical take-off and landing and high efficiency in both hover and high-speed forward wings
- **AACUS** — it is an autonomous aerial cargo which will help the marine on the ground to request for supply delivery via a helicopter

Company Overview

Aurora Flight Sciences is a company that specializes in the design and construction and aerospace vehicles, and for most of its products, Aurora Flight Sciences does not need pilots. The company makes UAVs or drones and composite structures for aircraft with both military and scientific applications. It also provides flight operations and testing services for a variety of aircraft. Aurora’s customers include aerospace contractors, like Raytheon, NASA, the US Air Force and other US government agencies. Currently, Aurora Flight Sciences, along with Georgia Institute of Technology, is developing next-generation distributed controllers for turbine engines for the Air Force Research Laboratory.

The company, founded in Alexandria, Virginia — in 1989 as a follow on to the MIT Daedalus Project — is headquartered in Manassas, Virginia with offices in West Virginia, Massachusetts, and Mississippi. It has production plants in Bridgeport, West Virginia and Columbus, Mississippi. The company also owns a research and development centre in Cambridge, Massachusetts.

On 8 November 2017, the company was acquired by Boeing Inc. Aurora will operate under Boeing Engineering, Test & Technology as a subsidiary called Aurora Flight Sciences. It will retain an independent operating model while benefiting from Boeing’s resources and position as the leading provider of aerospace products and services.

On 13 December 2017, the company demonstrated a fully autonomous helicopter AEH-1. Having completed the third and final phase of the program, this will now transition to the Marine Corps for experimentation and potential acquisition.
KEY REFERENCES

Global

Association for Unmanned Vehicle Systems International (AUVSI)
A non-profit organization dedicated to advancing the unmanned systems community and committed to developing and promoting unmanned systems.
http://www.auvsi.org

Academy of Model Aeronautics (AMA)
http://www.modelaircraft.org/
The world’s largest model aviation association and is a self-supporting, non-profit organization whose purpose is to promote development of model aviation as a recognized sport and worthwhile recreation activity.

European UAV Systems Centre (EuroUSC)
Europe’s leading independent approvals specialist covering accreditation of organizations, airworthiness assessment and flight crew licensing for RPAS or UAS operating within civil airspace.
http://eurousc.com/

AHS International
The world’s only international technical society for engineers, scientists and others working on vertical flight technology.
http://www.vtol.org/

International Civil Aviation Organization (ICAO)
ICAO is a specialized agency of the United Nations. It codifies the international air navigation systems and fosters the planning and development of international air transport to ensure safe and orderly growth.
http://www.icao.int/

United States

Federal Aviation Administration (FAA) — Unmanned Aircraft Systems Department
The national aviation authority of the US.
https://www.faa.gov/uas/

National Aeronautics and Space Administration (NASA)
The US Government agency responsible for the civilian space program as well as aeronautics and aerospace research.
http://www.nasa.gov/

American Society for Testing and Materials (ASTM)
A global leader in the development and delivery of international UAV voluntary consensus standards.
http://www.astm.org/

American Institute of Aeronautics and Astronautics (AIAA)
The world’s largest technical society dedicated to the global aerospace profession.
http://www.aiaa.org

Unmanned Autonomous Vehicle System Association (UAVSA)
An association established to unify UAV-UAS-RPS pilot owners through local and national government activities.
http://www.uavsa.org/
THE GLOBAL UNMANNED AERIAL VEHICLES (UAV)

Japan

Japan UAV Association (JUAV)
The Japan UAV Association (JUAV) an organization representing the industries which develop, manufacture and operate UAVs in Japan. It was organized for the purpose of promoting safety and contributing to the development of the UAV market in Japan.
http://www.juav.org/

Australia

Australian Association for Unmanned Systems
An association dedicated to promoting and supporting the unmanned systems and robotics industry
http://aaus.org.au/

Civil Aviation Safety Authority of Australia (CASA)
Australian’s national aviation authority (NAA) and also a government statutory authority responsible for the regulation of civil aviation.

The Australian Certified UAV Operators Association (ACUO)
The only UAV industry body directly representing the commercial sector of unmanned aviation in Australia

China

Civil Aviation Administration of China (CAAC)
Formerly known as the General Administration of Civil Aviation of China (CAAC) is the aviation authority under the Ministry of Transport of the People’s Republic of China, which oversees civil aviation activities across the nation.
http://www.caac.gov.cn/

United Kingdom

Unmanned Aerial Vehicle Systems Association (UAVS)
UAVS is a trade association for the UK UAV sector where its role is to interface with government and the regulators ensuring that industry’s perspectives and objectives.
http://www.uavs.org/