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Analysis 1

The Market for Radar Systems

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Analysis 1

The Market for Radar Systems

Executive Summary

Radar is a vital part of most military electronics suites and forms an integral part of aircraft avionics, battlefield command networks, missile defense shields, ship defense suites, and air traffic control systems. Defense departments and ministries are the primary buyers of military radars, and air traffic control agencies and airlines the primary buyers of commercial systems.

\$49 Billion Market in the Next Decade

Based on an evaluation of the 127 radar programs covered in this study, Forecast International estimates the radar market to be worth just over \$49 billion from 2011-2020. Over this timeframe, Forecast International expects 17,400 radars to be produced. Monies will be split as follows: 34 percent will be allocated to RDT&E projects, procurement programs and operations and maintenance funding, and the lion's share of 66 percent will be allocated for production efforts. The true market value will likely be much higher when classified programs, company-developed projects, and programs yet to be announced are included.

Designing for Current Military Threats

A vast portion of the radar industry caters to military customers. An important factor in this market share is the current threat environment. Many of today's enemies make use of low-tech solutions and asymmetric tactics. New radar designs have better capabilities in urban areas and against insurgents firing mortars from well-hidden and short-range locations. The threat of attack from advanced cruise and ballistic missiles has also fueled radar production and development. Additionally, new designs are replacing multiple legacy radars with a single unit, aiding mobility and allowing easier maintenance and logistics support.

AESA Gains Market Share

Advancing technology, along with a growing need for battlefield surveillance and intelligence gathering, is driving worldwide radar sales. In this regard, active electronically scanned array technology represents a key development in the radar industry. AESA radars are being sold in increasingly large numbers.

Ground-based radar systems such as the Three-Dimensional Expeditionary Long-Range Radar (3DELRR) and the Ground/Air Task Oriented Radar (G/ATOR) being developed for the U.S. military will

include AESA technology. Ground Master and the Counter Battery Radar (COBRA) already feature AESA technology. For naval applications, BAE Systems produces the ARTISAN and Sampson radars, while Thales sells the APAR radar. Also, Raytheon is developing its SPY-3 Dual Band Radar suite with AESA technology.

AESA technology is the most prevalent among airborne radars. Northrop Grumman's APG-77 and APG-81 equip the F-22 Raptor and the F-35 Joint Strike Fighter (JSF), respectively. Raytheon's APG-63(V)3 and APG-79 are currently in production, and the APG-82 is in limited initial production. Most radars that equip unmanned aerial vehicles (UAVs) employ AESA technology. Euroradar, Phazotron, Thales and V. Tikhomirov NIIP are now developing or testing AESA variants of their airborne radars. SELEX, meanwhile, markets the Seaspray and Vixen AESA radars and Saab produces the Erieve AESA radar.

Billion-Dollar Programs

The radar industry has shifted to a model of fewer programs that individually have a higher value. In the context of this analysis, 14 programs are each forecast to be worth at least \$1 billion during the next decade. These include both production and RDT&E programs, and military and commercial efforts. More specifically, these programs involve the following systems: AWACS, Ballistic Missile Defense (BMD) sensors, the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS), the Medium Extended Air Defense System (MEADS), the NATO Alliance Ground Surveillance (AGS) system, the Space Fence system, the APG-63, the APG-81, the Bars radar, the ECR-90 radar, the EQ-36 radar, the RDR-4000 radar, the WXR-2100 radar, and the Zhuk radar.

Radar Market Leaders

Based on this analysis, the two top spots in terms of funding are held by market leaders Northrop Grumman and Raytheon. The top five are rounded out by Lockheed Martin, Rockwell Collins and V. Tikhomirov NIIP. Other noteworthy companies covered in this study are the Euroradar consortium, Finmeccanica, Honeywell, Israel Aerospace Industries (IAI), the MEADS consortium, Phazotron, Saab and Thales.

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Introduction

Radar is the acronym for radio detection and ranging. Radar is a device or system usually consisting of a synchronized radio transmitter that emits very high-frequency radio waves and a receiver that processes their reflections to determine an object's distance, speed and direction. World War II represents the first organized use of radar by the military.

The radar industry continues to evolve. World events guide industry in developing new products and modernizing legacy systems. New technological advances make improved capabilities possible. The products must support the needs of soldiers, sailors, airmen, marines, border patrol agents, civilian pilots and airport operators, and others that depend on radar systems. The products must also be affordable.

The growing availability of advanced cruise missiles and ballistic missiles has created a need for radar systems that can detect both low-flying small radar cross-section targets and low-Earth-orbit objects. Radar is increasingly being incorporated into sensor suites and being included in sensor fusion schemes. The

capabilities of computers and processors are increasing, allowing data from multiple sensors to be fused together and giving military planners a more accurate picture of the battlefield in real time. New radar systems also have basic electronic warfare and datalink capabilities. The threat from terrorists and insurgents has changed the way militaries fight wars, with soldiers requiring lightweight radars that are easily transportable and rapidly set up, and that require minimal manpower for operation.

While more and more demands are being placed on radar systems by the world's militaries, the capabilities of these systems are also increasing. The same processing and computing power that enables network-centric warfare is allowing radar systems to get smaller and more capable. In addition, active electronically scanned array (AESA) technology has significantly improved the capabilities of radar systems. These radars are considered to have better range, resolution, and reliability than their mechanically scanned counterparts.

* * *

Trends

Radar manufacturers must adapt their systems to reflect the changes in military conflicts. High-speed digital processors and electronic solid-state antennas have vastly increased the capabilities of radar systems. AESA radars are entering service in larger numbers and taking market share away from mechanical and passive phased-array radars. These technological advancements, and many others, will maintain the vitality of the radar industry. In addition, radar systems are being integrated into suites that include a wide variety of sensors to increase situational awareness.

Advanced Technology and Sensor Suites

Advancements in digital and electronic technology are further improving radar capabilities. Today's radars use advanced digital processing to acquire precise target data, and offer improved reliability to enhance availability. Designers capitalize on increasingly powerful computers and complex software to convert the returned energy into useful information. More stable components increase the sensitivity of receivers and make more discrete measurements of signal phase relationships. Digitizing this process has made what was once thought impossible, commonplace.

Sensor suites that include radar, electro-optical sensors, computers, and datalinks are becoming more prevalent. Radars form an important part of these overall data-fusion schemes as part of the growing trend toward network-centric warfare. Under these plans, data is collected by multiple types of sensors and is then integrated by computers and disseminated within a network through the use of datalinks and other communications equipment.

AESA: A Key Development

The development of AESA technology has been important to the advancement of the radar industry. AESA's market share relative to older mechanical and passive phased-array radars is rapidly growing, especially in the military airborne radar market. New developments are spreading this technology to ground-based and ship-based applications as well. While mechanically scanned airborne weather radar systems continue to be sold in high numbers for use aboard civil aircraft, military buyers are increasingly demanding AESA systems to meet their radar requirements.

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AESA radars are being sold in increasingly large numbers. As AESA radar production goes up, costs come down. As this happens, the technology gains appeal with a wider group of military buyers. Buyers such as Australia, Singapore, and the United Arab Emirates have already signed contracts to purchase AESA radar from U.S. companies for their new fighter aircraft. Other competitions are currently under way for platforms that will include AESA radars. All entries in the Brazilian FX-2 and Indian Medium Multi-Role Combat Aircraft (MMRCA) competitions include AESA radars.

In terms of the market for radar systems from 2011-2020, AESA radar programs account for over 28 percent of the overall value; phased array radar programs, nearly 20 percent; mechanical array radar programs, about 18 percent; and RDT&E funding, 34 percent.

As demand for AESA radars increases, radar producers will need to include the technology in their latest offerings. For a time, U.S. companies had a distinct advantage over international competitors. However, Euroradar will produce an AESA version of the ECR-90 Captor radar for Eurofighter Typhoons, Thales has tested an AESA variant of the RBE2, and Phazotron is developing an AESA version of the Zhuk. SELEX, meanwhile, markets the Seaspray and Vixen AESA radars. In addition, SELEX is working with Saab to develop an AESA radar for the Gripen NG. And finally, Saab produces the Erieye AESA radar.



Seaspray 7500E AESA Radar

Source: U.S. Coast Guard

Radar manufacturers believe there is a large market for retrofitting AESA radars on older in-service aircraft. The U.S. Air Force's decision to upgrade its aging F-15s with Raytheon's APG-63(V) AESA radar could lead to

new demand. At the same time, the U.S. Customs and Border Patrol is upgrading surveillance aircraft with the SELEX Vixen AESA radar. And both Raytheon and Northrop Grumman have introduced low-cost radars to be used in upgrade programs for older aircraft worldwide. The Raytheon Advanced Combat Radar (RACR) and Northrop Grumman's Scalable Agile Beam Radar (SABR) are specifically targeted at countries looking to upgrade their F-16 fleets.

Ground-based radar systems such as the Three-Dimensional Expeditionary Long-Range Radar (3DELRR) being developed for the U.S. Air Force and the Ground/Air Task Oriented Radar (G/ATOR) for the U.S. Marine Corps will include AESA technology. Meanwhile, the Ground Master being sold by ThalesRaytheonSystems and the Counter Battery Radar (COBRA) sponsored by the United Kingdom, France and Germany already include AESA technology.

For naval applications, BAE Systems produces the ARTISAN and Sampson radars, while Thales sells the APAR AESA radar. Also, the CEAFAE AESA radar, from CEA Technologies, recently underwent sea trials on board a Royal Australian Navy ANZAC class frigate. In still other activity, Raytheon is developing its SPY-3 Dual Band Radar suite with AESA technology. Additionally, the U.S. Navy is currently funding development of the Air and Missile Defense Radar (AMDR), which will likely include AESA technology.



HMS Daring sails with multiple radars.

Source: U.K. Royal Navy

Surveillance from the Sky

One of the largest surveillance radar programs in the world is the U.S. Air Force Airborne Early Warning Surveillance and Control System (AWACS) program. The E-3 AWACS aircraft is a modified Boeing 707-320B airframe with a dorsal radome that houses the rotating surveillance radar system antenna.

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USAF E-3 Sentry AWACS

Source: Senior Airman Diane S. Robinson, U.S. Air Force

The AWACS continues to play a vital role in U.S. military planning since it supports anti-drug efforts, the coordination of fighter and attack aircraft, and the protection of national borders, among other operations.

The U.S. E-8C Joint Surveillance Target Attack Radar System (JSTARS) is a modified Boeing 707 platform that carries an advanced radar, processor, and data display system. The system locates and tracks moving ground vehicles and can discriminate tracked from non-tracked targets while operating day or night and in most weather conditions. The radar was designed to operate in a robust electronic countermeasures environment. JSTARS provides tactical commanders with battlefield information in real time.

Surveillance radar systems are becoming more widely available. Airborne early warning and control (AEW&C) systems such as Saab's Erieye and Northrop Grumman's MESA have won contracts worldwide. Their price tags are much lower than those of earlier AWACS and AEW&C systems, making them easier to obtain by countries with smaller defense budgets such as South Korea, Turkey, and Pakistan. Both Erieye and MESA feature AESA technology.

Saab 340 AEW Platform with Erieye Radar

Source: Royal Thai Air Force

The members of the NATO Alliance Ground Surveillance (AGS) program have chosen to move forward with a UAV-only solution for airborne ground surveillance based on the Northrop Grumman Global Hawk high-altitude, long-endurance (HALE) UAV and the Multi-Platform Radar Technology Insertion Program (MP-RTIP). MP-RTIP continues to progress, and the technology could possibly be installed in the U.S. JSTARS as part of a modernization program.

The United States plans to install radars on many of its future UAVs. The Navy, for example, intends to deploy the Northrop Grumman Multi-Function Active Sensor (MFAS) which features an AESA surveillance radar on its Broad Area Maritime Surveillance (BAMS) UAV.

Raven UAV Conducting Surveillance in Baghdad

Source: U.S. Department of Defense

The U.S. Army Extended Range, Multi-Purpose (ERMP) UAV will provide division- and corps-level commanders with long-range surveillance capability (12-hour on-station time at 300 km). Service documents also refer to this requirement as the Extended Range/Mission Payload UAV. The UAV will operate at altitudes of 15,000 to 25,000 feet and will replace the Army's Hunter UAVs. While this UAV will initially be deployed without a radar, one will most likely be added to the platform as an upgrade.

The Watchkeeper program is defined as an intelligence, surveillance, target acquisition, and reconnaissance (ISTAR) unmanned system that will deliver battlefield intelligence to British Army unit commanders. British troops in Afghanistan are dependent on unmanned aircraft to provide intelligence on the movements of hostile forces. The Watchkeeper UAV will be equipped with the Thales I-Master radar.

In addition to the above-mentioned radars, the General Atomics APY-8 Lynx, IAI Elta EL/M-2022, Northrop Grumman STARLite, and SELEX Gabbiano and Seaspray 5000 are designed for UAV and some light aircraft applications.

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In addition to fixed-wing platforms and UAVs, aerostats are also being employed as surveillance platforms. The U.S. Army's Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS) system will consist of an unmanned, elevated balloon (aerostat) that will carry radar and other surveillance systems to detect and track low-flying cruise missiles.



JLENS Airborne Surveillance Platform

Source: U.S. Department of Defense

Asymmetric Warfare

The threat of asymmetric forces, such as those in Afghanistan, has grown, and ground combat has changed dramatically. Three concerns of military planners are mobility, the capacity to operate close to the enemy, and the ability to maneuver in urban areas.

New radar systems are better than older versions at dealing with insurgents and asymmetric warfare. Lockheed Martin is developing a new battlefield radar to replace its venerable FIREFINDER system. The Enhanced TPQ-36, or EQ-36, will have better capabilities in urban areas and against insurgents firing mortars from well-hidden and short-range locations.

New radar systems are replacing multiple radars with a single unit, aiding mobility and allowing easier maintenance and logistics support. The U.S. Marine Corps is developing the Ground/Air Task Oriented Radar (G/ATOR), which will replace the TPS-63, TPS-73/79, MPQ-62, and TPQ-46A with a single system. Under the G/ATOR program, the Marines are developing a lightweight AESA radar with enhanced capabilities that is easily transportable. The radar will support air defense, air surveillance, counterbattery, and air traffic control operations.

Special Forces and light units involved in counterinsurgency need more mobility than regular

Army and Marine Corps units. These units look for man-portable hardware such as the Syracuse Research Corp (SRC) TPQ-50 Lightweight Counter-Mortar Radar (LCMR). The TPQ-50 and its earlier variant, the TPQ-48, can be divided into two packs that can be carried by Special Forces parachuting from a military transport aircraft.



Lightweight Counter Mortar Radar (LCMR)

Source: U.S. Marine Corps

Finally, the increased threat of mines and improvised explosive devices (IEDs) has changed the way wars are fought. Radar systems are being developed that will be able to detect these deadly weapons under the ground or even hidden in rubble. Governments have begun purchasing ground-penetrating radar to meet this need.



PSS-14 Mine Detecting Set

Source: U.S. Army

One example is the L-3 Communications- CyTerra PSS-14 Mine Detecting Set that combines ground penetrating radar (GPR), highly sensitive metal detector (MD) technology, and advanced data fusion algorithms to reliably detect metallic and non-metallic anti-personnel and anti-tank mines.

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Market Statistics

The Market Sample. This analysis of the market for military and civilian radars is based on a review of the major systems in development or production that are considered representative of the entire radar market. Projections are adjusted each year as the market develops. Included in this analysis are the 127 systems and programs covered by Forecast International analysts throughout the year.

Methodology. This report analyzes the current radar market by studying various radar programs that are currently in production or about to enter production, or are in the research and development phase. The programs included in this report are drawn from the reports that Forecast International produces throughout the year.

The individual 10-year forecasts of the systems involved are correlated. Forecasts are divided into four sections. The first section is unit production, which includes systems that are currently in production or about to enter production. Forecast International estimates an average price for each unit produced and uses that figure to calculate values for units produced. The second section covers operation and maintenance (O&M) funding. The third section covers RDT&E spending. This covers programs launched to develop new systems or technology. The last section covers procurement funding. This covers programs for which funding has been allocated to procure various equipment that has yet to be produced; i.e., programs having no unit production. O&M, RDT&E, and procurement programs are listed in the value charts but not the unit production charts.

This analysis does not cover every radar program in production or development, but rather those systems and programs that Forecast International believes are indicative of trends in the industry. In addition, Forecast International can only report on known programs and requirements.

The data Forecast International gathered for this report came from open, unclassified sources, including government agencies, company officials, industry experts, and defense publications.

Identifying Contractors. The prime manufacturer is usually listed for each system, although it is recognized

that programs involve subcontractors and second sources as well. In these situations, it is difficult to assign a particular market percentage to each company. Therefore, for purposes of this study, the prime contractor is given credit for the entire program. When teams, joint ventures, and consortiums are involved in a program, projecting the market share of each member of the team is impossible. In most cases, this is proprietary information that cannot be obtained. For forecasting purposes, the value of the program is assigned to the team as a unit in the case of joint ventures.

System Pricing. Estimating the prices of radar systems is challenging. Unit prices can vary depending on quantities ordered, adjustments for inflation, discounts, offsets, and provision of additional services. International military sales may also affect prices. However, market analysis requires determination of the most probable unit prices in order to be of greatest value.

Prices are estimated based on an analysis of contracting data and other available cost information, as well as on a comparison with equivalent items. A unit price is then determined that represents the best-guess price of a typical system. Many times the prices listed are averages based on information obtained from various sources or contracts.

The most representative figure is one based on the type of system, its complexity, prices of comparable systems, and a general understanding of the marketplace.

'Snapshot in Time' Concept. The information in this report is accurate as of **October 20, 2011**. The statistics herein represent a "snapshot in time" of the projected 10-year market performance of the systems or programs listed below. Forecast International continually updates its database, and therefore it is possible that the figures in a particular report do not match the numbers in this analysis. Also, the analysis cannot take into account events that occur after the date the numbers were compiled.

At the time of publication, Forecast International reported on 127 radar systems and programs, which are listed in the table that follows.

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SYSTEM	PRIME CONTRACTOR
APAR	Thales
APG-63	Raytheon
APG-68	Northrop Grumman
APG-77	Northrop Grumman
APG-78	Longbow LLC
APG-79	Raytheon
APG-80	Northrop Grumman
APG-81	Northrop Grumman
APG-82	Raytheon
APN-232	NavCom Defense Electronics
APN-241	Northrop Grumman
APQ-186	Raytheon
APS-143	Griffon
APS-145	Lockheed Martin
APS-147	Griffon
APS-150	Honeywell International
APY-8	General Atomics
APY-9	Lockheed Martin
APY-10	Raytheon
Arabel	Thales
ARSS-1	Griffon
ARTHUR	Saab AB
ARTISAN	BAE Systems
ASR-11	Raytheon
ASR-12	Northrop Grumman
Bars	V. Tikhomirov NIIP
BPS-16	Northrop Grumman Corp
CEAFAR	CEA Technologies Pty Ltd
COBRA	Euro-Art International EWIV
ECR-90C	Euroradar
EL/M-2022	Israel Aerospace Industries (IAI)
EL/M-2032	Israel Aerospace Industries (IAI)
EL/M-2075	Israel Aerospace Industries (IAI)
EL/M-2129	Israel Aerospace Industries (IAI)
EMPAR	SELEX Sistemi Integrati
EQ-36	Lockheed Martin
Erieye	Saab AB
Gabbiano	SELEX Galileo
G/ATOR	Northrop Grumman
Giraffe	Saab AB
Global Hawk ISS	Raytheon
Grifo	Pakistan Aeronautical Complex (PAC)/SELEX Galileo
Ground Master	ThalesRaytheonSystems
Herakles	Thales
I-MASTER	Thales
Irbis	V. Tikhomirov NIIP
KLJ-7/Type 1478	Pakistan Aeronautical Complex (PAC)/Nanjing Research Institute of Technology
Mesa	Northrop Grumman
MPQ-64	ThalesRaytheonSystems
MP-RTIP Sensor	Northrop Grumman
Ocean Master	Thales
Orion	SELEX Sistemi Integrati
PPS-5	DRS Technologies /SRCTec
PS-05/A	Saab AB
RAT-31/DL	SELEX Sistemi Integrati

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SYSTEM	PRIME CONTRACTOR
Raven ES-05	SELEX Galileo
RBE2	Thales
RDR-1600	Griffon
RDR-4000	Honeywell International
RDY	Thales
Sampson	BAE Systems
Scipio	SELEX Galileo
Scout	Thales
Sea Giraffe	Saab AB
Searchwater ASaC	Thales
Seaspray 5000E	SELEX Galileo
Seaspray 7000E	SELEX Galileo
Seaspray 7300E	SELEX Galileo
Seaspray 7500E	SELEX Galileo
SMART L	Thales
SMART MW08	Thales
SMART S Mk 2	Thales
SMART S1850M	Thales
SPQ-9B	Northrop Grumman
SPS-48	ITT
SPS-67	DRS Technologies
SPS-73	Raytheon
SPY-1	Lockheed Martin
SPY-3	Raytheon
SSR/MSSR ATC Radar Series	Raytheon
STARLite	Northrop Grumman
Stir/Sting	Thales
TPQ-50	Syracuse Research Corp (SRC)
TPS-77	Lockheed Martin
TPS-79	Lockheed Martin
TRGS	European Aeronautic Defence and Space Co (EADS)
TRS-3D	European Aeronautic Defence and Space Co (EADS)
Type 1009	Kelvin Hughes
Type 2007	Kelvin Hughes
WXR-2100	Rockwell Collins
Zhuk M	Phazotron NIIR

O&M PROGRAM	PRIME CONTRACTOR
APG-78	Lockheed Martin/Longbow LLC
APQ-174	Raytheon
APS-137	Raytheon
APS-147	Griffon
COBRA	COBRA PDS Alliance Consortium
Jindalee	BAE Systems/Lockheed Martin
MPQ-64	ThalesRaytheonSystems
Sampson	BAE Systems
Sea Giraffe	Saab AB
SPS-48	ITT
Stir/Sting	Thales
TPQ-36	ThalesRaytheonSystems
TPQ-48	SRCTec

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RDT&E PROGRAM	PRIME CONTRACTOR
ATCALS	MFR Varies
AUSPAR	CEA Technologies
AWACS	MFR Varies
BMD Sensors	MFR Varies
Combat Identification Technology	MFR Varies
Electromagnetic Systems Applied Research (U.S. Navy)	MFR Varies
Integrated Sensor Is Structure (ISIS)	MFR Varies
Jindalee Phase 5/6	Lockheed Martin
JLENS	Raytheon
Joint STARS	MFR Varies
LCMR/LSTAR Enhancements	SRCTec
MEADS Program	MEADS International
MP-RTIP	Northrop Grumman
Range Improvement	MFR Varies
RF Sensors & Countermeasures (USAF)	MFR Varies
S3I Technology	MFR Varies
Sensor Fusion Technology	MFR Varies
Ship Self-Defense System (SSDS)	Raytheon
Silent Knight Radar (SKR)	Raytheon
Space Fence	MFR Varies
Three-Dimensional Expeditionary Long-Range Radar (3DELRR)	MFR Varies
U.S. Navy Air Control Engineering	MFR Varies

PROCUREMENT FUNDING	PRIME CONTRACTOR
NATO Alliance Ground Surveillance (AGS)	MFR Not Selected

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Competitive Environment

The radar industry is extremely competitive, and sellers need to focus on a number of issues to gain contracts. The growth of terrorism as the primary threat to industrialized nations has changed the focus of many militaries away from radar toward other sensor systems, such as electro-optical devices. That said, radar continues to enhance a nation's ability to gather battlefield intelligence. Radar is an important part of sensor suites, but it must now share defense dollars with other sensor systems.

Software Improves Performance

Military buyers require adaptable equipment, and open architecture and flexibility are pressing design requirements. Software-based equipment and open architecture allow performance enhancement through programming changes without significant hardware modification. Buyers have moved away from military-unique, one-of-a-kind, single-purpose systems. In the past, older systems were replaced by new hardware to improve capabilities. Now, open-architecture systems can be updated with new software and firmware to incorporate additional capabilities.

Range, sensitivity, reliability, adaptability, and software reprogramming capability are all significant factors in radar selection. Superior performance can put a product on the inside track, but when performance is equal, price, ease of use, logistical support, and maintenance requirements usually dominate selection. As the cost of new systems increases, upgrade potential becomes an important consideration.

Price and Politics

Price is another major consideration, but when a crucial need must be met, price becomes secondary. High-cost systems continue to be closely scrutinized by the military, legislators, and the media. Performance, price, and public relations become intertwined. Many companies offer options that allow a customer to customize a system to optimize price and meet performance requirements.

Another factor affecting buying decisions is politics. Militaries tend to trust a contractor with which they have a long business history. Many nations that purchase equipment from international companies factor in the political and economic benefits associated with doing business with a particular country.

In addition, legislators in most countries typically favor programs that provide employment for their districts. Politicians in most countries have just as much power in making purchasing decisions as military leaders.

Companies wishing to gain contracts in a given country need to convince political as well as military leaders of the importance of a weapon or system.

Workshare or offsets are another increasingly important consideration. Governments that purchase billions of dollars worth of military equipment want significant funding to go toward improving employment in their own countries. Many countries, such as Brazil and India, also want technology transfers in order to develop their own military-industrial base.

Final considerations are the product's perceived as well as proven quality or reliability and the level of customer support provided by the manufacturer. Usually, the contractor supplies the required system along with many administrative and logistical services, including technical documentation needed for training and maintenance along with technical support personnel, as well as spare parts. These services have become essential as hardware and software grow in complexity.

Fewer Systems Produced

The latest radar systems are more expensive than older models, forcing nations to replace many legacy systems with fewer new systems. However, new technology enables militaries to buy a single system that can complete the same missions that previously required multiple systems. In addition, newer radar designs often require fewer people for set-up and operation.

The current conflict against insurgents has created a greater need for many different types of sensors, such as infrared and electro-optical sensors. Therefore, radar is sharing defense dollars with these sensors.

The reduced numbers of radar systems being produced has changed the industry. Quite often, only one contract is awarded to replace multiple systems, where previously three or four contracts to separate companies were required. This has caused a number of mergers and buyouts. Now, most of the largest radar companies are an amalgamation of many different manufacturers that have been merged or purchased by a single company. For example, Northrop Grumman purchased Westinghouse in 1996, and Raytheon purchased Hughes in 1997. In addition, a company may be part of more than one competing team, acting as the prime for its bid and acting as a subcontractor on a second bid. Even if a company loses out as the prime contractor, it may be chosen as a subcontractor by the winning bidder.

Cooperation Takes Many Forms

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The reduction of international barriers has contributed to this growth of cooperation within the radar industry. The world has become more open since the end of the Cold War, with free-trade agreements as well as work-share agreements now a part of contracts for new equipment. In addition, the growth of economic cooperation agreement frameworks, such as the European Union, has encouraged countries to work together to satisfy military needs. These factors have increased the ability of countries and militaries to work together to meet collective security and economic needs.

A radar market trend is the creation of teams made up of companies from many different countries. As an example, German, Italian, and U.S. companies formed a consortium to design and build the MEADS air defense system. The Euroradar consortium consists of EADS Deutschland (Germany), Indra Sistemas (Spain), and branches of SELEX Galileo from both the U.K. and Italy. Euroradar produces the ECR-90 Captor radar for the Eurofighter Typhoon. Thales and Raytheon are each one-half of the transatlantic joint venture ThalesRaytheonSystems (TRS). TRS manufactures the MPQ-64 and Ground Master radars.

Elsewhere, the three national governments involved in the Counter Battery Radar (COBRA) program (the U.K., France, and Germany) have required that all

intellectual property rights and full commercial and technical authority over system design be under their control at all times. Other programs, such as the APG-81 AESA radar for the Joint Strike Fighter, are headed by a single prime contractor but are truly international efforts. These programs meet the defense needs of a number of nations that then spread out the cost of development and production. Radar suppliers have entered into a number of alliances, teams, and consortiums to survive, and the ones that do it best are the ones that thrive.

Competition and Cooperation Increase

The radar industry has become more competitive, as the industry has shifted to one with fewer programs that individually have a higher value. At the same time, there is more cooperation among suppliers. Many companies are involved in more than one bid for any given contract. Many others work in consortiums, with each company gaining a piece of the contract in return for supply of its particular area of expertise.

For example, Northrop Grumman and Lockheed Martin are partners in the joint venture, Longbow LLC. Longbow LLC produces the APG-78 radar for the Boeing AH-64 Apache Longbow helicopter.

* * *

Analysis

Radar Industry Forecast at \$49 Billion

Based on an evaluation of the 127 radar programs reviewed in this study, Forecast International estimates the radar market to be worth just over \$49 billion over the next 10 years. The true market value will likely be much higher when classified programs, company-developed projects, and programs yet to be announced are included.

As this analysis indicates, a growing trend in the radar industry is the use of AESA technology on military radar systems. Based on the study population reviewed in preparing this analysis, AESA radars will represent 35 percent of the value of all radar production in 2011. By 2020, the value of production of AESA radars will have increased to 65 percent of all production. Mechanically scanned array radars will still have a place in the market, but they will be relegated almost solely to commercial applications. For example, the Eurofighter Typhoon is currently equipped with the Euroradar ECR-90 Captor mechanically scanning radar. However, discussions are under way for future Typhoons to be

equipped with an ECR-90 AESA variant. In 2020, the most notable mechanical array radars will be two weather radars: the Honeywell RDR-4000 IntuVue and the Rockwell Collins WXR-2100 MultiScan.

Passive phased-array radars will suffer a large decline in market share. Based on the study population reviewed in preparing this analysis, passive phased-array radars will represent approximately 35 percent of the value of all radar production in 2011. By 2020, the value of production of these radars will have decreased to 8 percent of all production.

Traditionally, passive phased-array radars have dominated the ground-based and seaborne segments of the market. However, AESA radars are beginning to take over these roles as well. The U.S. Air Force's ground-based 3DELRR and the Navy's ship-based AMDR will most likely include AESA technology. Other AESA radars, such as the BAE Systems ARTISAN, the EADS Tactical Radar Ground Surveillance (TRGS) system Euro-Art's COBRA, the

Analysis 1

ThalesRaytheon Ground Master, and Thales' APAR, and have already won contracts.

Less Is More

The radar industry has shifted to a model of fewer programs that individually have a higher value. In the context of this analysis, 14 programs are each forecast to be worth at least \$1 billion during the next decade. These include both production and RDT&E programs, and military and commercial efforts. More specifically, these programs include development and/or production of the following systems: AWACS, Ballistic Missile Defense (BMD) sensors, the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS), the Medium Extended Air Defense System (MEADS), the NATO Alliance Ground Surveillance (AGS) system, the Space Fence system, the APG-63, the APG-81, the Bars radar, the ECR-90 radar, the EQ-36 radar, the RDR-4000 radar, the WXR-2100 radar, and the Zhuk radar.

Production and R&D Funding

Production programs are expected to receive the lion's share of funding in the next decade. In terms of the market for radar systems for the period 2011-2020, production programs encompass nearly two-thirds of the total value of the market as covered in this analysis. This equates to nearly \$32.4 billion. Research and development programs are worth just over 28 percent of the market value, or just over \$13.9 billion. The NATO AGS program is classified as a procurement program, but consists of both hardware purchases and engineering efforts. That program is projected to account for 3 percent of the value of the market. Operations and maintenance efforts comprise the remaining 2.6 percent of the value of the radar market. O&M contracts are expected to be worth \$1.26 billion from 2011-2020.

Military Threat – Insurgents

A vast portion of the radar industry caters to military customers. The most crucial factor in this market share is the current threat environment.

National security requirements have changed. Instead of preparing for all-out global nuclear war, many militaries must prepare to fight in regional conflicts that have escalated and threaten national interests in distant lands. Many of today's enemies do not utilize high technology; rather, they make use of low-tech solutions and asymmetric tactics. Many sophisticated capabilities, including radar, have had to be modernized to counter unsophisticated tactics.

Radar remains a critical sensor, but other technologies are now receiving more attention than in the past. Because of the increased attention to homeland security,

the military will share the front line of defense with intelligence agencies, law enforcement, and emergency services. Funding will be spread among a wider variety of customers, systems and technologies.

The Global War on Terror has caused a major shift of focus in the development of all weapons, including radar systems. The insurgency in Iraq further established the value of "boots on the ground." Special Forces and light units involved in counterinsurgency cannot carry heavy equipment. Attributes of systems that are prized by these units include being easily transportable, lightweight, durable, and capable of remote operation, and having minimal maintenance requirements.

Countering Cruise and Ballistic Missiles

The growing threat of attack from advanced cruise and ballistic missiles has also fueled radar production and development. Countries such as North Korea and Iran are developing missiles that have a longer range and more accuracy than older missiles. This has increased the need for new radar systems that can detect these missiles. Some of the airborne programs developing radar with cruise missile detection capabilities include the JLENS program and the MP-RTIP.

One of the largest R&D radar programs is the BMD sensors effort of the U.S. Missile Defense Agency (MDA) to upgrade sensor technology to detect and then track ballistic missiles and guide interceptors to counter them. On the seas, the BAE Systems SAMPSON, the Lockheed Martin SPY-1, and the SELEX SI EMPAR radars are designed to protect naval battle groups from aircraft, missile and surface threats.

Also in the naval arena, defense against sea-skimming missiles is being provided by missile systems such as the Evolved SeaSparrow and Seawolf, boosting the market for target acquisition and fire control radars. A major thrust of the naval radar market is an effort to reduce the size and weight of electronic systems, and the number of components installed, while maintaining or even improving performance levels over current systems. This effort involves jammers and signals intelligence equipment as well as radar systems.

In other activity, the U.S. Navy has begun a program called the Air and Missile Defense Radar (AMDR) to develop a new radar to equip future surface combatants. The Navy wants a radar that will improve the service's capability to detect ballistic missiles as well as perform in high clutter environments and against very low observable/very low flyer (VLO/VLF) threats. One requirement is that the radar include active phased-array technology. The Raytheon SPY-3 radar is a naval

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active phased-array radar that is capable of detecting anti-ship cruise missiles (ASCMs).

The Navy is also interested in inverse synthetic aperture radar (ISAR). ISAR makes it possible for a Doppler-based radar to display the profile contours of a surface ship, enhancing type and class identification. A computer uses complex algorithms and a library of known characteristics to analyze the data and classify targets, and efforts continue toward development of processing algorithms to ensure accuracy and reliability. The ISAR picks up on a ship's pitch and yaw and sends that information to a computer. Several radars have ISAR capability, including the Raytheon APS-137 and APY-10, the Telephonics APS-143 and APS-147, and the IAI EL/M-2022.

Market Leaders

The top five companies are ranked based on the value of production of their radar products and research and development programs. The top five companies or program teams in the radar market for the period 2011-2020 are presented below.

Top Five Radar Companies

Northrop Grumman	15.48%	\$7.59 billion
Raytheon	15.31%	\$7.51 billion
Lockheed Martin	5.66%	\$2.77 billion
Rockwell Collins	5.21%	\$2.56 billion
V. Tikhomirov NIIP	3.43%	\$1.68 billion

The top five companies will garner roughly \$22 billion in sales over the forecast period, or 45 percent of the total 10-year radar market.



NUMBER ONE

Northrop Grumman Corp: \$7.59 billion, 15.48 percent of market sampling

Grumman was established in 1929 as the Grumman Aircraft Engineering Corporation. The company built its success by producing naval fighter aircraft during World War II. Northrop was founded 1939 by Jack Northrop, and has been a leader in aircraft and aviation technology.

Northrop Grumman was formed in mid-1994, following the acquisition of Grumman by Northrop. Almost immediately, the new company began adding capabilities through mergers and acquisitions. By 2002,

Northrop Grumman had acquired Teledyne Ryan, Westinghouse Defense Electronics, Litton Industries, and many more.

Leader in Airborne Radar

Northrop Grumman's place in the rankings is based on its extensive portfolio of airborne radars, particularly fire control radars for fighter aircraft. Northrop Grumman is expected to hold one of the largest shares of fire control radar production over the next 10 years. This is thanks to the company's selection as prime contractor for both the APG-77 and F-APG-81. These advanced AESA radars will equip the F-22 Raptor and F-35 JSF, respectively. Northrop Grumman is also strong in the airborne surveillance and early warning and control radar market. The company has won a number of contracts for its Multirole Electronically Scanned Array (MESA) radar and is the prime contractor for the Multi-Platform Radar Technology Insertion Program (MP-RTIP) of the U.S. In addition, Northrop Grumman is working on the Ground/Air Task Oriented Radar (G/ATOR) program with the U.S. Marine Corps.

Fighter radars are the backbone of Northrop Grumman's radar portfolio. APG-68(V) production continues for the F-16C/D. The F-16 is seen as an attractive interim option until the F-35 enters production, as well as an option for countries seeking a less expensive alternative to the future stealthy attack aircraft. The APG-68 will continue to be produced to equip those orders and is expected to bring in \$260 million to Northrop from 2011-2015.

Northrop Grumman sees a large upgrade market for the F-16 and has introduced the Scalable Agile Beam Radar (SABR) to compete in this market.

The most significant radar in Northrop Grumman's portfolio is the APG-81 AESA radar that will equip the F-35 Lightning II. During Northern Edge 2011, the APG-81 radar with Block 3 and developmental software was flown on a BAC 1-11. The radar demonstrated electronic protection, electronic attack, passive, maritime and experimental modes, and datalinked air and surface tracks.

The F-35 will replace various aircraft throughout the world and will be produced in sizable numbers. Because the electronics systems on the F-35 are highly integrated, it will be extremely difficult to equip the aircraft with a radar other than the APG-81. Therefore, sales of the F-35 will drive APG-81 production. As production of other airborne fire control radar systems declines, APG-81 production will increase. The APG-81 is projected to bring in \$5.2 billion in sales to Northrop Grumman over the next 10 years.

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Northrop Grumman has also experienced success in the AEW&C market. Contracts for the company's MESA radar have to date been awarded by Australia, South Korea, and Turkey. The system is less expensive than many other AWACS equipment, enhancing its appeal.

Given its success with the MESA radar, Northrop Grumman is participating in the MP-RTIP to develop a ground surveillance radar. The MP-RTIP sensor is a scalable system that can equip both UAVs and manned aircraft. The system is designed to equip Global Hawk UAVs, but the U.S. Air Force also wants to upgrade E-8C aircraft with the MP-RTIP sensor. In addition, the NATO Alliance Ground Surveillance program may include the MP-RTIP sensor as an off-the-shelf solution.

Elsewhere, the U.S. Marines' G/ATOR program continues to progress. In February 2011, Northrop Grumman announced the integration of all subsystems of the G/ATOR system. The new radar will replace older TPS-63, MPQ-62, TPS-73/79, and TPQ-46A radars with a single system. The radar is a major element of Northrop Grumman's portfolio and contracts are expected to be worth \$630 million to Northrop Grumman during the decade. Production is anticipated to start in 2013.

In addition, Northrop Grumman and Lockheed Martin are partners in the joint venture, Longbow LLC. In the context of this analysis, Longbow LLC is reported as a separate company. Longbow LLC produces the APG-78 radar for the Boeing AH-64 Apache Longbow helicopter. APG-78 sales are expected to be worth nearly \$631 million from 2011-2020.

Raytheon

NUMBER TWO

Raytheon Co:

\$7.51 billion, 15.31 percent of market sampling

Raytheon is a diversified, international, technology-based company. The company has grown over the years through acquisitions and internal product-line expansions. Founded in 1922 in Cambridge, Massachusetts, the company adopted the name Raytheon in 1925. During World War II, the company was the leading producer of radar tubes and radar systems. Following the war, it pioneered the field of missile guidance. During the mid-1990s, Raytheon was involved in a number of mergers that led to the creation of the company as it is known today.

Raytheon's Diversity is Key to Success

In the context of this analysis, Raytheon is listed as the prime contractor for 13 radar programs. The company

produces radar for airborne, ground-based, and sea-based applications. The APG-63 and APG-79 are among the military radar systems produced by Raytheon. Raytheon also produces several SSR/MSSR air traffic control radars for commercial customers. In addition to production programs, Raytheon is the prime contractor for three RDT&E programs, including the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS).

The JLENS program is seeking to develop an aerostat that carries sensors to detect cruise missiles, aircraft, UAVs, tactical ballistic missiles (TBMs), large-caliber rockets (LCRs), and surface moving targets (SMTs). A JLENS orbit consists of two systems: a fire control radar system and a wide-area surveillance radar system. Raytheon will receive \$1.03 billion in funding for JLENS for 2011-2020.

Raytheon's continued strong standing in this study can be attributed in part to the company's venerable APG-63 radar. The radar, which equips the F-15C, has been in production, in one variant or another, since the beginning of the F-15 program. The F-15 continues to gain contracts, and the APG-63 continues to equip the aircraft. Production of the APG-63 will remain high throughout the forecast period and Raytheon is expected to reap \$2.55 billion in APG-63 sales.

Raytheon Offers AESA Technology

The APG-82 radar is being developed by Raytheon for USAF F-15E Strike Eagles. The radar will include advanced technology from other Raytheon radars, along with technology specific to F-15s. In addition, Boeing has introduced a new version of the F-15 aircraft, called the F-15 Silent Eagle. This aircraft incorporates stealthy features and is being marketed outside the U.S. The APG-82 also could be included on the new F-15SE aircraft, depending on U.S. willingness to export the radar. Otherwise, the aircraft will be equipped with the APG-63 radar. APG-82 radar production will rise during the forecast period and is projected to have a value of \$750 million.

The APG-79 is another strong seller in Raytheon's portfolio. This advanced AESA radar has been chosen to equip the U.S. Navy's latest variant of the F/A-18E/F, the Super Hornet. As an advanced fighter, the F/A-18E/F will compete in many upcoming aircraft competitions. Production of the APG-79 during the next decade is expected to be worth \$894 million to Raytheon.

Raytheon has recently introduced the Raytheon Advanced Combat Radar (RACR) to compete for the light-fighter upgrade market. Countries looking to upgrade their F-16s with an AESA radar will create

Analysis 1

numerous opportunities for sales of lightweight, inexpensive AESA radars.

On the seas, Raytheon is the prime contractor to develop and manufacture the SPY-3 AESA radar. The radar was expected to be one of the major naval radars in the U.S. inventory, as plans had called for it to equip future destroyers, amphibious ships, and aircraft carriers. The radar was also expected to be the basis for the future CG(X) cruiser. However, with the DDG-1000 program being capped at three vessels and the CVN-21 program producing just two or three carriers, the SPY-3 radar will now only be produced in very small numbers.

Finally, Raytheon is one-half of the transatlantic joint venture ThalesRaytheonSystems (TRS). In the context of this analysis, TRS is reported as a separate company. TRS manufactures the MPQ-64 and Ground Master family of radars.



NUMBER THREE

Lockheed Martin:
\$2.77 billion, 5.66 percent of market sampling

In 1995, two of the largest U.S. defense contractors, Lockheed and Martin Marietta, consummated a transaction in which both corporations became wholly owned subsidiaries of a newly created holding company, Lockheed Martin Corporation.

Lockheed Martin traces its roots to the first days of aviation. Martin Marietta had its beginning in 1909, when aviation pioneer Glenn L. Martin organized a company around a small airplane construction business. Martin Marietta was founded in 1961 through consolidation of the Martin Company and the American-Marietta Company. Lockheed was born in 1913 when aviation pioneers Allan and Malcolm Loughead designed, built, and flew a seaplane at San Francisco Bay. The modern Lockheed Corporation was formed in 1932, following a reorganization of their fledgling aircraft company.

Producing a Number of Surveillance Radars

Lockheed Martin offers a number of products in the radar industry that are included in this study. These products are driving Lockheed Martin's success and make the company one of the top five companies in the radar industry based on the study criteria. Lockheed Martin specializes in a number of surveillance radar systems. These include the SPY-1, APY-9, TPS-77, and TPS-79. Lockheed Martin was also selected as the U.S. Army's prime contractor for the Enhanced TPQ-36

(EQ-36) program, further increasing Lockheed Martin's market share.

The SPY-1 is deployed on warships worldwide and is part of the AEGIS anti-air warfare weapons system. While some navies are beginning to look for newer AESA systems, production is expected to continue at least through 2019. SPY-1 contracts are expected to be worth approximately \$354 billion during the decade.

Lockheed Martin is also offering its TPS-77 and TPS-79 in the competitive ground-based air defense and surveillance market. But the largest radar program for which Lockheed Martin is the prime contractor is the EQ-36. Under that program, Lockheed Martin is developing and producing a new mortar-locating radar to replace aging U.S. Army TPS-36 FIREFINDER radars. Full-rate production of the EQ-36 radar is projected to begin in 2011. The EQ-36 is expected to garner \$1.58 billion in sales during the forecast period.

In addition, Lockheed Martin and Northrop Grumman are partners in the Longbow LLC joint venture. In the context of this analysis, Longbow LLC is reported as a separate company. Longbow LLC produces the APG-78 radar for the Boeing AH-64 Apache Longbow helicopter. APG-78 sales are expected to be worth nearly \$631 million from 2011-2020.



NUMBER FOUR

Rockwell Collins:
\$2.56 billion, 5.21 percent of market sampling

The major predecessors to Rockwell Collins were North American Aviation, founded in 1928, and Rockwell Standard, established in 1953. The two companies merged in 1967, to form North American Rockwell. Another well-known enterprise, Collins Radio Company, which was founded in 1933, merged with Northrop American Rockwell and Rockwell Manufacturing and became Rockwell International in 1973.

In February 2001, Rockwell International changed its name to Rockwell Automation to better reflect the company's business focus after spinning off Rockwell Collins.

Leader in Commercial Weather Radars

Rockwell Collins has one entry in this market analysis, its WXR-2100 MultiScan weather radar, which equips most commercial aircraft. Sales will continue throughout the forecast period and will top over

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\$2.55 billion in value. This equates to the sale of over 5,000 WXR-2100 radars to customers worldwide.



NUMBER FIVE

V. Tikhomirov Scientific Research Institute of Instrument Design (NIIP):

\$1.68 billion, 3.43 percent of market sampling

The institute was created in 1955 as a branch of the Moscow NII-17 by the Ministry of Aircraft Industry of the USSR Council of Ministers. The following year, the NII-17 branch was reorganized into an independent enterprise, commonly known as Scientific Research Institute of Instrument Design, or NIIP. In 1995, the institute took the name of its founder, V. Tikhomirov. In 2002, the institute became a joint stock company.

Tikhomirov has one listing in this analysis, the Bars radar. The Bars radar is one of the radars that could be flown on the Sukhoi Su-30MK fighter. India has chosen the Bars radar as a part of its Su-30MK package and the value of its contracts is expected to be \$3 billion during the forecast period.


Manufacturer Varies/Manufacturer Not Selected:
\$12.2 billion, 24.82 percent of market sampling

Nearly 25 percent of the market covered by this analysis is credited to the "Manufacturer Varies" or "Manufacturer Not Selected" categories. Fifteen R&D programs and one procurement program are included in this category. For some of these programs several companies perform work; however, no one company can be identified as the prime contractor. In other instances, a program is expected to be allocated funding, but the manufacturer had not been chosen at the time this analysis was published. In still other cases, a military customer does not wish to disclose the identities of its contractors.

The second most lucrative program in the market as covered in this analysis is the huge Ballistic Missile Defense (BMD) Sensors program. Dozens of companies are working on this program. The U.S. Missile Defense Agency's BMD Sensors program is a research and development effort to detect and track ballistic missiles. The program also researches and develops technology to be used to upgrade existing U.S. ballistic missile defense radars. Forecast International estimates that the MDA will invest about \$3.4 billion over the next decade in its BMD Sensors program.

During the forecast period, several major contractors will be part of the AWACS program. The E-3 AWACS aircraft is a modified Boeing 707-320B airframe with a dorsal radome that houses the rotating surveillance radar system antenna. The AWACS continues to play a vital role in U.S. military planning since it supports anti-drug efforts, the coordination of fighter and attack aircraft, and the protection of national borders, among other operations. The U.S. Air Force is expected to request at least \$1.3 billion in funding for this program from 2011-2020.

Another billion-dollar program – one that falls under the Manufacturer Varies category – is Space Fence. Space Fence will be a system of ground-based radars to detect and report on small orbiting objects, primarily those in low-Earth orbit (LEO). It will replace the Air Force Space Surveillance System (AFSSS). The USAF has awarded contracts to three competing teams – headed by Lockheed Martin, Northrop Grumman and Raytheon – for Phase A Space Fence design and prototype work, and all teams probably involve several subcontractors.

The one program in the analysis that falls under the procurement label is the NATO Alliance Ground Surveillance (AGS) program. The goal of this program is to develop a NATO-owned and -operated airborne ground surveillance system; this system is expected to cost \$1.5 billion over the decade. The program is classified as a procurement program because both hardware and engineering efforts are being procured. Contracts are expected to be awarded to multiple companies.

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Table 1
The Market for Radar Systems
Unit Production by Headquarters/Company/Program
2011 - 2020

ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence				Speculative		
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
BAE Systems plc (HQ)											
BAE Systems Integrated System Technologies (Insyte), Filton											
Sampson Type 45 <> United Kingdom <> Navy											
	1	0	0	0	0	0	0	0	0	0	1
Subtotal	1	0	0	0	0	0	0	0	0	0	1
BAE Systems Mission Systems, Camberley											
ARTISAN CV(F)/Type 23 <> United Kingdom <> Navy											
	1	1	2	2	2	2	2	2	3	3	20
Subtotal	1	1	2	2	2	2	2	2	3	3	20
HQ Total	2	1	2	2	2	2	2	2	3	3	21
CEA Technologies Pty Ltd (HQ)											
CEA Technologies Pty Ltd, Fyshwick											
CEAFAR Upgrade Anzac <> Australia <> Navy											
	0	1	1	2	1	0	0	0	0	0	5
CEAFAR Navy											
	0	0	0	0	0	1	1	0	0	0	2
HQ Total	0	1	1	2	1	1	1	0	0	0	7
Euro-Art International EWIV (HQ)											
Euro-Art International EWIV,											
COBRA United Arab Emirates <> Army											
	2	0	0	0	0	0	0	0	0	0	2
COBRA											
	0	0	1	1	0	0	0	0	0	0	2
HQ Total	2	0	1	1	0	0	0	0	0	0	4
European Aeronautic Defence and Space Co (EADS) NV (HQ)											
Cassidian Electronics, Ulm											
TRGS Germany <> Armed Services											
	0	26	26	26	0	0	0	0	0	0	78
TRS-3D F-125 <> Germany <> Navy											
	0	0	1	0	1	0	1	0	1	0	4
TRS-3D LCS-1 Freedom <> United States <> Navy											
	0	1	2	2	2	0	0	0	0	0	7
TRS-3D Malaysia <> Navy											
	1	0	0	0	0	0	0	0	0	0	1

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
TRS-3D United States <=> Coast Guard											
	0	1	1	1	1	0	0	0	0	0	4
TRS-3D Navy											
	0	0	0	0	0	1	1	1	0	0	3
HQ Total	1	28	30	29	4	1	2	1	1	0	97
Euro radar (HQ)											
Euro radar,											
ECR-90C Typhoon <=> Italy <=> Air Force											
	9	9	6	6	5	5	0	0	0	0	40
ECR-90C Typhoon <=> Spain <=> Air Force											
	8	8	5	5	5	5	0	0	0	0	36
ECR-90C Typhoon <=> Germany <=> Air Force											
	14	14	11	8	8	6	0	0	0	0	61
ECR-90C Typhoon <=> United Kingdom <=> Air Force											
	15	15	14	12	12	12	4	0	0	0	84
ECR-90C Typhoon <=> Saudi Arabia <=> Air Force											
	12	12	12	12	12	0	0	0	0	0	60
ECR-90C Typhoon <=> Air Force											
	0	0	0	0	0	8	16	16	16	16	72
HQ Total	58	58	48	43	42	36	20	16	16	16	353
Finmeccanica SpA (HQ)											
DRS C3 & Aviation Co, Gaithersburg											
SPS-67 3 DDG-51 <=> United States <=> Navy											
	3	0	0	1	2	1	2	2	1	0	12
Subtotal	3	0	0	1	2	1	2	2	1	0	12
DRS Sustainment Systems Inc, St. Louis											
PPS-5 United States <=> Army											
	20	37	0	0	0	0	0	0	0	0	57
PPS-5 Jordan <=> Armed Services											
	4	6	6	6	6	0	0	0	0	0	28
Subtotal	24	43	6	6	6	0	0	0	0	0	85
SELEX Galileo, Edinburgh											
Raven ES-05 JAS 39 <=> Sweden <=> Air Force											
	1	1	2	10	10	10	10	10	10	10	74
Seaspray											
	0	0	0	0	2	2	2	0	0	0	6
Seaspray 5000E Finland <=> Government Agency											
	1	1	0	0	0	0	0	0	0	0	2
Seaspray 7000E Lynx AW159 Lynx Wildcat <=> United Kingdom <=> Navy											
	3	5	5	5	5	4	0	0	0	0	27
Seaspray 7000E											
	2	2	1	0	0	0	0	0	0	0	5

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Seaspray 7300E ATR-72 <> Italy <> Air Force											
	1	2	1	0	0	0	0	0	0	0	4
Seaspray 7500E Australia <> Government Agency											
	2	0	0	0	0	0	0	0	0	0	2
Seaspray 7500E King Air 350 <> United States <> Multi-agencies											
	3	5	6	6	5	4	0	0	0	0	29
Seaspray 7500E Korea, South <> Army											
	0	1	0	0	0	0	0	0	0	0	1
Subtotal	13	17	15	21	22	20	12	10	10	10	150
SELEX Galileo, Milano											
Grifo Multi-agencies											
	4	6	6	4	4	4	4	0	0	0	32
Scipio Upgrade AMX <> Brazil <> Air Force											
	5	10	10	10	8	0	0	0	0	0	43
Subtotal	9	16	16	14	12	4	4	0	0	0	75
SELEX Galileo SpA, Campi Bisenzio											
Gabbiano Air Force											
	1	2	2	2	4	7	14	18	18	18	86
Subtotal	1	2	2	2	4	7	14	18	18	18	86
SELEX Sistemi Integrati SpA, Rome											
Empar Italy <> Army											
	0	1	1	1	0	1	1	1	1	0	7
Empar FREMM <> Italy <> Navy											
	1	0	1	1	1	1	0	0	0	0	5
Orion FREMM <> Italy <> Navy											
	1	2	0	1	1	1	2	0	0	0	8
Orion FREMM <> France <> Navy											
	0	1	1	1	2	1	1	1	2	1	11
Orion Baynunah <> United Arab Emirates <> Navy											
	1	1	1	0	0	0	0	0	0	0	3
Orion Oman <> Navy											
	1	1	0	0	0	0	0	0	0	0	2
Orion Navy											
	0	0	0	1	0	1	0	1	0	1	4
Orion FREMM <> Morocco <> Navy											
	0	0	1	0	0	0	0	0	0	0	1
Orion India <> Navy											
	0	1	1	1	0	0	0	0	0	0	3
Orion Morocco <> Navy											
	1	2	0	0	0	0	0	0	0	0	3
Orion Denmark <> Navy											
	2	2	2	0	0	0	0	0	0	0	6
Orion Netherlands <> Navy											
	1	2	0	0	0	0	0	0	0	0	3

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Orion United Arab Emirates <> Navy											
	1	2	1	0	2	0	0	0	0	0	6
Orion FREMM <> Greece <> Navy											
	0	0	0	0	0	1	1	1	1	0	4
Orion FREMM <> Saudi Arabia <> Navy											
	0	0	0	0	0	1	1	1	1	0	4
RAT-31 DL Italy <> Ministry of Defense											
	2	2	3	3	0	0	0	0	0	0	10
RAT-31 DL Italy <> Air Force											
	1	1	0	0	0	0	0	0	0	0	2
Subtotal	12	18	12	9	6	7	6	5	5	2	82
HQ Total	62	96	51	53	52	39	38	35	34	30	490
General Atomics (HQ)											
General Atomics Aeronautical Systems Inc, San Diego											
APY-8 MQ-9 Reaper <> United States <> Air Force											
	41	48	48	48	48	48	48	48	0	0	377
APY-8 MQ-9 Predator B <> United Kingdom <> Ministry of Defense											
	3	4	0	0	0	0	0	0	0	0	7
APY-8 MQ-9 Reaper <> Italy <> Air Force											
	2	2	3	0	0	0	0	0	0	0	7
APY-8 United States <> Air Force											
	0	0	0	0	0	0	0	0	4	4	8
APY-8											
	0	0	8	9	5	5	5	5	5	5	47
HQ Total	46	54	59	57	53	53	53	53	9	9	446
Griffon Corporation (HQ)											
Telephonics Corp, Farmingdale											
APS-143 P-8 <> India <> Navy											
	0	2	3	3	0	0	0	0	0	0	8
APS-143											
	0	0	0	0	2	4	4	4	0	0	14
APS-143 B 3 CH-148 <> Canada <> Armed Services											
	4	9	9	4	0	0	0	0	0	0	26
APS-143 C 3 CN-235 HC-235 <> United States <> Coast Guard											
	4	4	4	4	4	2	0	0	0	0	22
APS-143 C 3 CN-235 MPA <> Mexico <> Navy											
	1	0	0	0	0	0	0	0	0	0	1
APS-143 C 3 United States											
	1	0	0	0	0	0	0	0	0	0	1
APS-147 MH-60 R <> United States <> Navy											
	35	33	28	30	30	27	19	0	0	0	202

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
EL/M-2129 (ARSS-1) United States <> Homeland Security											
	12	12	10	10	10	10	0	0	0	0	64
RDR-1600 Mi-17											
	22	18	13	4	0	0	0	0	0	0	57
HQ Total	79	78	67	55	46	43	23	4	0	0	395
Honeywell International Inc (HQ)											
Honeywell Aerospace, Phoenix											
APS-150 C-2 <> Japan <> Armed Services											
	1	0	0	2	2	3	4	4	4	4	24
APS-150 C-17 <> United States <> Air Force											
	9	7	7	8	10	8	0	0	0	0	49
APS-150 A400M <> Multi-agencies											
	1	0	5	8	16	30	30	36	36	30	192
APS-150 C-17											
	4	3	3	5	3	0	0	0	0	0	18
RDR-4000 A380											
	21	22	25	27	31	33	34	36	36	36	301
RDR-4000 737/767/777											
	150	163	165	168	168	168	165	158	153	150	1608
RDR-4000 A350											
	0	1	4	5	32	70	120	138	152	155	677
RDR-4000 G650											
	1	14	32	33	48	64	65	65	68	68	458
RDR-4000 A320 Series/A330/A340											
	165	165	165	165	165	156	150	144	140	140	1555
HQ Total	352	375	406	421	475	532	568	581	589	583	4882
ITT Corp (HQ)											
ITT Electronic Systems, Van Nuys											
SPS-48 G LPD-17/LHA-6/LHD-1/CVN-21 <> United States <> Navy											
	1	2	1	1	2	1	0	0	0	1	9
HQ Total	1	2	1	1	2	1	0	0	0	1	9
Israel Aerospace Industries Ltd (IAI) (HQ)											
Elta Systems Ltd, Ashdod											
EL/M-2022 P-3 <> New Zealand <> Air Force											
	1	1	0	0	0	0	0	0	0	0	2
EL/M-2022 Searcher Heron <> India											
	8	6	2	0	0	0	0	0	0	0	16
EL/M-2022 Searcher Heron Mahatz <> Israel											
	2	2	2	2	2	2	0	0	0	0	12
EL/M-2022 P-3 <> Brazil											
	2	3	3	0	0	0	0	0	0	0	8

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
EL/M-2022 Armed Services											
	8	7	8	8	8	0	0	0	0	0	39
EL/M-2022 Q Series Q300 <=> Japan <=> Coast Guard											
	1	0	0	0	0	0	0	0	0	0	1
EL/M-2032 FA-50/T-50/A-50 <=> Korea, South <=> Air Force											
	11	6	8	10	10	10	10	10	10	10	95
EL/M-2032 Colombia <=> Air Force											
	7	7	0	0	0	0	0	0	0	0	14
EL/M-2032 LCA <=> India <=> Air Force											
	8	8	8	8	8	8	0	0	0	0	48
EL/M-2075 IL-76 <=> India <=> Air Force											
	0	1	1	1	0	0	0	0	0	0	3
EL/M-2129 (ARSS-1)											
	75	25	15	0	0	0	0	0	0	0	115
HQ Total	123	66	47	29	28	20	10	10	10	10	353
Kelvin Hughes Ltd (HQ)											
Kelvin Hughes Ltd, Ilford											
Type 1009 Astute <=> United Kingdom <=> Navy											
	1	1	0	1	0	0	0	0	0	0	3
Type 2007 Type 212 <=> Italy <=> Navy											
	0	0	1	1	0	0	0	0	0	0	2
Type 2007 Type 212 <=> Germany <=> Navy											
	0	1	1	0	0	0	0	0	0	0	2
Type 2007 Navy											
	2	2	0	2	0	0	0	0	0	0	6
HQ Total	3	4	2	4	0	0	0	0	0	0	13
Lockheed Martin Corp (HQ)											
Lockheed Martin Corp, Bethesda											
SPY-1 D DDG-51 <=> United States <=> Navy											
	3	0	0	1	2	1	2	2	1	0	12
SPY-1 D F-100 <=> Australia <=> Navy											
	0	0	0	1	0	1	0	0	0	0	2
SPY-1 F F-100 <=> Spain <=> Navy											
	0	1	0	0	0	0	0	0	0	0	1
SPY-1 K KDX -3 <=> Korea, South <=> Navy											
	0	0	0	1	1	1	0	0	0	0	3
Subtotal	3	1	0	3	3	3	2	2	1	0	18
Lockheed Martin Maritime Systems & Sensors - Syracuse											
APY-9 E-2 D <=> United States <=> Navy											
	3	2	4	4	4	7	8	8	8	8	56

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
EQ-36 United States <> Army											
	6	14	24	24	20	16	16	12	0	0	132
Subtotal	9	16	28	28	24	23	24	20	8	8	188
Lockheed Martin Mission Systems & Sensors, Syracuse											
TPS-77 United Kingdom <> Ministry of Defense											
	1	0	0	0	0	0	0	0	0	0	1
TPS-77 Department of Defense											
	0	1	0	0	0	0	0	0	0	0	1
TPS-79 Romania <> Ministry of Defense											
	6	0	0	0	0	0	0	0	0	0	6
TPS-79 Department of Defense											
	0	1	0	0	0	0	0	0	0	0	1
Subtotal	7	2	0	0	0	0	0	0	0	0	9
Lockheed Martin Mission Systems & Sensors (MS2), Moorestown											
APS-145 P-3 C <> Pakistan <> Navy											
	2	0	0	0	0	0	0	0	0	0	2
Subtotal	2	0	0	0	0	0	0	0	0	0	2
HQ Total	21	19	28	31	27	26	26	22	9	8	217
Longbow LLC (HQ)											
Longbow LLC, Orlando											
APG-78 AH-64 D <> Japan <> Armed Services											
	1	0	0	0	0	0	0	0	0	0	1
APG-78 AH-64 D <> United States <> Army											
	6	6	1	8	12	13	16	7	0	2	71
APG-78 AH-64 D <> Armed Services											
	6	16	8	10	10	11	9	9	8	7	94
HQ Total	13	22	9	18	22	24	25	16	8	9	166
Nanjing Research Institute of Electronic Technology (HQ)											
Nanjing Research Institute of Electronic Technology, Jiangsu											
KLJ-7 Type 1478 Pakistan <> Air Force											
	18	25	25	0	0	0	0	0	0	0	68
HQ Total	18	25	25	0	0	0	0	0	0	0	68
NavCom Defense Electronics Inc (HQ)											
NavCom Defense Electronics Inc, El Monte											
APN-232 F-16 A/B/C/D <> Egypt <> Air Force											
	4	12	4	0	0	0	0	0	0	0	20
APN-232 C-17 <> United States <> Air Force											
	9	7	0	0	0	0	0	0	0	0	16
APN-232 C-130/C-130 J <> Air Force											
	24	21	17	18	9	14	8	10	12	12	145

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
APN-232 F-16 C/D <> Multi-agencies											
	0	0	10	12	10	4	0	0	0	0	36
APN-232 F-16 C/D <> Morocco <> Air Force											
	14	4	0	0	0	0	0	0	0	0	18
APN-232 F-16 C/D <> Turkey <> Air Force											
	14	16	0	0	0	0	0	0	0	0	30
APN-232 C-17 <> Air Force											
	4	3	10	2	0	0	0	0	0	0	19
HQ Total	69	63	41	32	19	18	8	10	12	12	284
Northrop Grumman Corp (HQ)											
Northrop Grumman Aerospace Systems, Melbourne											
MP-RTIP Sensor RQ-4 B <> United States <> Air Force											
	2	4	5	0	0	2	2	0	0	0	15
MP-RTIP Sensor											
	0	0	0	0	1	2	2	1	0	0	6
Subtotal	2	4	5	0	1	4	4	1	0	0	21
Northrop Grumman Electronic Systems, Linthicum											
APG-68 F-16 C/D <> Multi-agencies											
	0	0	10	6	4	0	0	0	0	0	20
APG-68 9 F-16 C/D <> Turkey <> Air Force											
	38	35	0	0	0	0	0	0	0	0	73
APG-68 9 F-16 C/D <> Morocco <> Air Force											
	14	4	6	0	0	0	0	0	0	0	24
APG-68 9 F-16 C/D <> Egypt <> Air Force											
	4	12	4	0	0	0	0	0	0	0	20
APG-77 F-22A <> United States <> Air Force											
	21	3	0	0	0	0	0	0	0	0	24
APG-80 F-16 E/F											
	0	0	0	6	5	4	0	0	0	0	15
ASR-12 Multi-agencies											
	2	0	0	0	0	0	0	0	0	0	2
G/ATOR United States <> Marine Corps											
	0	0	12	12	13	13	13	0	0	0	63
Subtotal	79	54	32	24	22	17	13	0	0	0	241
Northrop Grumman Electronic Systems, Baltimore											
APG-81 F-35 <> Multi-agencies											
	20	27	32	40	61	98	134	185	192	215	1004
Mesa 737 AEW&C <> Korea, South <> Air Force											
	2	1	0	0	0	0	0	0	0	0	3
Mesa 737 AEW&C											
	0	2	2	0	0	0	0	0	0	0	4
STARLite Sky Warrior <> United States <> Army											
	29	34	30	30	14	0	0	0	0	0	137

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
STARLite											
	10	0	0	0	12	12	12	18	18	18	100
Subtotal	61	64	64	70	87	110	146	203	210	233	1248
Northrop Grumman Norden Systems, Norwalk											
APN-241 C-130 <=> Air Force											
	2	6	7	11	20	20	20	20	20	20	146
APN-241 C-130 J/C-130 J -30 <=> Air Force											
	24	21	17	18	9	14	8	10	14	13	148
APN-241 C-27 J											
	8	6	8	8	8	7	9	6	6	4	70
Subtotal	34	33	32	37	37	41	37	36	40	37	364
Northrop Grumman Sperry Marine, Charlottesville											
BPS-16 SSN-774 <=> United States <=> Navy											
	2	2	1	1	1	0	0	0	0	0	7
Subtotal	2	2	1	1	1	0	0	0	0	0	7
Northrop Grumman Sperry Marine, Melville											
SPQ-9 B DDG-51/LHD-1/LPD-17/CVN-77 <=> United States <=> Navy											
	3	2	1	2	3	2	2	3	2	1	21
SPQ-9 B Australia <=> Navy											
	1	1	0	0	0	0	0	0	0	0	2
SPQ-9 B United States <=> Coast Guard											
	1	0	0	1	0	1	1	0	1	0	5
Subtotal	5	3	1	3	3	3	3	3	3	1	28
HQ Total	183	160	135	135	151	175	203	243	253	271	1909
Pakistan Aeronautical Complex (PAC) (HQ)											
Pakistan Aeronautical Complex (PAC), Kamra											
Grifo Pakistan <=> Air Force											
	4	2	2	0	0	0	0	0	0	0	8
KLJ-7 Pakistan <=> Air Force											
	2	5	10	15	16	16	15	16	16	16	127
HQ Total	6	7	12	15	16	16	15	16	16	16	135
Phazotron NIIR (HQ)											
Phazotron NIIR, Moscow											
Zhuk M MiG-29 <=> India <=> Navy											
	6	6	6	6	6	5	0	0	0	0	35
Zhuk M MiG-29 <=> India <=> Air Force											
	10	10	10	10	10	0	0	0	0	0	50
Zhuk M MiG-29 <=> Russian Federation <=> Air Force											
	8	4	6	6	6	4	8	10	10	10	72
Zhuk M MiG-29 <=> Myanmar (Burma) <=> Air Force											
	4	2	2	2	2	2	2	0	0	0	16

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Zhuk M MiG-29 <> Syria <> Air Force											
	0	4	4	4	4	3	0	0	0	0	19
HQ Total	28	26	28	28	28	14	10	10	10	10	192
Raytheon Co (HQ)											
Raytheon Command and Control Systems, Marlborough											
ASR-11 United States <> Air Force											
	8	0	0	0	0	0	0	0	0	0	8
ASR-11 Department of Defense											
	1	1	0	0	0	0	0	0	0	0	2
Subtotal	9	1	0	0	0	0	0	0	0	0	10
Raytheon Integrated Defense Systems, Tewksbury											
SPY-3 DDG-1000 <> United States <> Navy											
	0	0	1	1	0	1	0	0	0	0	3
SPY-3 CVN-78 <> United States <> Navy											
	0	0	1	0	0	0	0	1	0	0	2
Subtotal	0	0	2	1	0	1	0	1	0	0	5
Raytheon Network Centric Systems, Marlborough											
SPS-73 United States <> Navy											
	8	8	8	6	6	6	3	2	2	2	51
Subtotal	8	8	8	6	6	6	3	2	2	2	51
Raytheon Network Centric Systems, McKinney											
APQ-186 CV-22 <> United States <> Special Ops											
	6	8	7	5	6	2	0	0	0	0	34
APY-10 P-8 A <> United States <> Navy											
	2	7	6	10	16	18	18	18	12	8	115
APY-10 P-8 A <> India <> Navy											
	0	2	3	3	0	0	0	0	0	0	8
APY-10 P-8 A <> Australia <> Navy											
	0	0	0	0	0	4	4	0	0	0	8
Subtotal	8	17	16	18	22	24	22	18	12	8	165
Raytheon Space & Airborne Systems, El Segundo											
APG-63 1 F-15 K <> Korea, South <> Air Force											
	12	3	0	0	0	0	0	0	0	0	15
APG-63 3 F-15 SG <> Singapore <> Air Force											
	2	0	0	0	0	0	0	0	0	0	2
APG-63 3 F-15 C/D <> United States <> Armed Services											
	14	7	18	20	19	19	0	0	0	0	97
APG-63 3 F-15 J <> Japan <> Air Force											
	10	14	14	14	14	14	14	14	14	8	130
APG-63 3 F-15 SA <> Saudi Arabia <> Air Force											
	0	5	16	16	16	16	15	20	22	22	148
APG-79 F/A-18 E/F <> United States <> Navy											
	37	27	24	18	20	20	18	15	10	0	189

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence				Speculative		
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
APG-79 EA-18G <> United States <> Navy											
	21	22	13	24	0	0	0	0	0	0	80
APG-79 F/A-18 F <> Australia <> Air Force											
	12	0	0	0	0	0	0	0	0	0	12
APG-79 F/A-18 E/F											
	0	0	0	6	6	0	0	0	0	0	12
APG-82 1 F-15 E <> United States <> Air Force											
	3	6	10	17	20	24	24	24	24	24	176
Global Hawk ISS RQ-4 <> United States <> Air Force											
	2	2	3	3	1	1	0	0	0	0	12
Global Hawk ISS RQ-4 B											
	0	0	1	1	1	1	1	1	1	0	7
Subtotal	113	86	99	119	97	95	72	74	71	54	880
Raytheon Systems Ltd, Harlow											
SSR/MSSR ATC Radar Series MSSR <> Norway											
	2	1	0	0	0	0	0	0	0	0	3
SSR/MSSR ATC Radar Series MSSR <> Germany											
	0	1	0	0	0	0	0	0	0	0	1
SSR/MSSR ATC Radar Series MSSR <> United Kingdom											
	3	1	1	0	0	0	0	0	0	0	5
SSR/MSSR ATC Radar Series MSSR <> United States <> Multi-agencies											
	2	3	3	3	0	0	0	0	0	0	11
SSR/MSSR ATC Radar Series MSSR											
	0	0	2	2	2	0	0	0	0	0	6
SSR/MSSR ATC Radar Series Romania											
	0	1	2	0	0	0	0	0	0	0	3
SSR/MSSR ATC Radar Series Saudi Arabia											
	1	3	3	5	5	4	0	0	0	0	21
SSR/MSSR ATC Radar Series											
	0	1	0	0	0	0	0	0	0	0	1
Subtotal	8	11	11	10	7	4	0	0	0	0	51
HQ Total	146	123	136	154	132	130	97	95	85	64	1162
Rockwell Collins Inc (HQ)											
Rockwell Collins Inc, Cedar Rapids											
WXR-2100 737/777/A320 Series/A330											
	312	345	362	380	373	376	380	380	380	377	3665
WXR-2100 787											
	24	36	72	110	130	151	157	160	160	160	1160
WXR-2100 747 -8											
	15	18	18	21	22	22	23	24	24	24	211
WXR-2100 737 BBJ											
	8	7	7	7	8	7	7	9	9	8	77
HQ Total	359	406	459	518	533	556	567	573	573	569	5113

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Saab AB (HQ)											
Saab Electronic Defense Systems, Göteborg											
ARTHUR Italy <> Ministry of Defense											
	2	1	0	0	0	0	0	0	0	0	3
ARTHUR Army											
	1	2	0	2	2	0	0	0	0	0	7
ARTHUR Korea, South <> Army											
	0	2	2	0	2	2	0	0	0	0	8
Erieye 2000 Saab <> Pakistan <> Air Force											
	2	0	0	0	0	0	0	0	0	0	2
Erieye 340 Saab <> Thailand <> Air Force											
	0	0	1	0	0	0	0	0	0	0	1
Erieye 340 Saab <> United Arab Emirates <> Air Force											
	1	0	0	0	0	0	0	0	0	0	1
Erieye											
	0	0	0	0	1	1	1	1	0	0	4
Erieye 2000 Saab <> Saudi Arabia <> Air Force											
	0	0	0	1	0	0	0	0	0	0	1
Giraffe United Kingdom <> Ministry of Defense											
	2	2	0	0	0	0	0	0	0	0	4
Giraffe Armed Services											
	0	1	1	1	1	0	0	0	0	0	4
Giraffe United States <> Government Agency											
	0	1	1	0	0	0	0	0	0	0	2
PS-05 A JAS 39 Export <> South Africa <> Air Force											
	5	5	0	0	0	0	0	0	0	0	10
PS-05 A JAS 39 Export <> Thailand <> Air Force											
	3	2	6	0	0	0	0	0	0	0	11
PS-05 A JAS 39 Export											
	0	0	0	2	5	5	0	0	0	0	12
Sea Giraffe Baynunah <> United Arab Emirates <> Navy											
	1	1	1	0	0	0	0	0	0	0	3
Sea Giraffe Littoral Combat Ship <> United States <> Navy											
	0	1	2	2	2	2	1	0	0	0	10
Sea Giraffe Australia <> Navy											
	0	1	0	0	1	0	0	0	0	0	2
HQ Total	17	19	14	8	14	10	2	1	0	0	85
Syracuse Research Corp (HQ)											
SRCTec Inc, North Syracuse											
PPS-5 D/E United States <> Navy											
	0	21	25	0	0	0	0	0	0	0	46

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ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
TPQ-50 United States <> Army											
	30	61	64	44	40	29	23	13	12	0	316
HQ Total	30	82	89	44	40	29	23	13	12	0	362
Thales (HQ)											
Thales, Neuilly-sur-Seine											
Ocean Master ATR-72 <> Turkey <> Navy											
	0	2	2	2	2	0	0	0	0	0	8
Ocean Master Indonesia <> Navy											
	1	2	0	0	0	0	0	0	0	0	3
Ocean Master United Arab Emirates <> Air Force											
	1	1	0	0	0	0	0	0	0	0	2
Ocean Master CN-235 MPA <> Turkey											
	2	2	2	0	0	0	0	0	0	0	6
Ocean Master											
	0	0	0	2	2	2	0	0	0	0	6
Ocean Master ATR-72 <> Italy <> Navy											
	1	1	1	1	0	0	0	0	0	0	4
Subtotal	5	8	5	5	4	2	0	0	0	0	29
Thales Aerospace, Neuilly-sur-Seine											
RBE2 Rafale <> France <> Navy											
	4	4	2	2	1	2	2	4	4	4	29
RBE2 Rafale <> France <> Air Force											
	7	7	9	10	11	10	11	11	10	12	98
RDY Mirage 2000 <> India <> Air Force											
	0	0	3	12	12	12	12	0	0	0	51
RDY Mirage 2000 <> Air Force											
	0	3	3	3	3	0	0	0	0	0	12
Subtotal	11	14	17	27	27	24	25	15	14	16	190
Thales Air Systems, Bagneux											
Arabel France <> Army											
	1	0	0	0	0	0	0	0	0	0	1
Arabel France <> Air Force											
	1	1	0	0	0	0	0	0	0	0	2
Herakles FREMM <> France <> Navy											
	0	1	1	1	2	1	1	1	1	1	10
Herakles FREMM <> Morocco <> Navy											
	0	0	1	0	0	0	0	0	0	0	1
Herakles FREMM <> Saudi Arabia <> Navy											
	0	0	0	0	0	1	1	1	1	1	5
Herakles FREMM <> Navy											
	0	0	0	0	1	1	1	1	1	1	6
Subtotal	2	2	2	1	3	3	3	3	3	3	25

Analysis 1

ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Thales Nederland BV, Hengelo											
APAR Denmark <> Navy											
	1	1	1	0	0	0	0	0	0	0	3
SMART MW08 Super Vita <> Greece <> Navy											
	1	1	0	0	0	0	0	0	0	0	2
SMART MW08 Morocco <> Navy											
	1	1	0	0	0	0	0	0	0	0	2
SMART S MK 2 Halifax <> Canada <> Navy											
	2	3	3	2	1	0	0	0	0	0	11
SMART S MK 2 Morocco <> Navy											
	1	1	1	0	0	0	0	0	0	0	3
SMART S MK 2 Turkey <> Navy											
	0	1	1	1	0	1	1	0	1	1	7
SMART S MK 2 Oman <> Navy											
	1	0	0	0	0	0	0	0	0	0	1
SMART S MK 2 Venezuela <> Navy											
	1	1	0	0	0	0	0	0	0	0	2
SMART S MK 2 Navy											
	0	0	0	0	1	1	1	1	0	0	4
SMART S1850M CV(F) <> United Kingdom <> Navy											
	1	0	1	0	0	0	0	0	0	0	2
SMART S1850M Type 45 <> United Kingdom <> Navy											
	1	1	0	0	0	0	0	0	0	0	2
Scout Super Vita <> Greece <> Navy											
	0	1	1	0	0	0	0	0	0	0	2
Scout Venezuela <> Navy											
	2	2	0	0	0	0	0	0	0	0	4
Scout Navy											
	0	0	1	1	1	0	0	0	0	0	3
Smart L Denmark <> Navy											
	1	1	1	0	0	0	0	0	0	0	3
Stir/Sting Oman <> Navy											
	1	0	0	0	0	0	0	0	0	0	1
Stir/Sting Venezuela <> Navy											
	2	2	0	0	0	0	0	0	0	0	4
Stir/Sting Super Vita <> Greece <> Navy											
	0	1	1	0	0	0	0	0	0	0	2
Stir/Sting Turkey <> Navy											
	0	1	1	1	0	1	1	0	1	1	7
Stir/Sting											
	0	0	1	1	1	0	0	0	0	0	3
Subtotal	16	18	13	6	4	3	3	1	2	2	68
Thales UK Ltd, Crawley											
I-MASTER WK 450 <> United Kingdom <> Armed Services											
	12	10	10	10	10	0	0	0	0	0	52

Analysis 1

ESTIMATED CALENDAR YEAR UNIT PRODUCTION											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Searchwater ASaC United Kingdom <> Navy											
	0	0	0	0	0	0	2	2	2	2	8
Subtotal	12	10	10	10	10	0	2	2	2	2	60
HQ Total	46	52	47	49	48	32	33	21	21	23	372
ThalesRaytheonSystems (HQ)											
ThalesRaytheonSystems, Fullerton											
MPQ-64 Morocco <> Department of Defense											
	2	4	2	0	0	0	0	0	0	0	8
MPQ-64 United States <> Army											
	0	19	19	18	0	0	0	0	0	0	56
MPQ-64 Department of Defense											
	0	0	1	0	0	0	0	0	0	0	1
HQ Total	2	23	22	18	0	0	0	0	0	0	65
ThalesRaytheonSystems France (HQ)											
ThalesRaytheonSystems France, Massy											
Ground Master 400 Germany <> Department of Defense											
	1	1	1	1	2	0	0	0	0	0	6
Ground Master 400 Canada <> Air Force											
	1	1	0	0	0	0	0	0	0	0	2
Ground Master 403 India <> Armed Services											
	4	4	5	4	1	0	0	0	0	0	18
Ground Master 403 Finland <> Air Force											
	2	6	2	0	0	0	0	0	0	0	10
Ground Master 403 Estonia <> Armed Services											
	2	0	0	0	0	0	0	0	0	0	2
Ground Master 403 Slovenia <> Ministry of Defense											
	1	1	0	0	0	0	0	0	0	0	2
HQ Total	11	13	8	5	3	0	0	0	0	0	40
V. Tikhomirov NIIP (HQ)											
V. Tikhomirov NIIP, Zhukovsky											
Bars Su-30 MK <> India <> Air Force											
	29	29	29	29	12	0	0	0	0	0	128
Irbis Su-27 <> Russian Federation <> Air Force											
	8	8	9	8	7	0	0	0	0	0	40
HQ Total	37	37	38	37	19	0	0	0	0	0	168
Grand Total											
	1715	1840	1806	1789	1757	1758	1726	1722	1661	1634	17408

(TABLE 1 - end)

Analysis 1

Table 2
The Market for Radar Systems
Value Statistics by Headquarters/Company/Program
2011 - 2020

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
BAE Systems plc (HQ)											
BAE Systems Integrated System Technologies (Insyte), Filton											
Sampson Type 45 <> United Kingdom <> Navy											
	12.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$12.00
Subtotal	12.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$12.00
BAE Systems Mission Systems, Camberley											
ARTISAN CV(F)/Type 23 <> United Kingdom <> Navy											
	9.75	9.75	19.50	19.50	19.50	19.50	19.50	19.50	29.25	29.25	\$195.00
Subtotal	9.75	9.75	19.50	19.50	19.50	19.50	19.50	19.50	29.25	29.25	\$195.00
HQ Total	21.75	9.75	19.50	19.50	19.50	19.50	19.50	19.50	29.25	29.25	\$207.00
CEA Technologies Pty Ltd (HQ)											
CEA Technologies Pty Ltd, Fyshwick											
CEAFAR Upgrade Anzac <> Australia <> Navy											
	.00	12.00	12.00	24.00	12.00	.00	.00	.00	.00	.00	\$60.00
CEAFAR Navy											
	.00	.00	.00	.00	.00	12.00	12.00	.00	.00	.00	\$24.00
HQ Total	.00	12.00	12.00	24.00	12.00	12.00	12.00	.00	.00	.00	\$84.00
Euro-Art International EWIV (HQ)											
Euro-Art International EWIV,											
COBRA United Arab Emirates <> Army											
	162.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$162.00
COBRA											
	.00	.00	81.00	81.00	.00	.00	.00	.00	.00	.00	\$162.00
HQ Total	162.00	.00	81.00	81.00	.00	.00	.00	.00	.00	.00	\$324.00
European Aeronautic Defence and Space Co (EADS) NV (HQ)											
Cassidian Electronics, Ulm											
TRGS Germany <> Armed Services											
	.00	26.00	26.00	26.00	.00	.00	.00	.00	.00	.00	\$78.00
TRS-3D F-125 <> Germany <> Navy											
	.00	.00	6.00	.00	6.00	.00	6.00	.00	6.00	.00	\$24.00
TRS-3D LCS-1 Freedom <> United States <> Navy											
	.00	6.00	12.00	12.00	12.00	.00	.00	.00	.00	.00	\$42.00
TRS-3D Malaysia <> Navy											
	6.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$6.00

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
TRS-3D United States <=> Coast Guard											
	.00	6.00	6.00	6.00	6.00	.00	.00	.00	.00	.00	\$24.00
TRS-3D Navy											
	.00	.00	.00	.00	.00	6.00	6.00	6.00	.00	.00	\$18.00
HQ Total	6.00	38.00	50.00	44.00	24.00	6.00	12.00	6.00	6.00	.00	\$192.00
Euroradar (HQ)											
Euroradar,											
ECR-90C Typhoon <=> Italy <=> Air Force											
	36.00	36.00	24.00	24.00	20.00	20.00	.00	.00	.00	.00	\$160.00
ECR-90C Typhoon <=> Spain <=> Air Force											
	32.00	32.00	20.00	20.00	20.00	20.00	.00	.00	.00	.00	\$144.00
ECR-90C Typhoon <=> Germany <=> Air Force											
	56.00	56.00	44.00	32.00	32.00	24.00	.00	.00	.00	.00	\$244.00
ECR-90C Typhoon <=> United Kingdom <=> Air Force											
	60.00	60.00	56.00	48.00	48.00	48.00	16.00	.00	.00	.00	\$336.00
ECR-90C Typhoon <=> Saudi Arabia <=> Air Force											
	48.00	48.00	48.00	48.00	48.00	.00	.00	.00	.00	.00	\$240.00
ECR-90C Typhoon <=> Air Force											
	.00	.00	.00	.00	.00	32.00	64.00	64.00	64.00	64.00	\$288.00
HQ Total	232.00	232.00	192.00	172.00	168.00	144.00	80.00	64.00	64.00	64.00	\$1,412.00
Finmeccanica SpA (HQ)											
DRS C3 & Aviation Co, Gaithersburg											
SPS-67 3 DDG-51 <=> United States <=> Navy											
	.90	.00	.00	.30	.60	.30	.60	.60	.30	.00	\$3.60
Subtotal	.90	.00	.00	.30	.60	.30	.60	.60	.30	.00	\$3.60
DRS Sustainment Systems Inc, St. Louis											
PPS-5 United States <=> Army											
	2.94	5.44	.00	.00	.00	.00	.00	.00	.00	.00	\$8.38
PPS-5 Jordan <=> Armed Services											
	.60	.90	.90	.90	.90	.00	.00	.00	.00	.00	\$4.20
Subtotal	3.54	6.34	.90	.90	.90	.00	.00	.00	.00	.00	\$12.58
SELEX Galileo, Edinburgh											
Raven ES-05 JAS 39 <=> Sweden <=> Air Force											
	3.00	3.00	6.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	\$222.00
Seaspray											
	.00	.00	.00	.00	5.00	5.00	5.00	.00	.00	.00	\$15.00
Seaspray 5000E Finland <=> Government Agency											
	1.25	1.25	.00	.00	.00	.00	.00	.00	.00	.00	\$2.50
Seaspray 7000E Lynx AW159 Lynx Wildcat <=> United Kingdom <=> Navy											
	4.24	7.07	7.07	7.07	7.07	5.66	.00	.00	.00	.00	\$38.19
Seaspray 7000E											
	2.64	2.64	1.32	.00	.00	.00	.00	.00	.00	.00	\$6.60

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Seaspray 7300E ATR-72 <> Italy <> Air Force											
	1.32	2.64	1.32	.00	.00	.00	.00	.00	.00	.00	\$5.28
Seaspray 7500E Australia <> Government Agency											
	2.64	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$2.64
Seaspray 7500E King Air 350 <> United States <> Multi-agencies											
	6.00	10.00	12.00	12.00	10.00	8.00	.00	.00	.00	.00	\$58.00
Seaspray 7500E Korea, South <> Army											
	.00	3.00	.00	.00	.00	.00	.00	.00	.00	.00	\$3.00
Subtotal	21.09	29.60	27.71	49.07	52.07	48.66	35.00	30.00	30.00	30.00	\$353.21
SELEX Galileo, Milano											
Grifo Multi-agencies											
	3.40	5.10	5.10	3.40	3.40	3.40	3.40	.00	.00	.00	\$27.20
Scipio Upgrade AMX <> Brazil <> Air Force											
	4.26	8.51	8.51	8.51	6.81	.00	.00	.00	.00	.00	\$36.59
Subtotal	7.66	13.61	13.61	11.91	10.21	3.40	3.40	.00	.00	.00	\$63.79
SELEX Galileo SpA, Campi Bisenzio											
Gabbiano Air Force											
	.85	1.70	1.70	1.70	3.40	5.95	11.90	15.30	15.30	15.30	\$73.10
Subtotal	.85	1.70	1.70	1.70	3.40	5.95	11.90	15.30	15.30	15.30	\$73.10
SELEX Sistemi Integrati SpA, Rome											
Empar Italy <> Army											
	.00	12.00	12.00	12.00	.00	12.00	12.00	12.00	12.00	.00	\$84.00
Empar FREMM <> Italy <> Navy											
	12.00	.00	12.00	12.00	12.00	12.00	.00	.00	.00	.00	\$60.00
Orion FREMM <> Italy <> Navy											
	2.00	4.00	.00	2.00	2.00	2.00	4.00	.00	.00	.00	\$16.00
Orion FREMM <> France <> Navy											
	.00	2.00	2.00	2.00	4.00	2.00	2.00	2.00	4.00	2.00	\$22.00
Orion Baynunah <> United Arab Emirates <> Navy											
	2.00	2.00	2.00	.00	.00	.00	.00	.00	.00	.00	\$6.00
Orion Oman <> Navy											
	2.00	2.00	.00	.00	.00	.00	.00	.00	.00	.00	\$4.00
Orion Navy											
	.00	.00	.00	2.00	.00	2.00	.00	2.00	.00	2.00	\$8.00
Orion FREMM <> Morocco <> Navy											
	.00	.00	2.00	.00	.00	.00	.00	.00	.00	.00	\$2.00
Orion India <> Navy											
	.00	2.00	2.00	2.00	.00	.00	.00	.00	.00	.00	\$6.00
Orion Morocco <> Navy											
	2.00	4.00	.00	.00	.00	.00	.00	.00	.00	.00	\$6.00
Orion Denmark <> Navy											
	4.00	4.00	4.00	.00	.00	.00	.00	.00	.00	.00	\$12.00
Orion Netherlands <> Navy											
	2.00	4.00	.00	.00	.00	.00	.00	.00	.00	.00	\$6.00

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Orion FREMM <> Greece <> Navy											
	.00	.00	.00	.00	.00	2.00	2.00	2.00	2.00	.00	\$8.00
Orion FREMM <> Saudi Arabia <> Navy											
	.00	.00	.00	.00	.00	2.00	2.00	2.00	2.00	.00	\$8.00
Orion United Arab Emirates <> Navy											
	2.00	4.00	2.00	.00	4.00	.00	.00	.00	.00	.00	\$12.00
RAT-31 DL Italy <> Ministry of Defense											
	58.60	58.60	87.90	87.90	.00	.00	.00	.00	.00	.00	\$293.00
RAT-31 DL Italy <> Air Force											
	21.50	21.50	.00	.00	.00	.00	.00	.00	.00	.00	\$43.00
Subtotal	108.10	120.10	125.90	119.90	22.00	34.00	22.00	20.00	20.00	4.00	\$596.00
HQ Total	142.14	171.35	169.82	183.78	89.18	92.31	72.90	65.90	65.60	49.30	\$1,102.28
General Atomics (HQ)											
General Atomics Aeronautical Systems Inc, San Diego											
APY-8 MQ-9 Reaper <> United States <> Air Force											
	57.40	67.20	67.20	67.20	67.20	67.20	67.20	67.20	.00	.00	\$527.80
APY-8 MQ-9 Predator B <> United Kingdom <> Ministry of Defense											
	4.20	5.60	.00	.00	.00	.00	.00	.00	.00	.00	\$9.80
APY-8 MQ-9 Reaper <> Italy <> Air Force											
	2.80	2.80	4.20	.00	.00	.00	.00	.00	.00	.00	\$9.80
APY-8 United States <> Air Force											
	.00	.00	.00	.00	.00	.00	.00	.00	6.00	6.00	\$12.00
APY-8											
	.00	.00	11.20	12.60	7.00	7.00	7.00	7.00	7.00	7.00	\$65.80
HQ Total	64.40	75.60	82.60	79.80	74.20	74.20	74.20	74.20	13.00	13.00	\$625.20
Griffon Corporation (HQ)											
Telephonics Corp, Farmingdale											
APS-143 P-8 <> India <> Navy											
	.00	2.50	3.75	3.75	.00	.00	.00	.00	.00	.00	\$10.00
APS-143											
	.00	.00	.00	.00	2.50	5.00	5.00	5.00	.00	.00	\$17.50
APS-143 B 3 CH-148 <> Canada <> Armed Services											
	5.00	11.25	11.25	5.00	.00	.00	.00	.00	.00	.00	\$32.50
APS-143 C 3 CN-235 HC-235 <> United States <> Coast Guard											
	5.00	5.00	5.00	5.00	5.00	2.50	.00	.00	.00	.00	\$27.50
APS-143 C 3 United States											
	1.25	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$1.25
APS-143 C 3 CN-235 MPA <> Mexico <> Navy											
	1.25	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$1.25
APS-147 MH-60 R <> United States <> Navy											
	70.00	66.00	56.00	60.00	60.00	54.00	38.00	.00	.00	.00	\$404.00

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
EL/M-2129 (ARSS-1) United States <> Homeland Security											
	4.34	4.34	3.62	3.62	3.62	3.62	.00	.00	.00	.00	\$23.17
RDR-1600 Mi-17											
	1.10	.90	.65	.20	.00	.00	.00	.00	.00	.00	\$2.85
HQ Total	87.94	89.99	80.27	77.57	71.12	65.12	43.00	5.00	.00	.00	\$520.02
Honeywell International Inc (HQ)											
Honeywell Aerospace, Phoenix											
APS-150 C-2 <> Japan <> Armed Services											
	.40	.00	.00	.80	.80	1.20	1.60	1.60	1.60	1.60	\$9.60
APS-150 C-17 <> United States <> Air Force											
	2.93	2.28	2.28	2.60	3.25	2.60	.00	.00	.00	.00	\$15.93
APS-150 A400M <> Multi-agencies											
	.35	.00	1.75	2.80	5.60	10.50	10.50	12.60	12.60	10.50	\$67.20
APS-150 C-17											
	1.40	1.05	1.05	1.75	1.05	.00	.00	.00	.00	.00	\$6.30
RDR-4000 A380											
	4.20	4.40	5.00	5.40	6.20	6.60	6.80	7.20	7.20	7.20	\$60.20
RDR-4000 737/767/777											
	26.25	28.53	28.88	29.40	29.40	29.40	28.88	27.65	26.78	26.25	\$281.40
RDR-4000 A350											
	.00	.35	1.40	1.75	11.20	24.50	42.00	48.30	53.20	54.25	\$236.95
RDR-4000 G650											
	.35	4.90	11.20	11.55	16.80	22.40	22.75	22.75	23.80	23.80	\$160.30
RDR-4000 A320 Series/A330/A340											
	28.88	28.88	28.88	28.88	28.88	27.30	26.25	25.20	24.50	24.50	\$272.13
HQ Total	64.75	70.38	80.43	84.93	103.18	124.50	138.78	145.30	149.68	148.10	\$1,110.00
ITT Corp (HQ)											
ITT Electronic Systems, Van Nuys											
SPS-48 G LPD-17/LHA-6/LHD-1/CVN-21 <> United States <> Navy											
	19.50	39.00	19.50	19.50	39.00	19.50	.00	.00	.00	19.50	\$175.50
HQ Total	19.50	39.00	19.50	19.50	39.00	19.50	.00	.00	.00	19.50	\$175.50
Israel Aerospace Industries Ltd (IAI) (HQ)											
Elta Systems Ltd, Ashdod											
EL/M-2022 P-3 <> New Zealand <> Air Force											
	1.50	1.50	.00	.00	.00	.00	.00	.00	.00	.00	\$3.00
EL/M-2022 Searcher Heron <> India											
	10.00	7.50	2.50	.00	.00	.00	.00	.00	.00	.00	\$20.00
EL/M-2022 Searcher Heron Mahatz <> Israel											
	2.50	2.50	2.50	2.50	2.50	2.50	.00	.00	.00	.00	\$15.00
EL/M-2022 P-3 <> Brazil											
	3.00	4.50	4.50	.00	.00	.00	.00	.00	.00	.00	\$12.00

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
EL/M-2022 Armed Services											
	10.40	9.10	10.40	10.40	10.40	.00	.00	.00	.00	.00	\$50.70
EL/M-2022 Q Series Q300 <> Japan <> Coast Guard											
	1.50	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$1.50
EL/M-2032 Colombia <> Air Force											
	16.04	16.04	.00	.00	.00	.00	.00	.00	.00	.00	\$32.08
EL/M-2032 FA-50/T-50/A-50 <> Korea, South <> Air Force											
	25.21	13.75	18.33	22.92	22.92	22.92	22.92	22.92	22.92	22.92	\$217.71
EL/M-2032 LCA <> India <> Air Force											
	18.33	18.33	18.33	18.33	18.33	18.33	.00	.00	.00	.00	\$110.00
EL/M-2075 IL-76 <> India <> Air Force											
	.00	225.00	225.00	225.00	.00	.00	.00	.00	.00	.00	\$675.00
EL/M-2129 (ARSS-1)											
	12.53	4.18	2.51	.00	.00	.00	.00	.00	.00	.00	\$19.21
HQ Total	101.01	302.40	284.07	279.15	54.15	43.75	22.92	22.92	22.92	22.92	\$1,156.20
Kelvin Hughes Ltd (HQ)											
Kelvin Hughes Ltd, Ilford											
Type 1009 Astute <> United Kingdom <> Navy											
	.75	.75	.00	.75	.00	.00	.00	.00	.00	.00	\$2.25
Type 2007 Type 212 <> Italy <> Navy											
	.00	.00	.73	.73	.00	.00	.00	.00	.00	.00	\$1.45
Type 2007 Type 212 <> Germany <> Navy											
	.00	.70	.70	.00	.00	.00	.00	.00	.00	.00	\$1.40
Type 2007 Navy											
	1.40	1.40	.00	1.40	.00	.00	.00	.00	.00	.00	\$4.20
HQ Total	2.15	2.85	1.43	2.88	.00	.00	.00	.00	.00	.00	\$9.30
Lockheed Martin Corp (HQ)											
Lockheed Martin Corp, Bethesda											
SPY-1 D DDG-51 <> United States <> Navy											
	60.00	.00	.00	20.00	40.00	20.00	40.00	40.00	20.00	.00	\$240.00
SPY-1 D F-100 <> Australia <> Navy											
	.00	.00	.00	20.00	.00	20.00	.00	.00	.00	.00	\$40.00
SPY-1 F F-100 <> Spain <> Navy											
	.00	20.00	.00	.00	.00	.00	.00	.00	.00	.00	\$20.00
SPY-1 K KDX -3 <> Korea, South <> Navy											
	.00	.00	.00	18.00	18.00	18.00	.00	.00	.00	.00	\$54.00
Subtotal	60.00	20.00	.00	58.00	58.00	58.00	40.00	40.00	20.00	.00	\$354.00
Lockheed Martin Maritime Systems & Sensors - Syracuse											
APY-9 E-2 D <> United States <> Navy											
	15.00	10.00	20.00	20.00	20.00	35.00	40.00	40.00	40.00	40.00	\$280.00

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
EQ-36 United States <=> Army											
	72.00	168.00	288.00	288.00	240.00	192.00	192.00	144.00	.00	.00	\$1,584.00
Subtotal	87.00	178.00	308.00	308.00	260.00	227.00	232.00	184.00	40.00	40.00	\$1,864.00
Lockheed Martin Mission Systems & Sensors, Syracuse											
TPS-77 United Kingdom <=> Ministry of Defense											
	14.80	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$14.80
TPS-77 Department of Defense											
	.00	14.80	.00	.00	.00	.00	.00	.00	.00	.00	\$14.80
TPS-79 Romania <=> Ministry of Defense											
	60.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$60.00
TPS-79 Department of Defense											
	.00	10.00	.00	.00	.00	.00	.00	.00	.00	.00	\$10.00
Subtotal	74.80	24.80	.00	.00	.00	.00	.00	.00	.00	.00	\$99.60
Lockheed Martin Mission Systems & Sensors (MS2), Moorestown											
APS-145 P-3 C <=> Pakistan <=> Navy											
	6.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$6.00
Subtotal	6.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$6.00
HQ Total	227.80	222.80	308.00	366.00	318.00	285.00	272.00	224.00	60.00	40.00	\$2,323.60
Longbow LLC (HQ)											
Longbow LLC, Orlando											
APG-78 AH-64 D <=> Japan <=> Armed Services											
	3.80	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$3.80
APG-78 AH-64 D <=> United States <=> Army											
	22.80	22.80	3.80	30.40	45.60	49.40	60.80	26.60	.00	7.60	\$269.80
APG-78 AH-64 D <=> Armed Services											
	22.80	60.80	30.40	38.00	38.00	41.80	34.20	34.20	30.40	26.60	\$357.20
HQ Total	49.40	83.60	34.20	68.40	83.60	91.20	95.00	60.80	30.40	34.20	\$630.80
Nanjing Research Institute of Electronic Technology (HQ)											
Nanjing Research Institute of Electronic Technology, Jiangsu											
KLJ-7 Type 1478 Pakistan <=> Air Force											
	22.50	31.25	31.25	.00	.00	.00	.00	.00	.00	.00	\$85.00
HQ Total	22.50	31.25	31.25	.00	.00	.00	.00	.00	.00	.00	\$85.00
NavCom Defense Electronics Inc (HQ)											
NavCom Defense Electronics Inc, El Monte											
APN-232 F-16 A/B/C/D <=> Egypt <=> Air Force											
	.08	.24	.08	.00	.00	.00	.00	.00	.00	.00	\$40
APN-232 C-17 <=> United States <=> Air Force											
	.18	.14	.00	.00	.00	.00	.00	.00	.00	.00	\$32
APN-232 C-130/C-130 J <=> Air Force											
	.48	.42	.34	.36	.18	.28	.16	.20	.24	.24	\$290

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
APN-232 F-16 C/D <=> Multi-agencies											
	.00	.00	.20	.24	.20	.08	.00	.00	.00	.00	\$72
APN-232 F-16 C/D <=> Morocco <=> Air Force											
	.28	.08	.00	.00	.00	.00	.00	.00	.00	.00	\$36
APN-232 F-16 C/D <=> Turkey <=> Air Force											
	.28	.32	.00	.00	.00	.00	.00	.00	.00	.00	\$60
APN-232 C-17 <=> Air Force											
	.08	.06	.20	.04	.00	.00	.00	.00	.00	.00	\$38
HQ Total	1.38	1.26	.82	.64	.38	.36	.16	.20	.24	.24	\$5.68
Northrop Grumman Corp (HQ)											
Northrop Grumman Aerospace Systems, Melbourne											
MP-RTIP Sensor RQ-4 B <=> United States <=> Air Force											
	22.00	44.00	55.00	.00	.00	22.00	22.00	.00	.00	.00	\$165.00
MP-RTIP Sensor											
	.00	.00	.00	.00	11.00	22.00	22.00	11.00	.00	.00	\$66.00
Subtotal	22.00	44.00	55.00	.00	11.00	44.00	44.00	11.00	.00	.00	\$231.00
Northrop Grumman Electronic Systems, Linthicum											
APG-68 F-16 C/D <=> Multi-agencies											
	.00	.00	19.00	11.40	7.60	.00	.00	.00	.00	.00	\$38.00
APG-68 9 F-16 C/D <=> Turkey <=> Air Force											
	72.20	66.50	.00	.00	.00	.00	.00	.00	.00	.00	\$138.70
APG-68 9 F-16 C/D <=> Morocco <=> Air Force											
	26.60	7.60	11.40	.00	.00	.00	.00	.00	.00	.00	\$45.60
APG-68 9 F-16 C/D <=> Egypt <=> Air Force											
	7.60	22.80	7.60	.00	.00	.00	.00	.00	.00	.00	\$38.00
APG-77 F-22A <=> United States <=> Air Force											
	109.20	15.60	.00	.00	.00	.00	.00	.00	.00	.00	\$124.80
APG-80 F-16 E/F											
	.00	.00	.00	15.60	13.00	10.40	.00	.00	.00	.00	\$39.00
ASR-12 Multi-agencies											
	7.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$7.20
G/ATOR United States <=> Marine Corps											
	.00	.00	120.00	120.00	130.00	130.00	130.00	.00	.00	.00	\$630.00
Subtotal	222.80	112.50	158.00	147.00	150.60	140.40	130.00	.00	.00	.00	\$1,061.30
Northrop Grumman Electronic Systems, Baltimore											
APG-81 F-35 <=> Multi-agencies											
	104.00	140.40	166.40	208.00	317.20	509.60	696.80	962.00	998.40	1118.00	\$5,220.80
Mesa 737 AEW&C <=> Korea, South <=> Air Force											
	20.00	10.00	.00	.00	.00	.00	.00	.00	.00	.00	\$30.00
Mesa 737 AEW&C											
	.00	20.00	20.00	.00	.00	.00	.00	.00	.00	.00	\$40.00
STARLite Sky Warrior <=> United States <=> Army											
	58.00	68.00	60.00	60.00	28.00	.00	.00	.00	.00	.00	\$274.00

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
STARLite											
	20.00	.00	.00	.00	24.00	24.00	24.00	36.00	36.00	36.00	\$200.00
Subtotal	202.00	238.40	246.40	268.00	369.20	533.60	720.80	998.00	1034.40	1154.00	\$5,764.80
Northrop Grumman Norden Systems, Norwalk											
APN-241 C-130 <=> Air Force											
	1.20	3.60	4.20	6.60	12.00	12.00	12.00	12.00	12.00	12.00	\$87.60
APN-241 C-130 J/C-130 J -30 <=> Air Force											
	13.54	11.85	9.59	10.16	5.08	7.90	4.51	5.64	7.90	7.33	\$83.50
APN-241 C-27 J											
	4.73	3.55	4.73	4.73	4.73	4.14	5.32	3.55	3.55	2.37	\$41.40
Subtotal	19.47	19.00	18.52	21.49	21.81	24.04	21.84	21.19	23.45	21.70	\$212.50
Northrop Grumman Sperry Marine, Charlottesville											
BPS-16 SSN-774 <=> United States <=> Navy											
	5.23	5.23	2.61	2.61	2.61	.00	.00	.00	.00	.00	\$18.30
Subtotal	5.23	5.23	2.61	2.61	2.61	.00	.00	.00	.00	.00	\$18.30
Northrop Grumman Sperry Marine, Melville											
SPQ-9 B DDG-51/LHD-1/LPD-17/CVN-77 <=> United States <=> Navy											
	20.45	13.63	6.82	13.63	20.45	13.63	13.63	20.45	13.63	6.82	\$143.15
SPQ-9 B United States <=> Coast Guard											
	6.90	.00	.00	6.90	.00	6.90	6.90	.00	6.90	.00	\$34.50
SPQ-9 B Australia <=> Navy											
	6.90	6.90	.00	.00	.00	.00	.00	.00	.00	.00	\$13.80
Subtotal	34.25	20.53	6.82	20.53	20.45	20.53	20.53	20.45	20.53	6.82	\$191.45
HQ Total	505.75	439.66	487.35	459.63	575.67	762.57	937.17	1050.64	1078.38	1182.52	\$7,479.35
Pakistan Aeronautical Complex (PAC) (HQ)											
Pakistan Aeronautical Complex (PAC), Kamra											
Grifo Pakistan <=> Air Force											
	3.40	1.70	1.70	.00	.00	.00	.00	.00	.00	.00	\$6.80
KLJ-7 Pakistan <=> Air Force											
	2.50	6.25	12.50	18.75	20.00	20.00	18.75	20.00	20.00	20.00	\$158.75
HQ Total	5.90	7.95	14.20	18.75	20.00	20.00	18.75	20.00	20.00	20.00	\$165.55
Phazotron NIIR (HQ)											
Phazotron NIIR, Moscow											
Zhuk M MiG-29 <=> India <=> Navy											
	42.00	42.00	42.00	42.00	42.00	35.00	.00	.00	.00	.00	\$245.00
Zhuk M MiG-29 <=> India <=> Air Force											
	70.00	70.00	70.00	70.00	70.00	.00	.00	.00	.00	.00	\$350.00
Zhuk M MiG-29 <=> Russian Federation <=> Air Force											
	56.00	28.00	42.00	42.00	42.00	28.00	56.00	70.00	70.00	70.00	\$504.00
Zhuk M MiG-29 <=> Myanmar (Burma) <=> Air Force											
	28.00	14.00	14.00	14.00	14.00	14.00	14.00	.00	.00	.00	\$112.00

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Zhuk M MiG-29 <=> Syria <=> Air Force											
	.00	28.00	28.00	28.00	28.00	21.00	.00	.00	.00	.00	\$133.00
HQ Total	196.00	182.00	196.00	196.00	196.00	98.00	70.00	70.00	70.00	70.00	\$1,344.00
Raytheon Co (HQ)											
Raytheon Command and Control Systems, Marlborough											
ASR-11 United States <=> Air Force											
	23.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$23.20
ASR-11 Department of Defense											
	2.90	2.90	.00	.00	.00	.00	.00	.00	.00	.00	\$5.80
Subtotal	26.10	2.90	.00	.00	.00	.00	.00	.00	.00	.00	\$29.00
Raytheon Integrated Defense Systems, Tewksbury											
SPY-3 DDG-1000 <=> United States <=> Navy											
	.00	.00	175.00	175.00	.00	175.00	.00	.00	.00	.00	\$525.00
SPY-3 CVN-78 <=> United States <=> Navy											
	.00	.00	175.00	.00	.00	.00	.00	175.00	.00	.00	\$350.00
Subtotal	.00	.00	350.00	175.00	.00	175.00	.00	175.00	.00	.00	\$875.00
Raytheon Network Centric Systems, Marlborough											
SPS-73 United States <=> Navy											
	4.00	4.00	4.00	3.00	3.00	3.00	1.50	1.00	1.00	1.00	\$25.50
Subtotal	4.00	4.00	4.00	3.00	3.00	3.00	1.50	1.00	1.00	1.00	\$25.50
Raytheon Network Centric Systems, McKinney											
APQ-186 CV-22 <=> United States <=> Special Ops											
	2.85	3.80	3.33	2.38	2.85	.95	.00	.00	.00	.00	\$16.15
APY-10 P-8 A <=> United States <=> Navy											
	4.00	14.00	12.00	20.00	32.00	36.00	36.00	36.00	24.00	16.00	\$230.00
APY-10 P-8 A <=> India <=> Navy											
	.00	4.00	6.00	6.00	.00	.00	.00	.00	.00	.00	\$16.00
APY-10 P-8 A <=> Australia <=> Navy											
	.00	.00	.00	.00	.00	8.00	8.00	.00	.00	.00	\$16.00
Subtotal	6.85	21.80	21.33	28.38	34.85	44.95	44.00	36.00	24.00	16.00	\$278.15
Raytheon Space & Airborne Systems, El Segundo											
APG-63 1 F-15 K <=> Korea, South <=> Air Force											
	37.58	9.39	.00	.00	.00	.00	.00	.00	.00	.00	\$46.97
APG-63 3 F-15 SG <=> Singapore <=> Air Force											
	17.50	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$17.50
APG-63 3 F-15 C/D <=> United States <=> Armed Services											
	73.22	36.61	94.14	104.60	99.37	99.37	.00	.00	.00	.00	\$507.31
APG-63 3 F-15 J <=> Japan <=> Air Force											
	52.30	73.22	73.22	73.22	73.22	73.22	73.22	73.22	73.22	41.84	\$679.90
APG-63 3 F-15 SA <=> Saudi Arabia <=> Air Force											
	.00	43.75	140.00	140.00	140.00	140.00	131.25	175.00	192.50	192.50	\$1,295.00
APG-79 F/A-18 E/F <=> United States <=> Navy											
	112.85	82.35	73.20	54.90	61.00	61.00	54.90	45.75	30.50	.00	\$576.45

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
APG-79 EA-18G <> United States <> Navy											
	64.05	67.10	39.65	73.20	.00	.00	.00	.00	.00	.00	\$244.00
APG-79 F/A-18 F <> Australia <> Air Force											
	36.60	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$36.60
APG-79 F/A-18 E/F											
	.00	.00	.00	18.30	18.30	.00	.00	.00	.00	.00	\$36.60
APG-82 1 F-15 E <> United States <> Air Force											
	12.78	25.56	42.60	72.42	85.20	102.24	102.24	102.24	102.24	102.24	\$749.76
Global Hawk ISS RQ-4 <> United States <> Air Force											
	30.00	30.00	45.00	45.00	15.00	15.00	.00	.00	.00	.00	\$180.00
Global Hawk ISS RQ-4 B											
	.00	.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	.00	\$105.00
Subtotal	436.88	367.98	522.81	596.64	507.09	505.83	376.61	411.21	413.46	336.58	\$4,475.09
Raytheon Systems Ltd, Harlow											
SSR/MSSR ATC Radar Series MSSR <> United Kingdom											
	9.00	3.00	3.00	.00	.00	.00	.00	.00	.00	.00	\$15.00
SSR/MSSR ATC Radar Series MSSR <> Norway											
	5.80	2.90	.00	.00	.00	.00	.00	.00	.00	.00	\$8.70
SSR/MSSR ATC Radar Series MSSR <> Germany											
	.00	3.30	.00	.00	.00	.00	.00	.00	.00	.00	\$3.30
SSR/MSSR ATC Radar Series MSSR <> United States <> Multi-agencies											
	1.77	2.65	2.65	2.65	.00	.00	.00	.00	.00	.00	\$9.71
SSR/MSSR ATC Radar Series Romania											
	.00	3.30	6.60	.00	.00	.00	.00	.00	.00	.00	\$9.90
SSR/MSSR ATC Radar Series Saudi Arabia											
	3.30	9.90	9.90	16.50	16.50	13.20	.00	.00	.00	.00	\$69.30
SSR/MSSR ATC Radar Series MSSR											
	.00	.00	6.60	6.60	6.60	.00	.00	.00	.00	.00	\$19.80
SSR/MSSR ATC Radar Series											
	.00	4.00	.00	.00	.00	.00	.00	.00	.00	.00	\$4.00
Subtotal	19.87	29.05	28.75	25.75	23.10	13.20	.00	.00	.00	.00	\$139.71
HQ Total	493.69	425.73	926.88	828.76	568.04	741.98	422.11	623.21	438.46	353.58	\$5,822.46
Rockwell Collins Inc (HQ)											
Rockwell Collins Inc, Cedar Rapids											
WXR-2100 737/777/A320 Series/A330											
	156.00	172.50	181.00	190.00	186.50	188.00	190.00	190.00	190.00	188.50	\$1,832.50
WXR-2100 787											
	12.00	18.00	36.00	55.00	65.00	75.50	78.50	80.00	80.00	80.00	\$580.00
WXR-2100 747 -8											
	7.50	9.00	9.00	10.50	11.00	11.00	11.50	12.00	12.00	12.00	\$105.50
WXR-2100 737 BBJ											
	4.00	3.50	3.50	3.50	4.00	3.50	3.50	4.50	4.50	4.00	\$38.50
HQ Total	179.50	203.00	229.50	259.00	266.50	278.00	283.50	286.50	286.50	284.50	\$2,556.50

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Saab AB (HQ)											
Saab Electronic Defense Systems, Göteborg											
ARTHUR Army											
	17.04	34.08	.00	34.08	34.08	.00	.00	.00	.00	.00	\$119.27
ARTHUR Korea, South <> Army											
	.00	34.89	34.89	.00	34.89	34.89	.00	.00	.00	.00	\$139.55
ARTHUR Italy <> Ministry of Defense											
	26.30	13.15	.00	.00	.00	.00	.00	.00	.00	.00	\$39.45
Erieye 2000 Saab <> Pakistan <> Air Force											
	156.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$156.00
Erieye 340 Saab <> Thailand <> Air Force											
	.00	.00	78.00	.00	.00	.00	.00	.00	.00	.00	\$78.00
Erieye											
	.00	.00	.00	.00	78.00	78.00	78.00	78.00	.00	.00	\$312.00
Erieye 2000 Saab <> Saudi Arabia <> Air Force											
	.00	.00	.00	95.00	.00	.00	.00	.00	.00	.00	\$95.00
Erieye 340 Saab <> United Arab Emirates <> Air Force											
	78.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$78.00
Giraffe United Kingdom <> Ministry of Defense											
	23.80	23.80	.00	.00	.00	.00	.00	.00	.00	.00	\$47.60
Giraffe Armed Services											
	.00	10.00	10.00	10.00	10.00	.00	.00	.00	.00	.00	\$40.00
Giraffe United States <> Government Agency											
	.00	11.85	11.85	.00	.00	.00	.00	.00	.00	.00	\$23.70
PS-05 A JAS 39 Export <> South Africa <> Air Force											
	11.25	11.25	.00	.00	.00	.00	.00	.00	.00	.00	\$22.50
PS-05 A JAS 39 Export <> Thailand <> Air Force											
	6.75	4.50	13.50	.00	.00	.00	.00	.00	.00	.00	\$24.75
PS-05 A JAS 39 Export											
	.00	.00	.00	5.00	12.50	12.50	.00	.00	.00	.00	\$30.00
Sea Giraffe Baynunah <> United Arab Emirates <> Navy											
	1.70	1.70	1.70	.00	.00	.00	.00	.00	.00	.00	\$5.10
Sea Giraffe Littoral Combat Ship <> United States <> Navy											
	.00	1.70	3.40	3.40	3.40	3.40	1.70	.00	.00	.00	\$17.00
Sea Giraffe Australia <> Navy											
	.00	1.85	.00	.00	1.85	.00	.00	.00	.00	.00	\$3.70
HQ Total	320.84	148.77	153.34	147.48	174.72	128.79	79.70	78.00	.00	.00	\$1,231.62
Syracuse Research Corp (HQ)											
SRCTec Inc, North Syracuse											
PPS-5 D/E United States <> Navy											
	.00	2.90	3.45	.00	.00	.00	.00	.00	.00	.00	\$6.35

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
TPQ-50 United States <=> Army											
	24.84	50.51	52.99	36.43	33.12	24.01	19.04	10.76	9.94	.00	\$261.65
HQ Total	24.84	53.41	56.44	36.43	33.12	24.01	19.04	10.76	9.94	.00	\$268.00
Thales (HQ)											
Thales, Neuilly-sur-Seine											
Ocean Master ATR-72 <=> Turkey <=> Navy											
	.00	7.40	7.40	7.40	7.40	.00	.00	.00	.00	.00	\$29.60
Ocean Master Indonesia <=> Navy											
	3.70	7.40	.00	.00	.00	.00	.00	.00	.00	.00	\$11.10
Ocean Master CN-235 MPA <=> Turkey											
	7.40	7.40	7.40	.00	.00	.00	.00	.00	.00	.00	\$22.20
Ocean Master											
	.00	.00	.00	7.40	7.40	7.40	.00	.00	.00	.00	\$22.20
Ocean Master ATR-72 <=> Italy <=> Navy											
	3.70	3.70	3.70	3.70	.00	.00	.00	.00	.00	.00	\$14.80
Ocean Master United Arab Emirates <=> Air Force											
	3.70	3.70	.00	.00	.00	.00	.00	.00	.00	.00	\$7.40
Subtotal	18.50	29.60	18.50	18.50	14.80	7.40	.00	.00	.00	.00	\$107.30
Thales Aerospace, Neuilly-sur-Seine											
RBE2 Rafale <=> France <=> Navy											
	6.00	6.00	3.00	3.00	1.50	3.00	3.00	6.00	6.00	6.00	\$43.50
RBE2 Rafale <=> France <=> Air Force											
	10.50	10.50	13.50	15.00	16.50	15.00	16.50	16.50	15.00	18.00	\$147.00
RDY Mirage 2000 <=> India <=> Air Force											
	.00	.00	6.00	24.00	24.00	24.00	24.00	.00	.00	.00	\$102.00
RDY Mirage 2000 <=> Air Force											
	.00	6.00	6.00	6.00	6.00	.00	.00	.00	.00	.00	\$24.00
Subtotal	16.50	22.50	28.50	48.00	48.00	42.00	43.50	22.50	21.00	24.00	\$316.50
Thales Air Systems, Bagneux											
Arabel France <=> Army											
	10.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$10.00
Arabel France <=> Air Force											
	10.00	10.00	.00	.00	.00	.00	.00	.00	.00	.00	\$20.00
Herakles FREMM <=> France <=> Navy											
	.00	20.00	20.00	20.00	40.00	20.00	20.00	20.00	20.00	20.00	\$200.00
Herakles FREMM <=> Morocco <=> Navy											
	.00	.00	20.00	.00	.00	.00	.00	.00	.00	.00	\$20.00
Herakles FREMM <=> Saudi Arabia <=> Navy											
	.00	.00	.00	.00	.00	20.00	20.00	20.00	20.00	20.00	\$100.00
Herakles FREMM <=> Navy											
	.00	.00	.00	.00	20.00	20.00	20.00	20.00	20.00	20.00	\$120.00
Subtotal	20.00	30.00	40.00	20.00	60.00	60.00	60.00	60.00	60.00	60.00	\$470.00

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Thales Nederland BV, Hengelo											
APAR Denmark <> Navy											
	10.00	10.00	10.00	.00	.00	.00	.00	.00	.00	.00	\$30.00
SMART MW08 Super Vita <> Greece <> Navy											
	8.00	8.00	.00	.00	.00	.00	.00	.00	.00	.00	\$16.00
SMART MW08 Morocco <> Navy											
	8.00	8.00	.00	.00	.00	.00	.00	.00	.00	.00	\$16.00
SMART S MK 2 Morocco <> Navy											
	8.00	8.00	8.00	.00	.00	.00	.00	.00	.00	.00	\$24.00
SMART S MK 2 Turkey <> Navy											
	.00	8.00	8.00	8.00	.00	8.00	8.00	.00	8.00	8.00	\$56.00
SMART S MK 2 Oman <> Navy											
	8.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$8.00
SMART S MK 2 Navy											
	.00	.00	.00	.00	8.00	8.00	8.00	8.00	.00	.00	\$32.00
SMART S MK 2 Halifax <> Canada <> Navy											
	16.00	24.00	24.00	16.00	8.00	.00	.00	.00	.00	.00	\$88.00
SMART S MK 2 Venezuela <> Navy											
	8.00	8.00	.00	.00	.00	.00	.00	.00	.00	.00	\$16.00
SMART S1850M CV(F) <> United Kingdom <> Navy											
	12.50	.00	12.50	.00	.00	.00	.00	.00	.00	.00	\$25.00
SMART S1850M Type 45 <> United Kingdom <> Navy											
	12.50	12.50	.00	.00	.00	.00	.00	.00	.00	.00	\$25.00
Scout Super Vita <> Greece <> Navy											
	.00	1.50	1.50	.00	.00	.00	.00	.00	.00	.00	\$3.00
Scout Venezuela <> Navy											
	3.00	3.00	.00	.00	.00	.00	.00	.00	.00	.00	\$6.00
Scout Navy											
	.00	.00	1.50	1.50	1.50	.00	.00	.00	.00	.00	\$4.50
Smart L Denmark <> Navy											
	12.00	12.00	12.00	.00	.00	.00	.00	.00	.00	.00	\$36.00
Stir/Sting Turkey <> Navy											
	.00	2.50	2.50	2.50	.00	2.50	2.50	.00	2.50	2.50	\$17.50
Stir/Sting Oman <> Navy											
	2.50	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$2.50
Stir/Sting Venezuela <> Navy											
	5.00	5.00	.00	.00	.00	.00	.00	.00	.00	.00	\$10.00
Stir/Sting Super Vita <> Greece <> Navy											
	.00	2.50	2.50	.00	.00	.00	.00	.00	.00	.00	\$5.00
Stir/Sting											
	.00	.00	2.50	2.50	2.50	.00	.00	.00	.00	.00	\$7.50
Subtotal	113.50	113.00	85.00	30.50	20.00	18.50	18.50	8.00	10.50	10.50	\$428.00
Thales UK Ltd, Crawley											
I-MASTER WK 450 <> United Kingdom <> Armed Services											
	14.40	12.00	12.00	12.00	12.00	.00	.00	.00	.00	.00	\$62.40

Analysis 1

EST. CALENDAR YEAR VALUE OF PRODUCTION (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Searchwater ASaC United Kingdom <> Navy											
	.00	.00	.00	.00	.00	.00	10.00	10.00	10.00	10.00	\$40.00
Subtotal	14.40	12.00	12.00	12.00	12.00	.00	10.00	10.00	10.00	10.00	\$102.40
HQ Total	182.90	207.10	184.00	129.00	154.80	127.90	132.00	100.50	101.50	104.50	\$1,424.20
ThalesRaytheonSystems (HQ)											
ThalesRaytheonSystems, Fullerton											
MPQ-64 Morocco <> Department of Defense											
	16.25	32.50	16.25	.00	.00	.00	.00	.00	.00	.00	\$65.00
MPQ-64 Department of Defense											
	.00	.00	4.00	.00	.00	.00	.00	.00	.00	.00	\$4.00
MPQ-64 United States <> Army											
	.00	55.10	55.10	52.20	.00	.00	.00	.00	.00	.00	\$162.40
HQ Total	16.25	87.60	75.35	52.20	.00	.00	.00	.00	.00	.00	\$231.40
ThalesRaytheonSystems France (HQ)											
ThalesRaytheonSystems France, Massy											
Ground Master 400 Germany <> Department of Defense											
	5.00	5.00	5.00	5.00	10.00	.00	.00	.00	.00	.00	\$30.00
Ground Master 400 Canada <> Air Force											
	5.00	5.00	.00	.00	.00	.00	.00	.00	.00	.00	\$10.00
Ground Master 403 Slovenia <> Ministry of Defense											
	5.00	5.00	.00	.00	.00	.00	.00	.00	.00	.00	\$10.00
Ground Master 403 India <> Armed Services											
	20.00	20.00	25.00	20.00	5.00	.00	.00	.00	.00	.00	\$90.00
Ground Master 403 Finland <> Air Force											
	10.00	30.00	10.00	.00	.00	.00	.00	.00	.00	.00	\$50.00
Ground Master 403 Estonia <> Armed Services											
	10.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$10.00
HQ Total	55.00	65.00	40.00	25.00	15.00	.00	.00	.00	.00	.00	\$200.00
V. Tikhomirov NIIP (HQ)											
V. Tikhomirov NIIP, Zhukovsky											
Bars Su-30 MK <> India <> Air Force											
	290.00	290.00	290.00	290.00	120.00	.00	.00	.00	.00	.00	\$1,280.00
Irbis Su-27 <> Russian Federation <> Air Force											
	80.00	80.00	90.00	80.00	70.00	.00	.00	.00	.00	.00	\$400.00
HQ Total	370.00	370.00	380.00	370.00	190.00	.00	.00	.00	.00	.00	\$1,680.00
Production Total											
	3555.39	3572.44	4189.95	4025.40	3250.15	3158.69	2804.73	2927.43	2445.86	2435.60	\$32,365.65

Analysis 1

EST. CALENDAR YEAR O&M FUNDING (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
BAE Systems plc (HQ)											
BAE Systems Australia, Edinburgh											
Jindalee Australia <> Air Force											
	25.20	24.80	24.40	24.40	24.40	24.40	12.20	.00	.00	.00	\$159.80
Subtotal	25.20	24.80	24.40	24.40	24.40	24.40	12.20	.00	.00	.00	\$159.80
BAE Systems Integrated System Technologies (Insyte), Filton											
Sampson Type 45 <> United Kingdom <> Air Force											
	6.14	12.27	12.27	12.27	12.27	12.27	6.14	.00	.00	.00	\$73.64
Subtotal	6.14	12.27	12.27	12.27	12.27	12.27	6.14	.00	.00	.00	\$73.64
HQ Total	31.34	37.07	36.67	36.67	36.67	36.67	18.34	.00	.00	.00	\$233.44
COBRA PDS Consortium (HQ)											
COBRA PDS Consortium, München											
COBRA											
	34.15	29.02	25.50	22.75	15.13	.00	.00	.00	.00	.00	\$126.55
HQ Total	34.15	29.02	25.50	22.75	15.13	.00	.00	.00	.00	.00	\$126.55
Griffon Corporation (HQ)											
Telephonics Corp, Farmingdale											
APS-147 MH-60 R <> United States <> Navy											
	3.40	3.40	3.40	3.12	.00	.00	.00	.00	.00	.00	\$13.32
HQ Total	3.40	3.40	3.40	3.12	.00	.00	.00	.00	.00	.00	\$13.32
ITT Corp (HQ)											
ITT Electronic Systems, Van Nuys											
SPS-48 United States <> Navy											
	19.33	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$19.33
HQ Total	19.33	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$19.33
Lockheed Martin Corp (HQ)											
Lockheed Martin Australia Electronic Systems Pty Ltd, Edinburgh											
Jindalee Australia <> Air Force											
	50.40	49.70	49.00	49.00	49.00	49.00	24.50	.00	.00	.00	\$320.60
Subtotal	50.40	49.70	49.00	49.00	49.00	49.00	24.50	.00	.00	.00	\$320.60
Lockheed Martin Missiles & Fire Control - Orlando											
APG-78 AH-64 D <> United States <> Army											
	11.48	11.48	.00	.00	.00	.00	.00	.00	.00	.00	\$22.95
Subtotal	11.48	11.48	.00	.00	.00	.00	.00	.00	.00	.00	\$22.95
HQ Total	61.88	61.18	49.00	49.00	49.00	49.00	24.50	.00	.00	.00	\$343.55

Analysis 1

EST. CALENDAR YEAR O&M FUNDING (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Longbow LLC (HQ)											
Longbow LLC, Orlando											
APG-78 AH-64 WAH-64D <> United Kingdom <> Army											
	21.50	21.50	21.50	5.37	.00	.00	.00	.00	.00	.00	\$69.87
APG-78 AH-64 D <> United States <> Army											
	13.35	.00	.00	.00	.00	.00	.00	.00	.00	.00	\$13.35
HQ Total	34.85	21.50	21.50	5.37	.00	.00	.00	.00	.00	.00	\$83.22
Raytheon Co (HQ)											
Raytheon Network Centric Systems, McKinney											
APQ-174 MH-47 E/MH-60 <> United States <> Special Ops											
	4.25	4.25	4.25	2.13	.00	.00	.00	.00	.00	.00	\$14.88
APS-137 5 P-3 C <> United States <> Navy											
	12.00	12.00	9.00	11.00	11.00	11.00	.00	.00	.00	.00	\$66.00
HQ Total	16.25	16.25	13.25	13.13	11.00	11.00	.00	.00	.00	.00	\$80.88
Saab AB (HQ)											
Saab Electronic Defense Systems, Göteborg											
Sea Giraffe Halifax <> Canada <> Navy											
	5.48	5.48	5.48	5.48	5.48	5.48	5.48	.00	.00	.00	\$38.35
Subtotal	5.48	5.48	5.48	5.48	5.48	5.48	5.48	.00	.00	.00	\$38.35
Saab Microwave Canada Ltd, Dartmouth											
Sea Giraffe Halifax <> Canada <> Navy											
	4.17	4.17	4.17	.00	.00	.00	.00	.00	.00	.00	\$12.51
Subtotal	4.17	4.17	4.17	.00	.00	.00	.00	.00	.00	.00	\$12.51
HQ Total	9.65	9.65	9.65	5.48	5.48	5.48	5.48	.00	.00	.00	\$50.86
Syracuse Research Corp (HQ)											
SRCTec Inc, North Syracuse											
TPQ-48 3 United States <> Army											
	14.00	6.93	.00	.00	.00	.00	.00	.00	.00	.00	\$20.93
HQ Total	14.00	6.93	.00	.00	.00	.00	.00	.00	.00	.00	\$20.93
Thales (HQ)											
Thales Canada, Ottawa											
Stir/Sting Halifax <> Canada <> Navy											
	2.18	2.18	2.18	.00	.00	.00	.00	.00	.00	.00	\$6.54
Stir/Sting Canada <> Navy											
	2.18	2.18	2.18	.00	.00	.00	.00	.00	.00	.00	\$6.54
HQ Total	4.36	4.36	4.36	.00	.00	.00	.00	.00	.00	.00	\$13.08

Analysis 1

EST. CALENDAR YEAR O&M FUNDING (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
ThalesRaytheonSystems (HQ)											
ThalesRaytheonSystems, Fullerton											
MPQ-64 United States <> Army											
	31.00	41.70	33.00	48.40	46.60	46.50	.00	.00	.00	.00	\$247.20
TPQ-36 United States <> Army											
	8.50	21.60	1.50	.00	.00	.00	.00	.00	.00	.00	\$31.60
HQ Total	39.50	63.30	34.50	48.40	46.60	46.50	.00	.00	.00	.00	\$278.80
O&M Total	268.69	252.66	197.83	183.92	163.88	148.65	48.32	.00	.00	.00	\$1,263.95

EST. CALENDAR YEAR RDT&E FUNDING (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
CEA Technologies Pty Ltd (HQ)											
CEA Technologies Pty Ltd, Fyshwick											
AUSPAR- High Power CEAFAAR Australia <> Navy											
	1.50	1.50	.00	.00	.00	.00	.00	.00	.00	.00	\$3.00
HQ Total	1.50	1.50	.00	.00	.00	.00	.00	.00	.00	.00	\$3.00
Lockheed Martin Corp (HQ)											
Lockheed Martin Mission Systems & Sensors (MS2), Moorestown											
Space Fence United States <> Air Force											
	57.00	50.00	.00	.00	.00	.00	.00	.00	.00	.00	\$107.00
HQ Total	57.00	50.00	.00	.00	.00	.00	.00	.00	.00	.00	\$107.00
MEADS International Inc (HQ)											
MEADS International, Orlando											
MEADS Program Multi-agencies											
	497.28	453.05	425.84	.00	.00	.00	.00	.00	.00	.00	\$1,376.17
HQ Total	497.28	453.05	425.84	.00	.00	.00	.00	.00	.00	.00	\$1,376.17
Northrop Grumman Corp (HQ)											
Northrop Grumman Aerospace Systems, Melbourne											
MP-RTIP United States <> Air Force											
	28.50	25.09	17.62	11.58	11.87	12.01	5.88	.00	.00	.00	\$112.55
HQ Total	28.50	25.09	17.62	11.58	11.87	12.01	5.88	.00	.00	.00	\$112.55

Analysis 1

EST. CALENDAR YEAR RDT&E FUNDING (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Raytheon Co (HQ)											
Raytheon Integrated Defense Systems, Tewksbury											
JLENS United States <> Army											
	372.40	344.60	156.40	58.10	19.70	19.70	16.40	15.70	15.20	15.00	\$1,033.20
Space Fence United States <> Air Force											
	57.00	50.00	.00	.00	.00	.00	.00	.00	.00	.00	\$107.00
Subtotal	429.40	394.60	156.40	58.10	19.70	19.70	16.40	15.70	15.20	15.00	\$1,140.20
Raytheon Integrated Defense Systems, San Diego											
Ship Self Defense System (SSDS) United States <> Navy											
	43.50	39.50	34.50	33.20	34.50	35.80	20.00	20.00	20.00	20.00	\$301.00
Subtotal	43.50	39.50	34.50	33.20	34.50	35.80	20.00	20.00	20.00	20.00	\$301.00
Raytheon Network Centric Systems, McKinney											
Silent Knight Radar MH-47/MH-60 M/CV-22/MC-130 H <> United States <> Armed Services											
	35.21	20.32	32.50	30.13	26.75	13.50	8.25	.00	.00	.00	\$166.65
Subtotal	35.21	20.32	32.50	30.13	26.75	13.50	8.25	.00	.00	.00	\$166.65
HQ Total	508.11	454.42	223.40	121.43	80.95	69.00	44.65	35.70	35.20	35.00	\$1,607.85
Syracuse Research Corp (HQ)											
SRCTec Inc, North Syracuse											
LCMR/LSTAR Enhancements United States <> Marine Corps											
	1.99	1.99	1.99	.99	.00	.00	.00	.00	.00	.00	\$6.95
HQ Total	1.99	1.99	1.99	.99	.00	.00	.00	.00	.00	.00	\$6.95
Manufacturer Not Selected											
Three-Dimensional Expeditionary Long-Range Radar (3DELRR) United States <> Air Force											
	53.36	60.25	117.71	95.43	98.84	81.73	63.75	42.57	25.50	.00	\$639.14
Space Fence United States <> Air Force											
	.00	135.46	254.79	323.91	261.57	106.63	102.00	87.50	92.75	88.25	\$1,452.88
HQ Total	53.36	195.71	372.51	419.35	360.42	188.36	165.75	130.07	118.25	88.25	\$2,092.02
Manufacturer Varies											
U.S. Navy Air Control Engineering United States <> Navy											
	5.67	6.02	6.16	6.78	6.92	7.00	7.00	7.00	7.10	7.20	\$66.85
RANGE IMPROVEMENT United States <> Air Force											
	48.00	50.00	44.00	46.00	46.00	46.00	44.00	46.00	42.00	40.00	\$452.00
ATCALS Program United States <> Air Force											
	33.27	63.37	15.67	4.85	4.96	5.08	3.00	3.00	4.00	4.00	\$141.20
RF SENSORS & COUNTERMEASURES (US AIR FORCE) United States <> Air Force											
	55.70	39.95	40.26	36.55	37.13	35.00	35.00	32.00	27.00	25.00	\$363.59
Combat Identification Technology United States <> Air Force											
	26.17	25.82	26.10	26.49	26.88	27.00	27.00	27.50	26.50	25.00	\$264.46
Sensor Fusion Technology United States <> Air Force											
	24.00	24.50	25.00	25.50	25.70	27.00	27.80	27.90	28.00	28.30	\$263.70

Analysis 1

EST. CALENDAR YEAR RDT&E FUNDING (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Integrated Sensor Is Structure (ISIS) United States <> Department of Defense											
	43.30	57.43	55.00	48.80	52.50	49.30	45.00	42.00	40.00	40.00	\$473.33
Joint STARS E-8 C <> United States <> Air Force											
	168.90	72.20	32.30	32.40	32.90	35.50	38.75	40.40	40.46	36.87	\$530.68
AWACS E-3 <> United States <> Air Force											
	239.76	181.72	120.66	128.85	91.12	85.00	110.00	113.00	121.00	126.00	\$1,317.10
S3I Technology United States <> Army											
	17.91	18.99	21.94	23.36	24.78	25.00	25.00	24.00	24.00	24.00	\$228.98
Jindalee Phase 5/6 Australia <> Air Force											
	8.00	6.90	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	\$254.90
Electromagnetic Systems Applied Research (U.S. Navy) United States <> Navy											
	83.90	80.67	86.15	85.62	89.53	89.00	89.00	85.00	85.00	87.00	\$860.87
BMD Sensors Program United States <> Department of Defense											
	454.86	222.37	357.27	336.51	318.32	348.94	350.00	348.00	325.00	335.00	\$3,396.27
HQ Total	1209.44	849.94	860.51	831.71	786.74	809.82	831.55	825.80	800.06	808.37	\$8,613.93
RDT&E Total	2357.16	2031.69	1901.87	1385.05	1239.98	1079.19	1047.83	991.57	953.51	931.62	\$13,919.47

EST. CALENDAR YEAR PROCUREMENT FUNDING (in millions FY11 \$)											
	High Confidence				Good Confidence			Speculative			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Manufacturer Varies											
NATO Alliance Ground Surveillance (AGS) Multi-agencies											
	.00	200.00	400.00	400.00	300.00	200.00	.00	.00	.00	.00	\$1,500.00
HQ Total	.00	200.00	400.00	400.00	300.00	200.00	.00	.00	.00	.00	\$1,500.00
Procurem't Total	.00	200.00	400.00	400.00	300.00	200.00	.00	.00	.00	.00	\$1,500.00
Grand Total All Values	6,181.25	6,056.80	6,689.65	5,994.37	4,954.01	4,586.53	3,900.87	3,919.00	3,399.37	3,367.22	\$49,049.07

(TABLE 2 - end)

Analysis 1

Figure 1

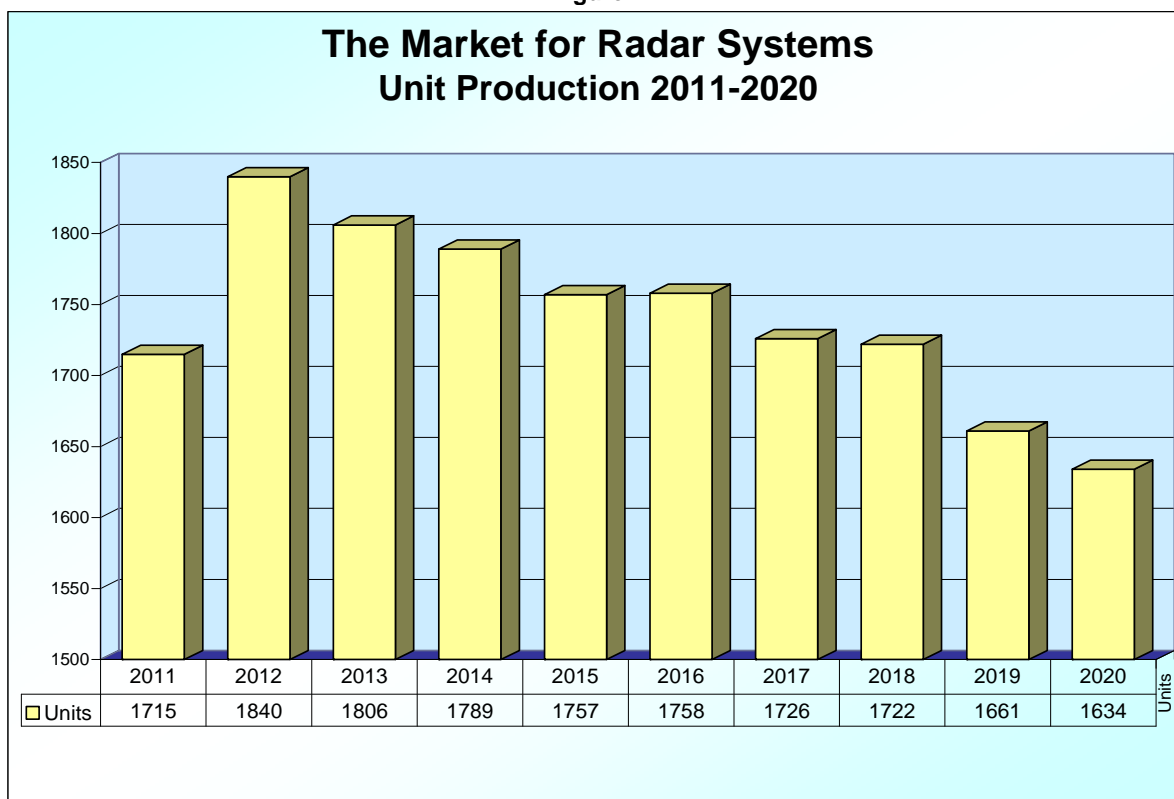
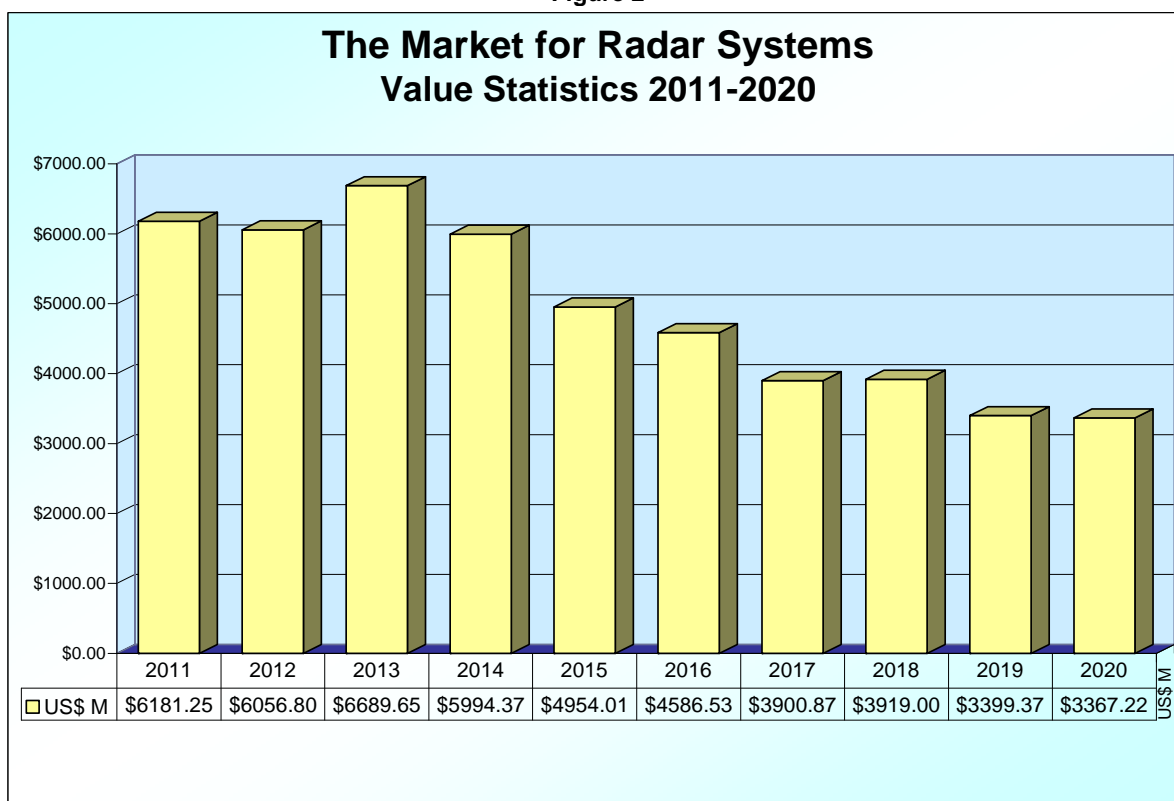


Figure 2



Analysis 1

Table 3
The Market for Radar Systems
Unit Production % Market Share by Headquarters/Company
2011 - 2020

ESTIMATED CALENDAR YEAR UNIT PRODUCTION						
	2011-2015	% Market Share	2016-2020	% Market Share	2011-2020	% Market Share
BAE Systems plc (HQ)						
BAE Systems Integrated System Technologies (Insyte)	1	.01%	0	.00%	1	.01%
BAE Systems Mission Systems	8	.09%	12	.14%	20	.11%
Headquarters Total	9	.10%	12	.14%	21	.12%
CEA Technologies Pty Ltd (HQ)						
CEA Technologies Pty Ltd	5	.06%	2	.02%	7	.04%
Headquarters Total	5	.06%	2	.02%	7	.04%
Euro-Art International EWIV (HQ)						
Euro-Art International EWIV	4	.04%	0	.00%	4	.02%
Headquarters Total	4	.04%	0	.00%	4	.02%
European Aeronautic Defence and Space Co (EADS) NV (HQ)						
Cassidian Electronics	92	1.03%	5	.06%	97	.56%
Headquarters Total	92	1.03%	5	.06%	97	.56%
Euroradar (HQ)						
Euroradar	249	2.80%	104	1.22%	353	2.03%
Headquarters Total	249	2.80%	104	1.22%	353	2.03%
Finmeccanica SpA (HQ)						
DRS C3 & Aviation Co	6	.07%	6	.07%	12	.07%
DRS Sustainment Systems Inc	85	.95%	0	.00%	85	.49%
SELEX Galileo	88	.99%	62	.73%	150	.86%
SELEX Galileo	67	.75%	8	.09%	75	.43%
SELEX Galileo SpA	11	.12%	75	.88%	86	.49%
SELEX Sistemi Integrati SpA	57	.64%	25	.29%	82	.47%
Headquarters Total	314	3.53%	176	2.07%	490	2.81%
General Atomics (HQ)						
General Atomics Aeronautical Systems Inc	269	3.02%	177	2.08%	446	2.56%
Headquarters Total	269	3.02%	177	2.08%	446	2.56%
Griffon Corporation (HQ)						
Telephonics Corp	325	3.65%	70	.82%	395	2.27%
Headquarters Total	325	3.65%	70	.82%	395	2.27%
Honeywell International Inc (HQ)						
Honeywell Aerospace	2,029	22.78%	2,853	33.56%	4,882	28.04%
Headquarters Total	2,029	22.78%	2,853	33.56%	4,882	28.04%
ITT Corp (HQ)						
ITT Electronic Systems	7	.08%	2	.02%	9	.05%
Headquarters Total	7	.08%	2	.02%	9	.05%
Israel Aerospace Industries Ltd (IAI) (HQ)						
Elta Systems Ltd	293	3.29%	60	.71%	353	2.03%
Headquarters Total	293	3.29%	60	.71%	353	2.03%

Analysis 1

ESTIMATED CALENDAR YEAR UNIT PRODUCTION						
	2011-2015	% Market Share	2016-2020	% Market Share	2011-2020	% Market Share
Kelvin Hughes Ltd (HQ)						
Kelvin Hughes Ltd	13	.15%	0	.00%	13	.07%
Headquarters Total	13	.15%	0	.00%	13	.07%
Lockheed Martin Corp (HQ)						
Lockheed Martin Corp	10	.11%	8	.09%	18	.10%
Lockheed Martin Maritime Systems & Sensors - Syracuse	105	1.18%	83	.98%	188	1.08%
Lockheed Martin Mission Systems & Sensors	9	.10%	0	.00%	9	.05%
Lockheed Martin Mission Systems & Sensors (MS2)	2	.02%	0	.00%	2	.01%
Headquarters Total	126	1.41%	91	1.07%	217	1.25%
Longbow LLC (HQ)						
Longbow LLC	84	.94%	82	.96%	166	.95%
Headquarters Total	84	.94%	82	.96%	166	.95%
Nanjing Research Institute of Electronic Technology (HQ)						
Nanjing Research Institute of Electronic Technology	68	.76%	0	.00%	68	.39%
Headquarters Total	68	.76%	0	.00%	68	.39%
NavCom Defense Electronics Inc (HQ)						
NavCom Defense Electronics Inc	224	2.51%	60	.71%	284	1.63%
Headquarters Total	224	2.51%	60	.71%	284	1.63%
Northrop Grumman Corp (HQ)						
Northrop Grumman Aerospace Systems	12	.13%	9	.11%	21	.12%
Northrop Grumman Electronic Systems	211	2.37%	30	.35%	241	1.38%
Northrop Grumman Electronic Systems	346	3.88%	902	10.61%	1,248	7.17%
Northrop Grumman Norden Systems	173	1.94%	191	2.25%	364	2.09%
Northrop Grumman Sperry Marine	7	.08%	0	.00%	7	.04%
Northrop Grumman Sperry Marine	15	.17%	13	.15%	28	.16%
Headquarters Total	764	8.58%	1,145	13.47%	1,909	10.97%
Pakistan Aeronautical Complex (PAC) (HQ)						
Pakistan Aeronautical Complex (PAC)	56	.63%	79	.93%	135	.78%
Headquarters Total	56	.63%	79	.93%	135	.78%
Phazotron NIIR (HQ)						
Phazotron NIIR	138	1.55%	54	.64%	192	1.10%
Headquarters Total	138	1.55%	54	.64%	192	1.10%
Raytheon Co (HQ)						
Raytheon Command and Control Systems	10	.11%	0	.00%	10	.06%
Raytheon Integrated Defense Systems	3	.03%	2	.02%	5	.03%
Raytheon Network Centric Systems	36	.40%	15	.18%	51	.29%
Raytheon Network Centric Systems	81	.91%	84	.99%	165	.95%
Raytheon Space & Airborne Systems	514	5.77%	366	4.31%	880	5.06%
Raytheon Systems Ltd	47	.53%	4	.05%	51	.29%
Headquarters Total	691	7.76%	471	5.54%	1,162	6.68%
Rockwell Collins Inc (HQ)						
Rockwell Collins Inc	2,275	25.54%	2,838	33.38%	5,113	29.37%
Headquarters Total	2,275	25.54%	2,838	33.38%	5,113	29.37%
Saab AB (HQ)						
Saab Electronic Defense Systems	72	.81%	13	.15%	85	.49%
Headquarters Total	72	.81%	13	.15%	85	.49%

Analysis 1

ESTIMATED CALENDAR YEAR UNIT PRODUCTION						
	2011-2015	% Market Share	2016-2020	% Market Share	2011-2020	% Market Share
Syracuse Research Corp (HQ)						
SRCTec Inc	285	3.20%	77	.91%	362	2.08%
Headquarters Total	285	3.20%	77	.91%	362	2.08%
Thales (HQ)						
Thales	27	.30%	2	.02%	29	.17%
Thales Aerospace	96	1.08%	94	1.11%	190	1.09%
Thales Air Systems	10	.11%	15	.18%	25	.14%
Thales Nederland BV	57	.64%	11	.13%	68	.39%
Thales UK Ltd	52	.58%	8	.09%	60	.34%
Headquarters Total	242	2.72%	130	1.53%	372	2.14%
ThalesRaytheonSystems (HQ)						
ThalesRaytheonSystems	65	.73%	0	.00%	65	.37%
Headquarters Total	65	.73%	0	.00%	65	.37%
ThalesRaytheonSystems France (HQ)						
ThalesRaytheonSystems France	40	.45%	0	.00%	40	.23%
Headquarters Total	40	.45%	0	.00%	40	.23%
V. Tikhomirov NIIP (HQ)						
V. Tikhomirov NIIP	168	1.89%	0	.00%	168	.97%
Headquarters Total	168	1.89%	0	.00%	168	.97%
Grand Total	8,907	100%	8,501	100%	17,408	100%

(TABLE 3 - end)

Table 4
The Market for Radar Systems
Value Statistics % Market Share by Headquarters/Company
2011 - 2020

EST. CALENDAR YEAR TOTAL VALUE (in millions FY11 \$)						
	2011-2015	% Market Share	2016-2020	% Market Share	2011-2020	% Market Share
BAE Systems plc (HQ)						
BAE Systems Australia	\$123.20	.41%	\$36.60	.19%	\$159.80	.33%
BAE Systems Integrated System Technologies (Insyte)	\$67.23	.23%	\$18.41	.10%	\$85.64	.17%
BAE Systems Mission Systems	\$78.00	.26%	\$117.00	.61%	\$195.00	.40%
Headquarters Total	\$268.43	.90%	\$172.01	.90%	\$440.44	.90%
CEA Technologies Pty Ltd (HQ)						
CEA Technologies Pty Ltd	\$63.00	.21%	\$24.00	.13%	\$87.00	.18%
Headquarters Total	\$63.00	.21%	\$24.00	.13%	\$87.00	.18%
COBRA PDS Consortium (HQ)						
COBRA PDS Consortium	\$126.55	.42%	\$.00	.00%	\$126.55	.26%
Headquarters Total	\$126.55	.42%	\$.00	.00%	\$126.55	.26%
Euro-Art International EWIV (HQ)						
Euro-Art International EWIV	\$324.00	1.08%	\$.00	.00%	\$324.00	.66%
Headquarters Total	\$324.00	1.08%	\$.00	.00%	\$324.00	.66%
European Aeronautic Defence and Space Co (EADS) NV (HQ)						
Cassidian Electronics	\$162.00	.54%	\$30.00	.16%	\$192.00	.39%
Headquarters Total	\$162.00	.54%	\$30.00	.16%	\$192.00	.39%
Euroradar (HQ)						
Euroradar	\$996.00	3.33%	\$416.00	2.17%	\$1,412.00	2.88%
Headquarters Total	\$996.00	3.33%	\$416.00	2.17%	\$1,412.00	2.88%
Finmeccanica SpA (HQ)						
DRS C3 & Aviation Co	\$1.80	.01%	\$1.80	.01%	\$3.60	.01%
DRS Sustainment Systems Inc	\$12.58	.04%	\$.00	.00%	\$12.58	.03%
SELEX Galileo	\$179.55	.60%	\$173.66	.91%	\$353.21	.72%
SELEX Galileo	\$56.99	.19%	\$6.80	.04%	\$63.79	.13%
SELEX Galileo SpA	\$9.35	.03%	\$63.75	.33%	\$73.10	.15%
SELEX Sistemi Integrati SpA	\$496.00	1.66%	\$100.00	.52%	\$596.00	1.22%
Headquarters Total	\$756.27	2.53%	\$346.01	1.80%	\$1,102.28	2.25%
General Atomics (HQ)						
General Atomics Aeronautical Systems Inc	\$376.60	1.26%	\$248.60	1.30%	\$625.20	1.27%
Headquarters Total	\$376.60	1.26%	\$248.60	1.30%	\$625.20	1.27%
Griffon Corporation (HQ)						
Telephonics Corp	\$420.21	1.41%	\$113.12	.59%	\$533.33	1.09%
Headquarters Total	\$420.21	1.41%	\$113.12	.59%	\$533.33	1.09%
Honeywell International Inc (HQ)						
Honeywell Aerospace	\$403.65	1.35%	\$706.35	3.68%	\$1,110.00	2.26%
Headquarters Total	\$403.65	1.35%	\$706.35	3.68%	\$1,110.00	2.26%
ITT Corp (HQ)						
ITT Electronic Systems	\$155.83	.52%	\$39.00	.20%	\$194.83	.40%
Headquarters Total	\$155.83	.52%	\$39.00	.20%	\$194.83	.40%

Analysis 1

EST. CALENDAR YEAR TOTAL VALUE (in millions FY11 \$)						
	2011-2015	% Market Share	2016-2020	% Market Share	2011-2020	% Market Share
Israel Aerospace Industries Ltd (IAI) (HQ)						
Elta Systems Ltd	\$1,020.78	3.42%	\$135.42	.71%	\$1,156.20	2.36%
Headquarters Total	\$1,020.78	3.42%	\$135.42	.71%	\$1,156.20	2.36%
Kelvin Hughes Ltd (HQ)						
Kelvin Hughes Ltd	\$9.30	.03%	\$.00	.00%	\$9.30	.02%
Headquarters Total	\$9.30	.03%	\$.00	.00%	\$9.30	.02%
Lockheed Martin Corp (HQ)						
Lockheed Martin Australia Electronic Systems Pty Ltd	\$247.10	.83%	\$73.50	.38%	\$320.60	.65%
Lockheed Martin Corp	\$196.00	.66%	\$158.00	.82%	\$354.00	.72%
Lockheed Martin Maritime Systems & Sensors - Syracuse	\$1,141.00	3.82%	\$723.00	3.77%	\$1,864.00	3.80%
Lockheed Martin Missiles & Fire Control - Orlando	\$22.95	.08%	\$.00	.00%	\$22.95	.05%
Lockheed Martin Mission Systems & Sensors	\$99.60	.33%	\$.00	.00%	\$99.60	.20%
Lockheed Martin Mission Systems & Sensors (MS2)	\$113.00	.38%	\$.00	.00%	\$113.00	.23%
Headquarters Total	\$1,819.65	6.09%	\$954.50	4.98%	\$2,774.15	5.66%
Longbow LLC (HQ)						
Longbow LLC	\$402.42	1.35%	\$311.60	1.63%	\$714.02	1.46%
Headquarters Total	\$402.42	1.35%	\$311.60	1.63%	\$714.02	1.46%
MEADS International Inc (HQ)						
MEADS International	\$1,376.17	4.61%	\$.00	.00%	\$1,376.17	2.81%
Headquarters Total	\$1,376.17	4.61%	\$.00	.00%	\$1,376.17	2.81%
Nanjing Research Institute of Electronic Technology (HQ)						
Nanjing Research Institute of Electronic Technology	\$85.00	.28%	\$.00	.00%	\$85.00	.17%
Headquarters Total	\$85.00	.28%	\$.00	.00%	\$85.00	.17%
NavCom Defense Electronics Inc (HQ)						
NavCom Defense Electronics Inc	\$4.48	.01%	\$1.20	.01%	\$5.68	.01%
Headquarters Total	\$4.48	.01%	\$1.20	.01%	\$5.68	.01%
Northrop Grumman Corp (HQ)						
Northrop Grumman Aerospace Systems	\$226.66	.76%	\$116.88	.61%	\$343.55	.70%
Northrop Grumman Electronic Systems	\$790.90	2.65%	\$270.40	1.41%	\$1,061.30	2.16%
Northrop Grumman Electronic Systems	\$1,324.00	4.43%	\$4,440.80	23.16%	\$5,764.80	11.75%
Northrop Grumman Norden Systems	\$100.29	.34%	\$112.21	.59%	\$212.50	.43%
Northrop Grumman Sperry Marine	\$18.30	.06%	\$.00	.00%	\$18.30	.04%
Northrop Grumman Sperry Marine	\$102.58	.34%	\$88.87	.46%	\$191.45	.39%
Headquarters Total	\$2,562.73	8.58%	\$5,029.16	26.23%	\$7,591.89	15.48%
Pakistan Aeronautical Complex (PAC) (HQ)						
Pakistan Aeronautical Complex (PAC)	\$66.80	.22%	\$98.75	.52%	\$165.55	.34%
Headquarters Total	\$66.80	.22%	\$98.75	.52%	\$165.55	.34%
Phazotron NIIR (HQ)						
Phazotron NIIR	\$966.00	3.23%	\$378.00	1.97%	\$1,344.00	2.74%
Headquarters Total	\$966.00	3.23%	\$378.00	1.97%	\$1,344.00	2.74%
Raytheon Co (HQ)						
Raytheon Command and Control Systems	\$29.00	.10%	\$.00	.00%	\$29.00	.06%
Raytheon Integrated Defense Systems	\$1,583.20	5.30%	\$432.00	2.25%	\$2,015.20	4.11%
Raytheon Integrated Defense Systems	\$185.20	.62%	\$115.80	.60%	\$301.00	.61%
Raytheon Network Centric Systems	\$18.00	.06%	\$7.50	.04%	\$25.50	.05%
Raytheon Network Centric Systems	\$327.98	1.10%	\$197.70	1.03%	\$525.68	1.07%

Analysis 1

EST. CALENDAR YEAR TOTAL VALUE (in millions FY11 \$)						
	2011-2015	% Market Share	2016-2020	% Market Share	2011-2020	% Market Share
Raytheon Space & Airborne Systems	\$2,431.40	8.14%	\$2,043.69	10.66%	\$4,475.09	9.12%
Raytheon Systems Ltd	\$126.51	.42%	\$13.20	.07%	\$139.71	.28%
Headquarters Total	\$4,701.29	15.74%	\$2,809.89	14.66%	\$7,511.18	15.31%
Rockwell Collins Inc (HQ)						
Rockwell Collins Inc	\$1,137.50	3.81%	\$1,419.00	7.40%	\$2,556.50	5.21%
Headquarters Total	\$1,137.50	3.81%	\$1,419.00	7.40%	\$2,556.50	5.21%
Saab AB (HQ)						
Saab Electronic Defense Systems	\$972.53	3.26%	\$297.45	1.55%	\$1,269.97	2.59%
Saab Microwave Canada Ltd	\$12.51	.04%	\$0.00	.00%	\$12.51	.03%
Headquarters Total	\$985.04	3.30%	\$297.45	1.55%	\$1,282.48	2.61%
Syracuse Research Corp (HQ)						
SRCTec Inc	\$232.13	.78%	\$63.76	.33%	\$295.88	.60%
Headquarters Total	\$232.13	.78%	\$63.76	.33%	\$295.88	.60%
Thales (HQ)						
Thales	\$99.90	.33%	\$7.40	.04%	\$107.30	.22%
Thales Aerospace	\$163.50	.55%	\$153.00	.80%	\$316.50	.65%
Thales Air Systems	\$170.00	.57%	\$300.00	1.56%	\$470.00	.96%
Thales Canada	\$13.08	.04%	\$0.00	.00%	\$13.08	.03%
Thales Nederland BV	\$362.00	1.21%	\$66.00	.34%	\$428.00	.87%
Thales UK Ltd	\$62.40	.21%	\$40.00	.21%	\$102.40	.21%
Headquarters Total	\$870.88	2.91%	\$566.40	2.95%	\$1,437.28	2.93%
ThalesRaytheonSystems (HQ)						
ThalesRaytheonSystems	\$463.70	1.55%	\$46.50	.24%	\$510.20	1.04%
Headquarters Total	\$463.70	1.55%	\$46.50	.24%	\$510.20	1.04%
ThalesRaytheonSystems France (HQ)						
ThalesRaytheonSystems France	\$200.00	.67%	\$0.00	.00%	\$200.00	.41%
Headquarters Total	\$200.00	.67%	\$0.00	.00%	\$200.00	.41%
V. Tikhomirov NIIP (HQ)						
V. Tikhomirov NIIP	\$1,680.00	5.62%	\$0.00	.00%	\$1,680.00	3.43%
Headquarters Total	\$1,680.00	5.62%	\$0.00	.00%	\$1,680.00	3.43%
Manufacturer Not Selected (HQ)						
Manufacturer Not Selected	\$1,401.33	4.69%	\$690.68	3.60%	\$2,092.02	4.27%
Headquarters Total	\$1,401.33	4.69%	\$690.68	3.60%	\$2,092.02	4.27%
Manufacturer Varies (HQ)						
Manufacturer Varies	\$5,838.33	19.54%	\$4,275.60	22.30%	\$10,113.93	20.62%
Headquarters Total	\$5,838.33	19.54%	\$4,275.60	22.30%	\$10,113.93	20.62%
Grand Total	\$29,876.08	100%	\$19,172.99	100%	\$49,049.07	100%

(TABLE 4 - end)

Analysis 1

Figure 3

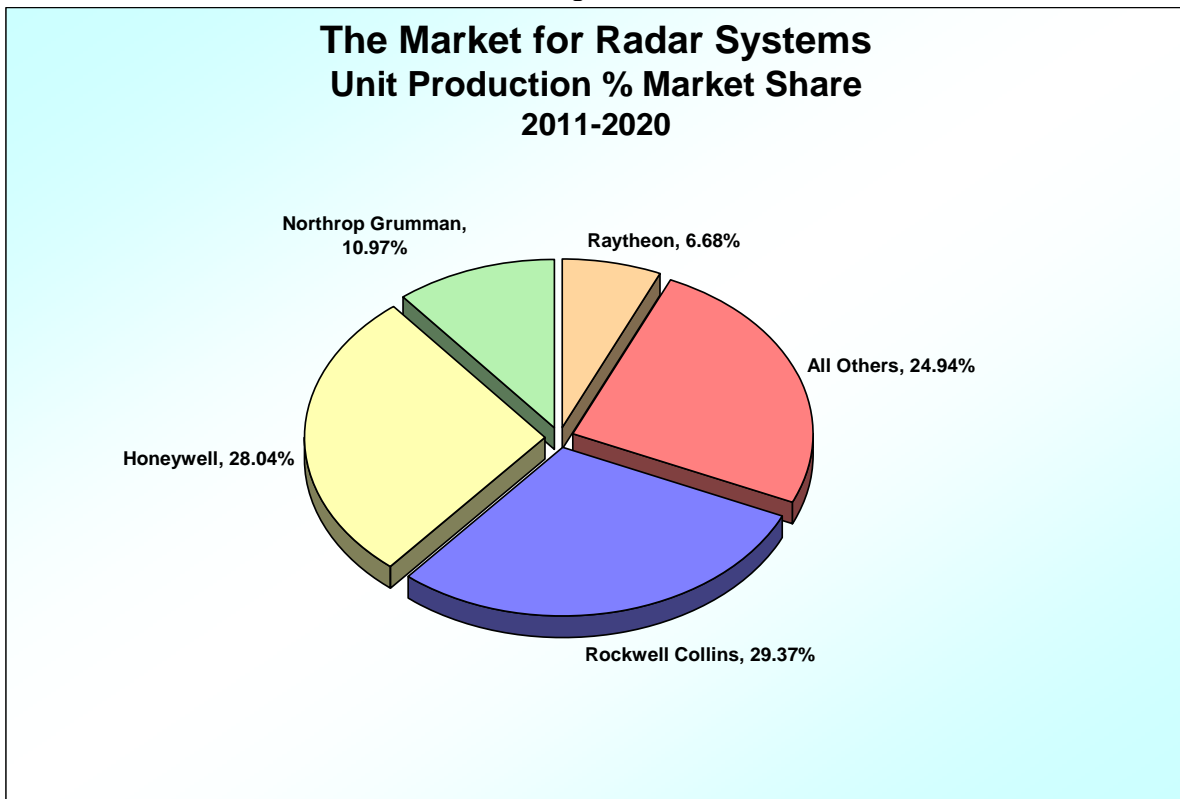


Figure 4

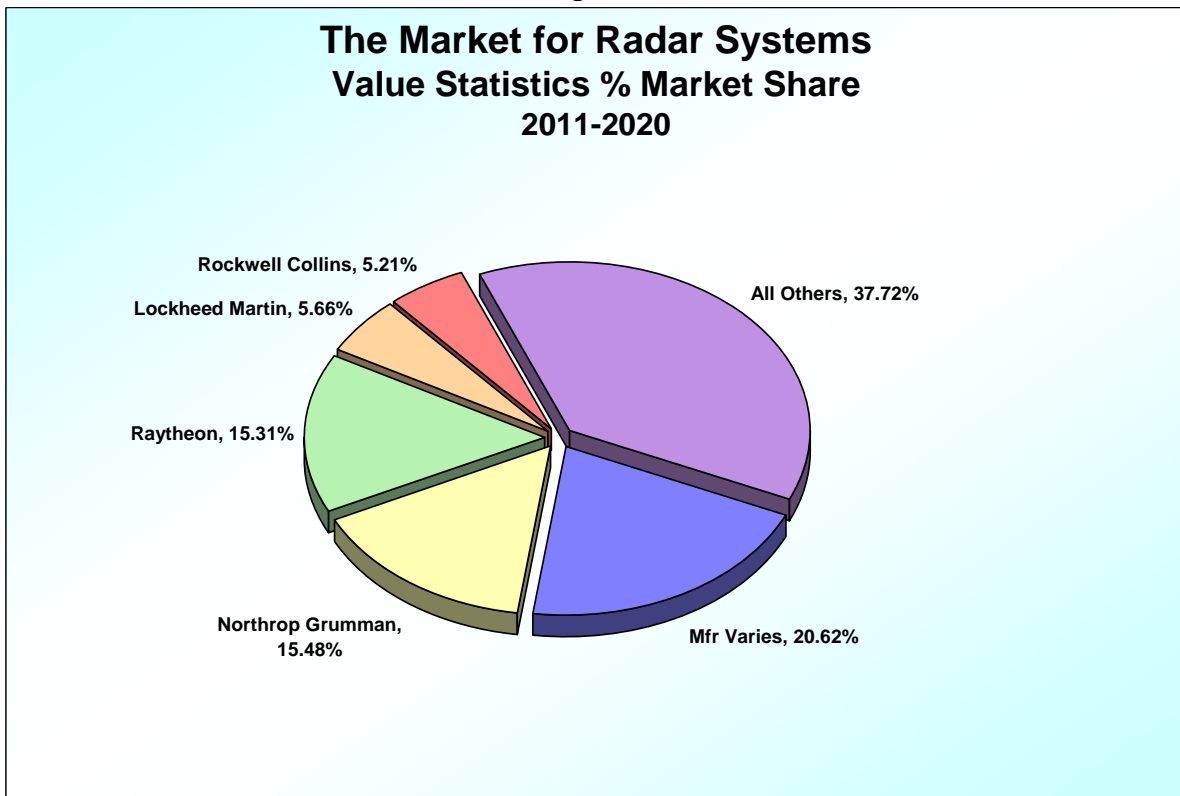


Figure 5

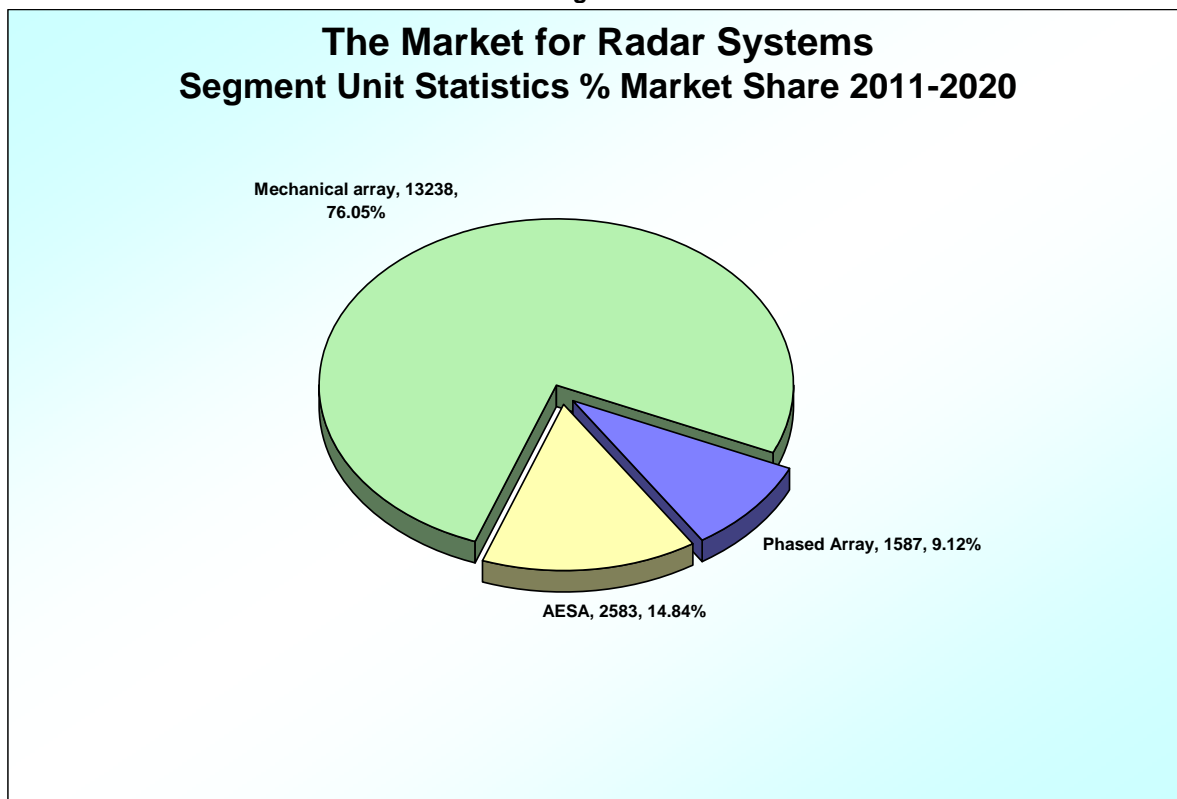
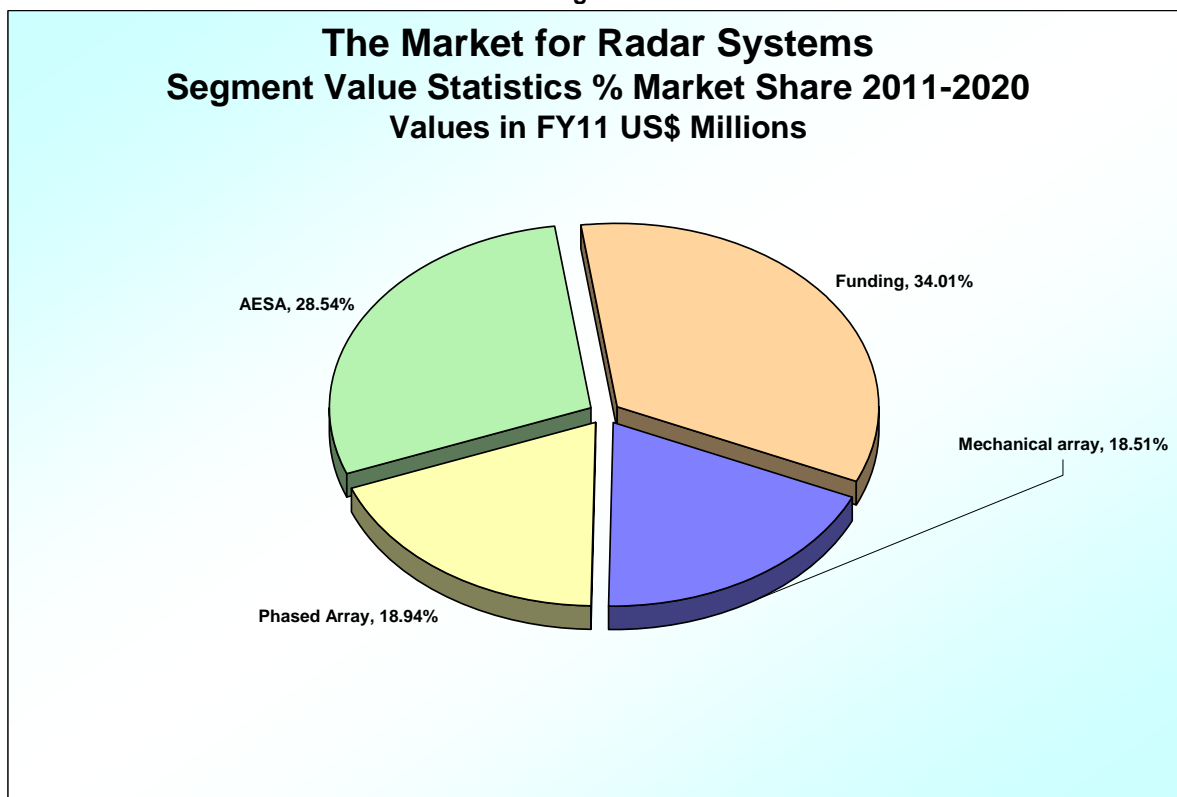


Figure 6



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Conclusion

The 127 radar programs covered in this analysis are worth a combined \$49 billion for 2011-2020. Monies will be split as follows: 34 percent will be allocated to RDT&E projects, procurement programs and operations and maintenance funding, and the lion's share of 66 percent will be allocated for production efforts. The true market value will likely be much higher when classified programs, company-developed projects, and programs yet to be announced are included. Over this time period, Forecast International expects nearly 17,500 radar units to be produced.

Changing Priorities of the Military

The changing nature of military conflicts is impacting radar development and sales. Many militaries must prepare to fight in regional conflicts that have escalated and threaten national interests in distant lands. New radar systems are better than those of the past at dealing with insurgents and asymmetric warfare. The growing threat of attack from advanced cruise and ballistic missiles has also fueled radar production and development.

Two Popular Commercial Weather Radars

The Honeywell RDR-4000 IntuVue and Rockwell Collins WXR-2100 MultiScan advanced weather radars support commercial aviation platforms. The two radars are very popular and are each forecast to bring in over \$1 billion in sales in the next decade to their respective manufacturers. Another civil aviation product line, the Raytheon SSR/MSSR family of air traffic control (ATC) radars, is used in at least 45 countries worldwide.

Economic Downturn Impacts Programs

The global economic downturn will have an impact on radar sales over the next decade. As governments worldwide deal with declining budgets, some military programs have been cut or downgraded. Funding has been transferred to support domestic programs, military hardware other than radars such as electro-optical sensors, or less expensive military systems.

For example, the F-22A Raptor, equipped with the Northrop Grumman APG-77 radar, has been capped at 187 aircraft. On the other hand, older platforms are being upgraded with new radars to extend their lifespan. Older-model F-15s and F-16s as well as Eurofighters, Gripens, MiG-29s, Mirages and Rafales are candidates for modernization with AESA radar variants. Some of these new AESA variants use already installed back-end radar hardware in order to keep costs more reasonable.

Another aspect of the economic downturn is the trend to buy one system that has the capability to replace a number of systems. For example, the U.S. Marine Corps is developing the Ground/Air Task Oriented Radar (G/ATOR), which will replace the TPS-63, TPS-73/79, MPQ-62, and TPQ-46A with a single system. The increased use of unmanned aerial vehicles and aerostats is also seen as a cost-saver. Radars that support these platforms will continue to be purchased over the forecast period.

AESA Sales Are Growing

New technologies are creating a fresh market as buyers seek access to more capable systems. As costs decline for radars with new features, such as faster processors, AESA technology, and more lightweight portable configurations, more buyers will gain access to them, increasing market share.

AESA technologies are a key industry development of recent years. The AESA market share is increasing rapidly in comparison with mechanical array and passive phased-array radars. The bulk of mechanical array radars that will be sold in the future will be commercial systems such as the WXR-2100 and RDR-4000.

But more expensive military radar systems are increasingly being dominated by AESA. Therefore, in terms of value of production, AESA radar has surpassed both mechanical array and passive phased-array radars. AESA radars will continue to increase in terms of market share over the next 10 years.

The United States is a leader in AESA technology, but other countries are selling and developing AESA radars as well. SELEX is selling its Seaspray and Vixen radars, Thales is testing an RBE2 AESA variant, and Phazotron is developing an AESA version of the Zhuk. Also, the Euroradar consortium is looking to introduce an ECR-90 Captor AESA system for the Eurofighter Typhoon. And the Euro-Art consortium produces the COBRA AESA radar.

AESA technology is most prevalent among airborne radars, but newer ground-based and naval systems featuring AESA technology are now available. Companies are also developing new AESA products for land and maritime radar customers.

Billion-Dollar Programs

The radar industry has shifted to a model of fewer programs that individually have a higher value. In spite

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of the global economic downturn, 14 programs are each forecast to be worth at least \$1 billion during the next decade. These include both production and RDT&E programs, and military and commercial efforts. More specifically, these programs involve the following systems: AWACS, Ballistic Missile Defense (BMD) sensors, the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS), the Medium Extended Air Defense System (MEADS), the NATO Alliance Ground Surveillance (AGS) system, the Space Fence system, the APG-63, the APG-81, the Bars radar, the ECR-90 radar, the EQ-36 radar, the RDR-4000 radar, the WXR-2100 radar, and the Zhuk radar.

Many of these billion-dollar radar programs will produce systems to counteract the threat of attack from

insurgents or advanced cruise and ballistic missiles. Other radars support very popular airborne platforms, and the commercial radars support several platforms.

Market Leaders

Of the top five companies producing radar for the defense market, giants Raytheon and Northrop Grumman lead the pack. They are joined by Rockwell Collins, Lockheed Martin, Rockwell Collins and V. Tikhomirov NIIP. In addition, approximately 25 percent of the radar programs fall under the Manufacturer Varies or Manufacturer Not Selected categories.

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