UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2018

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to
Commission file number 001-37975

L3 TECHNOLOGIES, INC.

(Exact name of registrant as specified in its charter)

Delaware	**13-3937436**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
600 Third Avenue, New York, NY	**10016**
(Address of principal executive offices)	(Zip Code)

(212) 697-1111
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	**Name of each exchange on which registered:**
Common stock, par value $0.01 per share	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act:
None.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. ☒ Yes ☐ No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. ☐ Yes ☒ No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. ☒ Yes ☐ No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). ☒ Yes ☐ No

Indicate by check mark if disclosure of the delinquent filer pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐ Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). ☐ Yes ☒ No

The aggregate market value of the registrant's voting stock held by non-affiliates as of June 29, 2018, based upon the closing price of the stock on the New York Stock Exchange, was approximately $15.0 billion. For purposes of this calculation, the registrant has assumed that the directors and executive officers are affiliates.

There were 79,368,345 shares of the registrant's common stock with a par value of $0.01 outstanding as of the close of business on February 14, 2019.

DOCUMENTS INCORPORATED BY REFERENCE

The information called for by Part III of this Form 10-K will be included in an amendment to this Form 10-K, which will be filed within 120 days after the registrant's fiscal year ended December 31, 2018.

L3 TECHNOLOGIES, INC.
ANNUAL REPORT ON FORM 10-K
For the Year Ended December 31, 2018

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PART I

For convenience purposes in this filing on Form 10-K, references to "L3", "Company", "we", "us" and "our" refer to L3 Technologies, Inc. and its subsidiaries.

Item 1. Business

Overview

L3 Technologies, Inc. (L3 Technologies, Inc. and, together with our subsidiaries, referred to herein as L3) is a prime contractor in Intelligence, Surveillance and Reconnaissance (ISR) systems, aircraft sustainment (including modifications and fleet management of special mission aircraft), simulation and training, night vision and image intensification equipment, and security and detection systems. L3 is also a leading provider of a broad range of communication, electronic and sensor systems used on military, homeland security and commercial platforms. Our customers include the United States (U.S.) Department of Defense (DoD) and its prime contractors, U.S. Government intelligence agencies, the U.S. Department of Homeland Security (DHS), foreign governments, and domestic and foreign commercial customers.

In 2018, we embarked on a multi-year L3 3.0 transformation focused on integration, collaboration and innovation. Our goal is to leverage the best of L3's entrepreneurial culture with the scale and capabilities of a large enterprise. By integrating our technology capabilities and engineering talent, we seek to move up the value chain to pursue larger opportunities and to become a non-traditional 6th prime (also referred to as a mission solutions prime), by bringing disruptive technology to market faster and partnering more closely with our defense and commercial customers. L3 is a federation of business units across a broad scope of products and capabilities. Historically, our business units pursued individual strategies and were responsible solely for their own operational performance, emphasizing a de-centralized or holding company model. Recently, we have increased our collaboration across segments to bundle capabilities to better serve our customers. We are now pursuing an operational and cultural transformation to centralize and integrate our businesses, emphasizing an operating company model. To that end, we began in 2018 to develop common processes and procedures across many key functional areas including business development, information technology, human resources and engineering. We seek to drive higher growth and increased efficiencies through these initiatives, leveraging new tools including L365 continuous improvement and enterprise-wide customer relationship management (CRM) system.

L3 is a leading defense technology company. We will continue to take portfolio shaping actions to better align our business with this technology focus, including acquisitions, technology partnerships and divestitures of non-strategic assets. We will also continue to invest in talent and R&D to develop next generation capabilities.

We operate in a large and attractive core market in defense electronics, ISR and communications. We seek to extend our leadership by leveraging our strong customer relationship and differentiated technology. We expect to gain market share with innovative and affordable solutions and by building on the trust that results from many years of demonstrated past performance. Financially, our emphasis is to grow sales, operating income, earnings per share and cash flow, as well as increase operating margins. We also intend to continue to seek new and existing routes for efficiencies and cost reduction in order to streamline our organization. Although still early in our transformation, we believe our strategy will lead to faster growth, higher profitability and greater cash flow, which we intend to return to shareholders in a balanced and discipline manner.

For the year ended December 31, 2018, we generated sales of $10,244 million, operating income of $1,120 million and cash from continuing operations of $1,042 million. The table below presents a summary of our 2018 sales by major category of end customer. For a more detailed presentation of our sales by end customer, see "Major Customers" within this Business section.

	2018 Sales	% of Total Sales
	(in millions)	
DoD	$ 6,721	66%
Other U.S. Government	423	4
Total U.S. Government	7,144	70
Foreign governments	1,528	15
Commercial — foreign	873	8
Commercial — domestic	699	7
Total sales	$ 10,244	100%

In the third quarter of 2018, we completed a realignment of our business segments to maximize growth and improve our integration and collaboration across the enterprise. As a result of the realignment, L3's structure consists of the following three reportable segments: (1) ISR Systems (ISRS), (2) Communications and Networked Systems (C&NS) and (3) Electronic Systems. Financial information for our segments, including sales by geographic area, is included in "Part II — Item 7 — Management's Discussion and Analysis of Financial Condition and Results of Operations" and in Note 22 to our audited consolidated financial statements.

Vertex Aerospace Divestiture: On June 29, 2018, we completed the sale of our Vertex Aerospace businesses for a sales price of $540 million subject to customary closing net working capital adjustments. In connection with the sale, we recognized: (1) a pre-tax gain from continuing operations of $42 million ($19 million after income taxes) related to the Crestview Aerospace and TCS businesses (the "Crestview & TCS Businesses") and (2) a pre-tax gain from discontinued operations of $234 million ($177 million after income taxes) related to the Vertex Aerospace business. The divestiture of the Vertex Aerospace business represents a strategic shift by us to exit the logistics solution and maintenance services business for military aircraft where we do not provide complex ISR systems integration and modification. The Vertex Aerospace business generated sales of $0.6 billion in 2018, $1.4 billion in 2017 and $1.3 billion in 2016. The assets and liabilities and results of operations of the Vertex Aerospace business are reported as discontinued operations for all periods presented.

All references made to financial data in this Annual Report on Form 10-K are to L3's continuing operations, unless otherwise specifically noted.

Planned Merger with Harris Corporation

On October 14, 2018, L3 and Harris Corporation ("Harris") announced an agreement to combine in an all stock merger of equals. Under the terms of the Agreement and Plan of Merger (the "Merger Agreement") governing the proposed transaction, which was unanimously approved by the boards of directors of both companies, L3 shareholders will receive a fixed exchange ratio of 1.30 shares of Harris common stock for each share of L3 common stock they hold. Upon completion of the merger, Harris shareholders will own approximately 54% and L3 shareholders will own approximately 46% of the combined company, which will be renamed L3 Harris Technologies, Inc. The merger is expected to close in the middle of 2019, subject to customary closing conditions, including the receipt of regulatory approvals and approval by the shareholders of both L3 and Harris.

Business Acquisitions and Divestitures

During the years ended December 31, 2018, 2017 and 2016, we used net cash of $369 million, $316 million and $388 million for business acquisitions, respectively. See "Part II — Item 7 — Management's Discussion and Analysis of Financial Condition and Results of Operations — Business Acquisitions and Divestitures" for additional information regarding our business acquisitions and divestitures.

Products and Services

Our three reportable segments provide a wide range of products and services to various customers and are described below. See "Part II — Item 7 — Management's Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations — Reportable Segment Results of Operations" and Note 22 to our audited consolidated financial statements for financial information about each segment.

ISRS Reportable Segment

In 2018, ISRS had net sales of $4,441 million, representing 43% of our total net sales. The businesses in this reportable segment provide products and services for the global ISR mission solutions from seabed to space and Command, Control and Communications (C^3) markets, specializing in signals intelligence (SIGINT) and multi-intelligence platforms, including engineering, modernization and sustainment solutions for military and various government aircraft, ground support equipment and other platforms. These strategic and tactical products and services provide warfighters with the ability to detect, collect, identify, analyze and disseminate information from command centers, communication nodes and air defense systems for real-time situational awareness and response. Other major capabilities and mission solutions include space avionics and imaging payloads, Counter Unmanned Aircraft Systems (CUAS) mission solutions, cyber and electronic warfare, special mission command & control, modeling & simulation and life cycle support. The table below provides a summary of the segment's sectors and the percentage that each contributed to ISRS net sales in 2018.

Sectors	% of 2018 Segment Sales
ISR Systems	51%
Airborne Sensor Systems	11
Warrior Sensor Systems	10
Space & Sensor Systems	9
Aircraft Systems	7
Military Aviation Services	4
Intelligence & Mission Systems	4
Advanced Programs	4
Total ISRS	100%

ISR Systems is a systems integration organization specializing in complex ISR capabilities including fleet management support services, sensor development, modifications and periodic depot maintenance for ISR and airborne systems. These products and services are critical elements for a substantial number of major C^3 and intelligence gathering systems. Key customers include DoD and classified customers within the U.S. Government, U.K. Ministry of Defence (MoD) and select foreign militaries.

Airborne Sensor Systems provides multi-spectral and multi-intelligence ISR and targeting sensor systems designed for manned and unmanned platforms for ISR military, law enforcement and government missions. Key customers include DoD, foreign ministries of defense, intelligence and security agencies and law enforcement agencies.

Warrior Sensor Systems provides multi-domain warfighter mission integration including networked augmented reality systems, advanced night vision and electro-optical technology and systems, weapon sights, integrated information systems and rangefinding systems. Key customers include DoD, federal agencies, law enforcement agencies, foreign militaries, commercial hunting and professional shooting communities.

Space & Sensor Systems provides avionics, payloads and exploitation systems for DoD, intelligence and commercial space exploration, including space launch vehicle avionics, space imaging and information systems, and tactical imaging systems. Key customers include National Aeronautics Space Administration (NASA), DoD and commercial space companies.

Aircraft Systems provides procurement, systems integration, modernization, modifications and maintenance for special mission aircraft systems. Key customers include U.S. Navy (USN), U.S. Air Force (USAF), select foreign militaries, commercial customers and aircraft Original Equipment Manufacturers (OEMs).

Military Aviation Services (MAS) is a provider of modernization and life extension maintenance upgrade and support services for military aircraft, which include structural modifications and inspections, installation of mission equipment, navigation and avionics products and interior modifications. Key customers include the Canadian Department of National Defence, USN, USAF and select foreign militaries.

Intelligence & Mission Systems provides solutions that gather and protect intelligence to deliver successful mission outcomes including cyber and electronic warfare solutions, situational awareness for border security and maritime surveillance, and the protection of the most sensitive of information with leading edge, government grade cyber security. Key customers include U.K. MoD, Australian Defence Force, other international military and security agencies and commercial customers.

Advanced Programs provides prime mission systems integration and sensor development for military ISR aircraft platforms and ground systems, advanced ISR and special mission capabilities, directed energy, special mission command and control, modeling & simulation, networked system of system capabilities, unmanned systems and CUAS, space situational awareness and geospatial application technology programs for cueing system software, hardware and wide-area sensor integration solutions. Key customers include USAF, U.S Special Operations Command (USSOCOM), USN and other DoD agencies.

C&NS Reportable Segment

In 2018, C&NS had net sales of $3,059 million, representing 30% of our total net sales. The businesses in this reportable segment provide network and communication systems, secure communications products, radio frequency (RF) components, satellite communication terminals and space, microwave and telemetry products. These products include secure data links that are used to connect a variety of space, airborne, ground and sea-based communication systems and are used in transmission, processing, recording, monitoring and dissemination functions of these communication systems. Other major capabilities include integrated maritime mission solutions, directed energy, lightweight unmanned undersea vehicles and naval power delivery on submarines and surface ships. The table below provides a summary of the segment's sectors and the percentage that each contributed to C&NS net sales in 2018.

Sectors	% of 2018 Segment Sales
Broadband Communication Systems	38%
Naval Power Systems	17
Advanced Communications	16
Space & Power Systems	15
Maritime Sensor Systems	14
Total C&NS	100%

Broadband Communication Systems is focused on the development, design, manufacturing and integration of secure networked communications equipment. Offerings include airborne, space and surface data link terminals, ground stations, and transportable tactical satellite communications (SATCOM) systems used on manned aircraft, unmanned aerial vehicles (UAVs) and naval ships. Key customers include DoD, USSOCOM, USAF, U.S. Army and U.S. intelligence agencies.

Naval Power Systems (NPS) is a provider of maritime power and distribution solutions. Offerings include electric propulsion, conversion, distribution and protection for naval submarines, surface ships and aircraft carriers. In addition, NPS provides integrated bridge equipment including Command, Control, Communications, Computers and Navigation (C^4N) systems. Key customers include the USN, the U.S. Coast Guard (USCG), U.S. Army, foreign navies and commercial ship owners.

Advanced Communications is a provider of secure communications terminals and equipment, secure network encryption products, shipboard communications systems, advance radar antennas and radomes. Offerings include secure and non-secure voice, data and video communication for office, battlefield and secure internet protocol (IP) network applications, and surveillance and radar detection. In addition, Advanced Communications provides managed communications security (COMSEC) satellite networks and integrated remote very small aperture terminals (VSAT) satellite systems. Key customers include DoD, USSOCOM, USAF, U.S. Army, U.S. intelligence agencies, USN, USCG, foreign navies and commercial customers.

Space & Power Systems is a provider of traveling wave tube amplifiers, telemetry and instrumentation systems, and low-power SATCOM products. Offerings include microwave vacuum electron devices and power modules for unmanned and manned platforms, including satellites, radar systems, communication systems, UAVs, various missile programs and commercial broadcast. Additional offerings include spacecraft telemetry tracking and control encryption as well as high data rate transmitters and tactical intelligence receivers. Key customers include DoD, foreign militaries, commercial customers and aircraft and satellite OEMs.

Maritime Sensor Systems provides integrated maritime mission solutions for surface and undersea acoustic, imaging and detection systems, including surface electro-optical/infrared systems for surface ships and submarines, dipping sonar systems, towed arrays, maritime command and control systems, undersea platforms and ranges, directed energy, cabled ocean systems, undersea warfare and anti-submarine systems, and integrated, multi-intelligence autonomous undersea vehicles. Key customers include USN, allied navies and other military customers.

Electronic Systems Reportable Segment

In 2018, Electronic Systems had net sales of $2,744 million, representing 27% of our total net sales. The businesses in this reportable segment provide a broad range of products and services, including components, products, subsystems, systems and related services to military and commercial customers. These products and services serve markets such as commercial and military aircraft simulation and training, cockpit avionics, airport security and precision weapons. The table below provides a summary of the segment's sectors and the percentage that each contributed to Electronic Systems' net sales in 2018.

Sectors	% of 2018 Segment Sales
Commercial Aviation Solutions	34%
Precision Engagement Systems	27
Link Training & Simulation	21
Security & Detection Systems	18
Total Electronic Systems	100%

Commercial Aviation Solutions (CAS) is a provider of cockpit and mission displays, airborne traffic and collision avoidance systems, terrain awareness warning systems, advanced cockpit avionics, solid state voice and flight data recorders and flight training services for both rotary and fixed wing aircraft and support and maintenance services. In addition, CAS is a leading supplier of commercial aircraft flight simulators and advanced flight simulation technologies as well as pilot training services for commercial pilots and Ab-Initio instruction. Key customers include commercial airlines, aircraft OEMs and various commercial transport, business, regional and military aircraft manufacturers.

Precision Engagement Systems (PES) is a prime and component provider of precision weapon systems including fuzing and ordinance systems, unmanned systems and radar-based sensors and systems. In addition, PES provides combat vehicle engines, transmissions and global positioning system receivers for guided projectiles and precision munitions as well as navigation systems for fire control systems. Key customers include DoD, U.S. Government and foreign militaries.

Link Training & Simulation (Link) is a leading supplier of military aircraft flight simulators and advanced flight simulation technologies. In addition, Link provides flight training services for both rotary and fixed wing aircraft and support and maintenance services. Key customers include DoD, foreign militaries and aircraft OEMs.

Security & Detection Systems (SDS) is a leading provider of integrated security solutions for airports, ports, border crossings and other critical infrastructure. Offerings include airport security screening solutions, explosive detection systems and whole body scanning systems as well as non-intrusive systems for threat and contraband detection. In addition, SDS provides automation and integration services for airports, automotive manufacturing and other industries. Key customers include the U.S. Transportation Security Administration, domestic and international airports, the U.S. Customs and Border Protection agency and international equivalents, automotive manufacturers and domestic and international port operators.

Funded Backlog and Orders

We define funded backlog as the value of funded orders received from customers, less the cumulative amount of sales recognized on such orders. We define funded orders as the value of contract awards received from the U.S. Government, for which the U.S. Government has appropriated funds, plus the value of contract awards and orders received from customers other than the U.S. Government. The table below presents our funded backlog, percentage of funded backlog at December 31, 2018 expected to be recorded as sales in 2019 and funded orders for each of our reportable segments and on a consolidated basis.

	Funded Backlog at December 31,		Percentage of Funded Backlog at December 31, 2018 Expected to be Recorded as Sales in 2019	Funded Orders	
	2018	2017		2018	2017
	(in millions)			(in millions)	
Reportable Segment:					
ISRS	$ 4,150	$ 3,628	66%	$ 5,121	$ 4,313
C&NS	3,163	3,092	68%	3,364	3,096
Electronic Systems	2,391	2,159	53%	3,096	2,587
Consolidated	$ 9,704	$ 8,879	63%	$ 11,581	$ 9,996

Our funded backlog does not include the full potential value of our contract awards, including those pertaining to multi-year, cost-plus type contracts, which are generally funded on an annual basis. Funded backlog also excludes the potential future orders and related sales from unexercised priced contract options that may be exercised by customers under existing contracts and the potential future orders and related sales of purchase orders that we may receive in the future under indefinite quantity contracts or basic ordering agreements during the term of such agreements.

Major Customers

The table below presents a summary of our sales by end customer and the percent contributed by each to our total sales. For additional information regarding domestic and international sales, see Note 22 to our audited consolidated financial statements.

	2018		2017	
	Sales (in millions)	% of Total Sales	Sales (in millions)	% of Total Sales
Air Force	$ 3,371	33%	$ 3,173	33%
Navy/Marines	1,441	14	1,324	14
Army	1,123	11	1,071	11
Other Defense	786	8	761	8
Total DoD	6,721	66	6,329	66
Other U.S. Government	423	4	368	4
Total U.S. Government	7,144	70	6,697	70
Foreign governments	1,528	15	1,420	15
Commercial — foreign	873	8	809	8
Commercial — domestic	699	7	647	7
Total sales	$ 10,244	100%	$ 9,573	100%

Direct sales to the end customer represented approximately 64% of our consolidated 2018 sales, and sales as a subcontractor or supplier represented the remaining 36%.

Our sales are predominantly derived from contracts with agencies of, and prime system contractors to, the U.S. Government. Various U.S. Government agencies and contracting entities exercise independent and individual purchasing decisions, subject to annual appropriations by the U.S. Congress. For the year ended December 31, 2018, our five largest contracts (revenue arrangements) generated 15% of our consolidated sales.

With respect to our sales to foreign customers, we continue to evaluate the potential effect of the United Kingdom's (UK) planned departure from the European Union (EU) (commonly referred to as "Brexit") on our business operations and financial results, including the impacts if the UK fails to reach an agreement with the EU on Brexit by the March 29, 2019 deadline. We anticipate that the most probable near-term effects are likely to reflect the pressure Brexit is placing on the UK government, which may influence the government's ability to make decisions on programs of the type we perform and result in volatility in foreign currencies. Brexit may also have adverse tax effects on movement of products or sustainment activities between the UK and EU.

Competition

While we believe that we are a major provider for many of the products and services we offer to our DoD, government and commercial customers, our businesses generally encounter significant competition.

Our ability to compete for existing and new business depends on a variety of factors, including:

- the effectiveness and innovation of our technologies, systems and research and development programs;
- our ability to offer superior program performance at an affordable and competitive cost;
- historical, technical, cost and schedule performance;
- our ability to attain supplier positions on contracts;

- our ability to maintain an effective supplier and vendor base;
- our ability to retain our employees and hire new ones, particularly those who have U.S. Government security clearances;
- the capabilities of our facilities, equipment and personnel to undertake the business for which we compete; and
- our ability to quickly and flexibly meet customer requirements and priorities.

L3 is an aerospace and defense contractor with a broad and diverse portfolio of products and services. We have prime contractor and subcontractor positions. We supply our products and services to other prime system contractors. However, we also compete directly with other large prime system contractors for: (1) certain products, subsystems and systems, where they have vertically integrated businesses, and (2) niche areas where we are a prime contractor. We also compete with numerous other aerospace and defense contractors, which generally provide similar products, subsystems, systems or services.

In addition, our ability to compete for select contracts may require us to team with one or more of the other prime system contractors that bid and compete for major platform programs, and our ability to team with them is often dependent upon the outcome of a competition for subcontracts they award.

Patents and Licenses

Generally, we do not believe that our patents, trademarks and licenses are material to our operations. Furthermore, most of our U.S. Government contracts generally permit us to use patents owned by other U.S. Government contractors. Similar provisions in U.S. Government contracts awarded to other companies prohibit us from preventing the use of our patents in most DoD work performed by other companies for the U.S. Government.

Raw Materials

Although we generated 70% of our 2018 sales from products and systems, our businesses are generally engaged in limited manufacturing activities and have minimal exposure to fluctuations in the supply of raw materials. For those businesses that manufacture and sell products and systems, most of the value that we provide is labor oriented, such as design, engineering, assembly and test activities. In manufacturing our products, we use our own production capabilities as well as a diverse base of third party suppliers and subcontractors. Although certain aspects of our manufacturing activities require relatively scarce raw materials, we have not experienced difficulty in our ability to procure raw materials, components, sub-assemblies and other supplies required in our manufacturing processes.

Contracts

Generally, the sales prices for our contracts are either fixed-price, cost-plus or time-and-material type. Fixed-price type contracts generally offer higher profit margin potential than cost-plus type or time-and-material type contracts due to the greater levels of risk we assume on a fixed-price type contract.

On a fixed-price type contract (revenue arrangement), we agree to perform the contractual statement of work for a predetermined sales price. Although a fixed-price type contract generally permits us to retain profits if the total actual contract costs are less than the estimated contract costs, we bear the risk that increased or unexpected costs may reduce our profit or cause us to sustain losses on the contract. Accounting for the sales on a fixed-price type contract for which progress is measured using the cost-to-cost percentage of completion method involves the preparation of estimates of: (1) transaction price and (2) total costs at completion, which is equal to the sum of the actual incurred costs to date on the contract and the estimated costs to complete the contract's statement of work. Adjustments to original estimates for a contract's transaction price, estimated costs at completion and estimated total profit or loss may be required as work progresses under a contract, as experience is gained, as facts and circumstances change and as new information is obtained, even though the scope of work required under the contract may not change.

On a cost-plus type contract (revenue arrangement), we are paid our allowable incurred costs plus a profit which can be fixed or variable depending on the contract's fee arrangement up to predetermined funding levels determined by our customers. Cost-plus type contracts with award and incentive fee provisions are our primary variable contract fee arrangement. Award fees provide for a fee based on actual performance relative to contractually specified performance criteria. Incentive fees provide for a fee based on the relationship which total allowable costs bear to target cost. Award and incentive fees earned were not material to our results of operations for 2018, 2017 and 2016.

On a time-and-material type contract (revenue arrangement), we are paid on the basis of direct labor hours expended at specified fixed-price hourly rates (that include wages, overhead, allowable general and administrative expenses and profit) and materials at cost. Therefore, on cost-plus type and time-and-material type contracts, we do not bear the risks of unexpected cost overruns, provided that we do not incur costs that exceed the predetermined funded amounts.

Substantially all of our cost-plus type contracts and time-and-material type contracts are with U.S. Government customers, while sales to foreign government and commercial customers are generally transacted under fixed-price sales arrangements and are included in our fixed-price contract type sales. The table below presents the percentage of our total sales generated from each contract type.

	Year Ended December 31,		
Contract Type	**2018**	**2017**	**2016**
Fixed-price[(1)]	72%	73%	76%
Cost-plus[(2)]	25	24	21
Time-and-material	3	3	3
Total sales	100%	100%	100%

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(1) Includes fixed-price incentive fee type contracts, which contributed approximately 1% for the years ended December 31, 2018, 2017 and 2016.

(2) Includes cost-plus award and incentive fee type contracts, which contributed approximately 4% to our total net sales for the year ended December 31, 2018 and 5% for each of the years ended December 31, 2017 and 2016.

For additional information on total net sales disaggregated by contract type, see Note 22 to our audited consolidated financial statements.

Regulatory Environment

Most of our revenue arrangements with agencies of the U.S. Government, including the DoD, are subject to unique procurement and administrative rules. These rules are based on both laws and regulations, including the U.S. Federal Acquisition Regulation, that: (1) impose various profit and cost controls, (2) regulate the allocations of costs, both direct and indirect, to contracts and (3) provide for the non-reimbursement of unallowable costs. Unallowable costs include, but are not limited to, lobbying expenses, interest expenses and certain costs related to business acquisitions, including, for example, the incremental depreciation and amortization expenses arising from fair value increases to the historical carrying values of acquired assets. Our contract administration and cost accounting policies and practices are also subject to oversight by government inspectors, technical specialists and auditors. See "Part I — Item 1A — Risk Factors" for a discussion of certain additional business risks specific to our government contracts.

Our U.S. Government contracts are subject to extensive legal and regulatory requirements and, from time to time, agencies of the U.S. Government investigate whether our operations are being conducted in accordance with these requirements. Investigations could result in administrative, civil or criminal liabilities, including repayments, disallowance of certain costs, or fines and penalties. As is common in the U.S. defense industry, we are subject to business risks, including changes in the U.S. Government's procurement policies (such as greater emphasis on competitive procurement), governmental appropriations, national defense policies or regulations, service modernization plans and availability of funds. A reduction in expenditures by the U.S. Government for products and services of the type we manufacture and provide, lower margins resulting from increasingly competitive procurement policies, a reduction in the volume of contracts or subcontracts awarded to us or the incurrence of substantial contract cost overruns could materially adversely affect our business.

In 2018, sales under foreign military sales (FMS) agreements, which are included in the international (foreign governments) category in the "Major Customers" table within this Business section, were $299 million, or 3% of our total consolidated sales. FMS agreements are made directly between the U.S. Government and foreign governments. In such cases, because we serve only as the supplier, we do not have unilateral control over the terms of the agreements. Certain of our sales are direct commercial sales to foreign governments. These sales are subject to U.S. Government approval and licensing under the Arms Export Control Act. Legal restrictions on sales of sensitive U.S. technology also limit the extent to which we can sell our products to foreign governments or private parties.

All of our U.S. Government contracts can be terminated by the U.S. Government either for its convenience or if we default by failing to perform under the contract. Termination for convenience provisions provide only for our recovery of costs incurred or committed settlement expenses and profit on the work completed prior to termination. Termination for default provisions provide for the contractor to be liable for excess costs incurred by the U.S. Government in procuring undelivered items from another source. Our contracts with foreign governments generally contain similar provisions relating to termination at the convenience of the customer.

Environmental Matters

Our operations are subject to various environmental laws and regulations relating to the discharge, storage, treatment, handling, disposal and remediation of certain materials, substances and wastes used in our operations. We continually assess our obligations and compliance with respect to these requirements.

We have also assessed the risk of environmental contamination for our various manufacturing facilities, including our acquired businesses and, where appropriate, have obtained indemnification, either from the sellers of those acquired businesses or through pollution liability insurance. We believe that our current operations are in substantial compliance with all existing applicable environmental laws and permits. We believe our current expenditures will allow us to continue to be in compliance with applicable environmental laws and regulations. While it is difficult to determine the timing and ultimate cost to be incurred in order to comply with these laws, based upon available internal and external assessments, with respect to those environmental loss contingencies of which we are aware, we believe there are no environmental loss contingencies that, individually or in the aggregate, would be material to our consolidated results of operations, financial position or cash flows.

Employees

At December 31, 2018, we employed approximately 31,000 full-time and part-time employees (excluding employees of discontinued operations), 79% of whom were located in the United States. Of these employees, approximately 10% are covered by approximately 36 separate collective bargaining agreements with various labor unions. The success of our business is, to a large extent, dependent upon the knowledge of our employees and on the management, contracting, engineering and technical skills of our employees. In addition, our ability to grow our businesses, obtain additional orders for our products and services and to satisfy contractual obligations under certain of our existing revenue arrangements is largely dependent upon our ability to attract and retain employees who have U.S. Government security clearances, particularly those with clearances of top-secret and above. Historically, we have renegotiated labor agreements without significant disruptions to operating activities, and we believe that relations with our employees are positive.

Available Information

We are subject to the informational requirements of the Securities Exchange Act of 1934 and, in accordance therewith, file reports, including annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission the (“SEC”). Such material may also be accessed electronically by means of the SEC’s home page on the Internet at http://www.sec.gov.

You may also obtain a free copy of our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and proxy statement for the annual shareholders’ meeting, as well as any amendments to those reports as soon as reasonably practicable after electronic filing with the SEC through our website on the Internet at http://www.L3T.com.

We also have a Corporate Governance webpage. You can access our Corporate Governance Guidelines and charters for the audit and ethics, compensation and nominating and governance committees of our Board of Directors through our website, http://www.L3T.com, by clicking on the “Corporate Governance” link under the heading “Investor Relations.” You can access our Code of Ethics and Business Conduct by clicking on the “Code of Ethics and Business Conduct” link under the heading “Code of Ethics.” Our Code of Ethics and Business Conduct applies to all directors, officers and employees, including our chairman, chief executive officer and president, our senior vice president and chief financial officer and our vice president, controller and principal accounting officer. We will post any amendments to the Code of Ethics and Business Conduct, and any waivers that are required to be disclosed by the rules of either the SEC or the New York Stock Exchange, Inc. (NYSE), on our website within the required periods. The information on or accessible through our website is not incorporated by reference into this report.

To learn more about L3, please visit our website at http://www.L3T.com. From time to time, we use our website as a channel of distribution of material company information. Financial and other material information regarding L3 is routinely posted on our website and is readily accessible.

Item 1A. Risk Factors

You should carefully consider the following risk factors and other information contained in this Form 10-K, including "Part II — Item 7 — Management's Discussion and Analysis of Financial Condition and Results of Operations." Any of these risks could materially affect our business and our financial condition, results of operations and cash flows, which could in turn materially affect the price of our common stock.

Risks and uncertainties associated with our planned merger with Harris.

Completion of the proposed merger is subject to various conditions, and the proposed merger may not occur even if we obtain stockholder approval.

The completion of the proposed merger is subject to certain conditions, including, among others, the (i) the adoption of the Merger Agreement by our stockholders; (ii) the approval of the issuance of Harris Common Stock pursuant to the Merger Agreement and adoption of an amendment of the charter of Harris by the stockholders of Harris; (iii) the approval for listing on the NYSE of the shares of Harris Common Stock to be issued pursuant to the Merger Agreement; (iv) the expiration or earlier termination of any applicable waiting period, and the receipt of approvals under, domestic and certain foreign antitrust and competition laws and (v) the absence of governmental restraints or prohibitions preventing the consummation of the merger. The obligation of each of us and Harris to consummate the proposed merger is also conditioned on, among other things, the receipt of a tax representation letter from the other party the purpose of which is to permit each party's counsel to render a tax opinion as to the tax-free nature of the merger, the absence of a material adverse effect on the other party, the truth and correctness of the representations and warranties made by the other party on the date of the Merger Agreement and on the closing date (subject to certain "materiality" and "material adverse effect" qualifiers), and the performance by the other party in all material respects of its obligations under the Merger Agreement. We cannot provide any assurance that these conditions will be met or waived, or that we will be able to successfully consummate the proposed merger as provided for under the Merger Agreement, or at all.

If the proposed merger is not completed, our stock price will likely fall to the extent that the current market price of our common stock reflects an assumption that a transaction will be completed. In addition, we may be required to pay a termination fee of $590 million if the Merger Agreement is terminated under circumstances specified in the Merger Agreement.

In this regard, we face risks and uncertainties due both to the pendency of the proposed merger as well as the potential failure to consummate the proposed merger, including:

- the occurrence of any event, series of events, change or other circumstances that could give us or Harris the right to terminate the Merger Agreement, including a termination of the Merger Agreement that could require us to pay a termination fee to Harris;
- the ability to obtain regulatory approvals and satisfy other closing conditions to the proposed merger in a timely manner or at all, including the risk that regulatory approvals required for the proposed merger are not obtained or are obtained subject to conditions that are not anticipated and that could reduce or eliminate the anticipated benefits of the proposed merger;
- the risk that the announcement of the proposed transaction could have adverse effects on the market price of our common stock or Harris' common stock and the uncertainty as to the long-term value of the common stock of the combined company following the proposed merger or as a result of broader stock market movements;
- the risk that we or Harris may not obtain the required stockholder approvals on the expected schedule or at all, including the failure of our stockholders to adopt the Merger Agreement or of Harris stockholders to approve the share issuance or to adopt the Harris charter amendment;
- the risk of failure to satisfy other conditions to the completion of the proposed merger;
- delays in closing, or the failure to close, the proposed merger for any reason could negatively impact us;
- business disruptions from the proposed merger that may harm our business or Harris' business, including current plans and operations;
- difficulties and delays in integrating our business with Harris' business or fully realizing anticipated cost savings and other benefits expected from the proposed merger;

- certain restrictions during the pendency of the proposed merger that may impact our ability or the ability of Harris to pursue certain business opportunities or strategic transactions;
- the outcome of any legal proceedings that may be instituted against us, Harris or our respective directors with respect to the proposed merger;
- risks related to the diversion of the attention and time of Harris' or our respective management teams from ongoing business concerns;
- any announcement relating to the proposed transaction could have adverse effects on our ability or the ability of Harris to retain and hire key personnel or maintain relationships with suppliers, vendors, other partners and customers, including the U.S. government and other governments, or on our or Harris' operating results and businesses generally;
- the potential dilution of our stockholders' and Harris stockholders' ownership percentage of the combined company as a result of the proposed merger;
- the business, economic and political conditions in the markets in which Harris and we operate;
- events beyond our and Harris' control, such as acts of terrorism; and
- the potential dilution of the combined company's earnings per share as a result of the proposed merger.

In addition, we have incurred, and will continue to incur, significant costs, expenses and fees for professional services and other transaction costs, including potential impairments and charges, in connection with the proposed merger, and these fees and costs are payable by us regardless of whether the proposed merger is consummated. There are a number of risks and uncertainties associated with the proposed merger. For more information, see Item 1A. Risk Factors, "-Cautionary Information Regarding Forward-Looking Statements" below, and the Joint Proxy Statement/Prospectus.

Litigation filed against L3, the L3 Board of Directors, Harris and Leopard Merger Sub, Inc. ("Merger Sub") could prevent or delay the consummation of the merger or result in the payment of damages following completion of the merger.

In connection with the merger, purported stockholders of L3 have filed three putative class action lawsuits and one individual lawsuit against one or more of L3, the members of L3's Board of Directors, Harris and Merger Sub. Among other remedies, the plaintiffs in these lawsuits seek to enjoin the merger. The outcome of any such litigation is uncertain. If a dismissal is not granted or a settlement is not reached, these lawsuits could prevent or delay completion of the merger and result in substantial costs to L3 and Harris, including any costs associated with indemnification. Additional lawsuits in connection with the merger may be filed against L3, Harris, Merger Sub and/or their respective directors and officers, which additional lawsuits could also prevent or delay the consummation of the merger and result in additional costs to L3 and Harris. The ultimate resolution of these lawsuits cannot be predicted with certainty, and an adverse ruling in any such lawsuit may cause the merger to be delayed or not to be completed, which could cause Harris and L3 not to realize some or all of the anticipated benefits of the merger. The defense or settlement of any lawsuit or claim that remains unresolved at the time the merger is consummated may adversely affect the combined company's business, financial condition, results of operations and cash flows. L3 and Harris cannot currently predict the outcome of or reasonably estimate the possible loss or range of loss from any these lawsuits or claims. For more information, see the Joint Proxy Statement/Prospectus.

Our contracts (revenue arrangements) with U.S. Government customers entail certain risks.

A decline in or a redirection of the U.S. defense budget could result in a material decrease in our sales, results of operations and cash flows.

Our government contracts and sales are highly correlated and dependent upon the U.S. defense budget which is subject to the congressional budget authorization and appropriations process. Congress usually appropriates funds for a given program on a September 30 fiscal year basis, even though contract periods of performance may extend over many years. Consequently, at the beginning of a major program, the contract is usually partially funded, and additional funds are normally committed to the contract by the procuring agency only as appropriations are made by Congress in future fiscal years. DoD budgets are determined by factors beyond our control, including, but not limited to, changes in U.S. procurement policies, budget considerations, current and future economic conditions, presidential administration priorities, changing national security and defense requirements, geopolitical developments and actual fiscal year congressional appropriations for defense budgets. Any of these factors could result in a significant decline in, or redirection of, current and future DoD budgets and impact our future results of operations, including our sales and operating income growth rates.

The total DoD budget for FY 2017 was $606 billion ($523 billion base budget, $83 billion Overseas Contingency Operations (OCO)), an increase of 4% compared to the appropriated FY 2016 DoD budget.

Because the FY 2018 DoD Appropriations bill was not enacted into law prior to start of fiscal year 2018 (October 1, 2017), the DoD's FY 2018 funding was addressed through a series of Continuing Resolutions (CR). However, on February 9, 2018, President Trump signed into law the Bipartisan Budget Act of 2018 (BBA), a bipartisan two-year budget and debt ceiling agreement that provides a level of stability in the U.S. Government budget process over the next two fiscal years (FYs 2018 and 2019). The BBA included a short-term CR extension to March 23, 2018, to allow for completion of the FY 2018 appropriations process (including enactment of the FY 2018 DoD Appropriations bill). On March 23, 2018, Congress passed, and President Trump signed into law, the Consolidated Appropriations Act, 2018 (2018 Appropriations Act), a $1.3 trillion spending package that funded the government through September 30, 2018. The 2018 Appropriations Act included $665 billion for the DoD ($599 billion base budget, $66 billion OCO). While 2018 BBA raised the spending caps for FY 2018 and FY 2019 previously constrained by the Budget Control Act of 2011 (BCA) and temporarily suspended the statutory debt ceiling through March 1, 2019, it did not modify the BCA's spending caps or sequestration mechanism beyond FY 2019.

On February 12, 2018, the Trump Administration submitted its FY 2019 DoD budget request to Congress, totaling $686 billion ($617 billion base budget, $69 billion OCO funding) and representing an increase of 3% compared to FY 2018 enacted levels. On May 24, 2018, the House passed its version of the FY 2019 National Defense Authorization Act (NDAA), and on June 18, 2018, the Senate passed its version of the FY19 NDAA. Both the House and Senate versions of the FY19 NDAA authorized a base DoD budget of $617 billion and $69 billion in OCO funding, consistent with the President's FY 2019 budget request. The final versions of the FY19 NDAA were passed by the House and Senate on July 26 and August 1, 2018, respectively, and President Trump signed it into law on August 13, 2018.

On June 28, 2018, the House passed its version of the Fiscal Year 2019 Defense Appropriations Bill, providing $674.4 billion for the Department of Defense and the Intelligence Community - funding levels aligned to those authorized in the NDAA. On August 23, 2018, the Senate passed its version of the Fiscal Year 2019 Defense Appropriations Bill, consistent with the total funding level included in the House's version. On September 13, 2018, House and Senate conferees announced a final conference agreement on the Fiscal Year 2019 Defense Appropriations Bill, and on September 28, 2018, the President signed the conference agreement into law. The enactment of the annual Defense Appropriations bill prior to the beginning of the fiscal year had not occurred in over a decade.

Future DoD budgets and spending levels are difficult to predict as the U.S. Government's overall fiscal challenges remain. A significant decline in or redirection of U.S. military expenditures in the future, or the loss or significant reduction in U.S. Government funding of a large program in which we participate, could have a material adverse effect on our financial position, results of operations and cash flows.

We rely predominantly on sales to U.S. Government entities, and the loss or delay of a significant number of our contracts would have a material adverse effect on our results of operations and cash flows.

Our sales are predominantly derived from contracts (revenue arrangements) with agencies of, and prime system contractors to, the U.S. Government. The loss or delay of all or a substantial portion of our sales to the U.S. Government would have a material adverse effect on our results of operations and cash flows. Approximately 70%, or $7.1 billion, of our sales for the year ended December 31, 2018 were made directly or indirectly to U.S. Government agencies, including 66% to the DoD. Aggregate sales for our five largest contracts (revenue arrangements) amounted to approximately $1.5 billion, or 15% of our consolidated sales for the year ended December 31, 2018.

A substantial majority of our total sales are for products and services under contracts with various agencies and procurement offices of the DoD or with prime contractors to the DoD. Although these various agencies, procurement offices and prime contractors are subject to common budgetary pressures and other factors, our customers exercise independent purchasing decisions. Because of this concentration of contracts, if a significant number of our DoD contracts and subcontracts are simultaneously delayed or canceled for budgetary, performance or other reasons, it would have a material adverse effect on our results of operations and cash flows.

In addition to contract cancellations and declines in agency budgets, our backlog and future financial results may be adversely affected by:

- curtailment of the U.S. Government's use of technology or other services and product providers, including curtailment due to government budget reductions and related fiscal matters;
- geopolitical developments that affect demand for our products and services;
- our ability to hire and retain personnel to meet demand for our services; and
- technological developments that impact purchasing decisions or our competitive position.

The DoD's wide-ranging efficiency and better buying power initiatives, which target affordability and cost growth, could have a material effect on the procurement process and may adversely affect our existing contracts and the award of new contracts.

Since 2010, the DoD has implemented efficiency initiatives and other best practices for procurement that are intended to reduce prices, ensure adequate competition and control costs throughout the acquisition cycle. In addition, under the Better Buying Power 3.0 initiative, the DoD has focused on technology innovation, incentive-based cost-plus and fixed-price contracts and Company-sponsored independent research and development efforts. The U.S. Government may continue to implement changes to its procurement practices that change the way contracts are solicited, negotiated and managed, which may impact our future sales, earnings and cash flows, and could affect whether, and how we pursue opportunities to provide our products and services to the U.S. Government, including the terms and conditions under which we do so.

Our government contracts contain unfavorable termination provisions and are subject to audit and modification. If a termination right is exercised by the government, it could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Companies engaged primarily in supplying defense-related equipment and services to U.S. Government agencies are subject to certain business risks unique to the defense industry. These risks include the ability of the U.S. Government to unilaterally:

- suspend us from receiving new contracts pending resolution of alleged violations of procurement laws or regulations;
- terminate existing contracts;
- reduce the value of existing contracts; and
- audit our contract-related costs and fees, including allocated indirect costs.

All of our U.S. Government contracts can be terminated by the U.S. Government either for its convenience or if we default by failing to perform under the contract. Termination for convenience provisions provide only for our recovery of costs incurred or committed settlement expenses and profit on the work completed prior to termination. Termination for default provisions provide for the contractor to be liable for excess costs incurred by the U.S. Government in procuring undelivered items from another source. Our contracts with foreign governments generally contain similar provisions relating to termination at the convenience of the customer.

U.S. Government agencies, including the Defense Contract Audit Agency and various agency Inspectors General, routinely audit and investigate our costs and performance on contracts, as well as our accounting and general business practices. Based on the results of such audits, the U.S. Government has adjusted, and may in the future adjust, our contract-related costs and fees, including allocated indirect costs. In addition, under U.S. Government purchasing regulations, some of our costs, including certain business acquisition costs, most financing costs, portions of research and development costs and certain marketing expenses, may not be reimbursable under U.S. Government contracts.

At December 31, 2018, we had a backlog of funded orders, primarily under contracts with the U.S. Government, totaling $9,704 million. As described above, the U.S. Government may unilaterally modify or terminate its contracts with us. Accordingly, most of our backlog could be modified or terminated by the U.S. Government, which would have a material adverse effect on our future sales, results of operations and cash flows.

We may not be able to win competitively awarded contracts or receive required licenses to export our products, which could have a material adverse effect on our business, financial condition, results of operations, cash flows and future prospects.

Our government contracts are subject to competitive bidding. We obtain many of our U.S. Government contracts through a competitive bidding process. We may not be able to continue to win competitively awarded contracts. In addition, awarded contracts may not generate sales sufficient to result in our profitability. We are also subject to risks associated with the following:

- the frequent need to bid on programs in advance of the completion of their design, which may result in unforeseen technological difficulties and/or cost overruns;
- the substantial time, effort and experience required to prepare bids and proposals for competitively awarded contracts that may not be awarded to us;
- design complexity and rapid technological obsolescence; and
- the constant need for design improvement.

In addition to these risks, we are not permitted to export some of our products, and we are required to obtain licenses from U.S. Government agencies to export many of our other products and systems. Failure to receive required licenses would eliminate our ability to sell our products and systems outside the United States.

Intense competition and bid protests may adversely affect our sales, results of operations and cash flows.

The defense and commercial industries in which our businesses operate are highly competitive. We expect that the DoD's increased use of commercial off-the-shelf products and components in military equipment will continue to encourage new competitors to enter the market. We also expect increased competition for our products and services from other providers due to the uncertainty of future U.S. defense budgets. Furthermore, the current competitive environment has resulted in an increase of bid protests from unsuccessful bidders, which typically extends the time until work on a contract can begin. For more information concerning the factors that affect our ability to compete, see "Part I — Item 1 — Business — Competition."

We are subject to government investigations, which could have a material adverse effect on our business, financial condition, results of operations, cash flows and future prospects.

U.S. Government contracts are subject to extensive legal and regulatory requirements, and from time to time agencies of the U.S. Government investigate whether such contracts were and are being conducted in accordance with these requirements. As discussed in Note 19 to our audited consolidated financial statements, we are currently cooperating with the U.S. Government on several investigations. Under U.S. Government regulations, an indictment of L3 by a federal grand jury, or an administrative finding against us as to our present responsibility to be a U.S. Government contractor or subcontractor, could result in us being suspended for a period of time from eligibility for awards of new government contracts or task orders or in a loss of export privileges, which could have a material adverse effect on our results of operations and cash flows. A conviction, or an administrative finding against us that satisfies the requisite level of seriousness, could result in debarment from contracting with the federal government for a specific term, which could have a material adverse effect on our results of operations and cash flows.

Our commercial aviation products and services businesses are affected by global demand and economic factors that could negatively impact our financial results.

The operating results of our commercial aviation products and services businesses may be adversely affected by downturns in the global demand for air travel which impacts new aircraft production and orders, and global flying hours, which impacts air transport, regional and business aircraft utilization rates and pilot training needs. The aviation industry is highly cyclical, and the level of demand for air travel is correlated to the strength of the U.S. and international economies and is impacted by long-term trends in airline passenger and cargo traffic. The results of our commercial aviation business also depend on other factors, including general economic growth, political stability in both developed and emerging markets, pricing pressures, trends in capital goods markets and changes in OEM production rates.

Our sales to certain international customers expose us to risks associated with operating internationally.

For the year ended December 31, 2018, sales to international customers, excluding our international sales made under FMS agreements directly between the U.S. Government and foreign governments, represented approximately 20% of our consolidated sales. Consequently, our businesses are subject to a variety of risks that are specific to international operations, including the following:

- export regulations that could erode profit margins or restrict exports;
- compliance with the U.S. Foreign Corrupt Practices Act and similar non-U.S. regulations;
- the burden and cost of compliance with foreign laws, treaties and technical standards and changes in those regulations;
- contract award and funding delays;
- potential restrictions on transfers of funds;
- currency fluctuations;
- import and export duties and value added taxes;
- transportation delays and interruptions;
- uncertainties arising from international local business practices and cultural considerations;
- sovereign government credit risk; and
- potential military conflicts and political risks.

Our international contracts may include industrial cooperation agreements requiring specific local purchases, manufacturing agreements or financial support obligations, known as offset obligations, and provide for penalties if we fail to meet such requirements. See “Part II — Item 7 — Management’s Discussion and Analysis of Financial Condition and Results of Operations — Contractual Obligations” for further discussion. While we have and will continue to adopt measures to reduce the potential impact of losses resulting from the risks of our international business, these measures may not be adequate.

We cannot predict the consequences of future geo-political events, but they may adversely affect the markets in which we operate, our ability to insure against risks, our operations or our profitability.

Ongoing instability and current conflicts in global markets, including in the Middle East and Asia, and the potential for other conflicts and future terrorist activities and other recent geo-political events throughout the world, including new or increased tariffs and potential trade wars and the pending voluntary exit of the United Kingdom from the European Union (commonly referred to as “Brexit”), have created economic and political uncertainties and impacts that could have a material adverse effect on our business, operations and profitability. These matters cause uncertainty in the world’s financial and insurance markets and may significantly increase the political, economic and social instability in the geographic areas in which we operate. These matters may cause us to incur increased costs or experience difficulty with future borrowings under our credit facilities or in the debt markets, or otherwise with financing our operating, investing (including any future acquisitions) or financing activities. These matters also may cause our insurance coverages and performance bonds to increase in cost, or in some cases, to be unavailable altogether.

We continue to monitor Brexit and its potential impacts on our results of operations and financial condition. Volatility in foreign currencies is expected to result as the United Kingdom exits from the European Union. If the United Kingdom's membership in the European Union terminates in March 2019 without an agreement, there could be increased costs from re-imposition of tariffs on trade between the United Kingdom and European Union, shipping delays because of the need for customs inspections and procedures and shortages of certain goods. The United Kingdom will also need to negotiate its own tax and trade treaties with countries all over the world, which could take years to complete. This potential scenario is usually referred to as a “hard Brexit.” In the case of a hard Brexit, our exposure to disruptions to our supply chain, the imposition of tariffs and currency devaluation in the United Kingdom could have an adverse impact to our consolidated revenue, earnings and cash flow. In 2018, we generated 6% of our net revenues in the United Kingdom.

We are subject to the risks of legal proceedings, which could have a material adverse effect on our business, financial condition, results of operations, cash flows and future prospects.

At any given time, we are a defendant in various material legal proceedings and litigation matters arising in the ordinary course of business, including litigation, claims and assessments that have been asserted against acquired businesses, which we have assumed. Although we maintain insurance policies, these policies may not be adequate to protect us from all material judgments and expenses related to current or future claims and may not cover the conduct that is the subject of the litigation. Desired levels of insurance may not be available in the future at economical prices or at all. In addition, we believe that while we have valid defenses with respect to legal matters pending against us, the results of litigation can be difficult to predict, including those involving jury trials. Accordingly, our current judgment as to the likelihood of our loss (or our current estimate as to the potential range of loss, if applicable) with respect to any particular litigation matter may be wrong. A significant judgment against us, arising out of any of our current or future legal proceedings and litigation, could have a material adverse effect on our business, financial condition, results of operations, cash flows and future prospects. For a discussion of material litigation to which we are currently a party, see Note 19 to our audited consolidated financial statements.

If we are unable to keep pace with rapidly evolving products and service offerings and technological change, there could be a material adverse effect on our business, financial condition, results of operations, cash flows and future prospects.

The rapid change of technology is a key feature of most of the markets in which our products, services and systems oriented businesses operate. To succeed in the future, we will need to continue to design, develop, manufacture, assemble, test, market and support new products and enhancements on a timely and cost-effective basis. Historically, our technology has been developed through customer-funded and internally funded research and development and through certain business acquisitions. We may not be able to continue to maintain comparable levels of research and development or successfully complete such acquisitions. In the past, we have allocated substantial funds to capital expenditures, programs and other investments. This practice will continue to be required in the future. Even so, we may not be able to successfully identify new opportunities and may not have the necessary financial resources to develop new products and systems in a timely or cost-effective manner. At the same time, products and technologies developed by others may render our products, services and systems obsolete or non-competitive.

Goodwill represents a significant asset on our balance sheet and may become impaired.

Goodwill represents the largest asset on our balance sheet, with an aggregate balance of $6,808 million at December 31, 2018. We review goodwill and intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable and also review goodwill annually in accordance with the accounting standards for goodwill and intangible assets. A decline in the estimated fair value of a reporting unit could result in a goodwill impairment and a related non-cash impairment charge against earnings if the estimated fair value for the reporting unit is less than the carrying value of the net assets of the reporting unit, including its goodwill.

Our annual impairment tests at November 30, 2018 and 2017 did not result in impairments to goodwill. In addition, the fair value of all of our reporting units exceeded the carrying value of the net assets of those reporting units by more than 50% as of the date of our last quantitative test at November 30, 2017. A decline in the estimated fair value of one or more of our reporting units could potentially trigger goodwill impairment charges and a material adverse effect on our results of operations. See “Part II — Item 7 — Management’s Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies — Goodwill and Identifiable Intangible Assets” for further discussion.

Our results of operations and cash flows are substantially affected by our mix of fixed-price, cost-plus and time-and-material type contracts.

Our sales are transacted using written revenue arrangements, or contracts, which are generally fixed-price, cost-plus or time-and-material. For a description of our revenue recognition policies, see “Part II — Item 7 — Management’s Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies.” For information on the percentage of our total sales generated from each contract type, see “Item 1 —Business — Contracts.”

Substantially all of our cost-plus type contracts and time-and-material type contracts are with U.S. Government customers, while sales to foreign government and commercial customers are generally transacted under fixed-price sales arrangements and are included in our fixed-price contract type sales.

On a fixed-price type contract (revenue arrangement), we agree to perform the contractual statement of work for a predetermined sales price. Although a fixed-price type contract generally permits us to retain profits if the total actual contract costs are less than the estimated contract costs, we bear the risk that increased or unexpected costs may reduce our profit or cause us to sustain losses on the contract.

On a cost-plus type contract (revenue arrangement), we are paid our allowable incurred costs plus a profit, which can be fixed or variable depending on the contract's fee arrangement up to predetermined funding levels established by our customers. On a time-and-material type contract (revenue arrangement), we are paid on the basis of direct labor hours expended at specified fixed-price hourly rates (that include wages, overhead, allowable general and administrative expenses and profit) and materials at cost. Therefore, on cost-plus and time-and-material type contracts, we do not bear the risks of unexpected cost overruns, provided that we do not incur costs that exceed the predetermined funded amounts.

Additionally, the impact of revisions in profit or loss estimates for all types of contracts subject to the cost-to-cost percentage of completion method of accounting are recognized on a cumulative catch-up basis in the period in which the revisions are made. Provisions for anticipated losses on contracts are recorded in the period in which they become evident. Amounts representing contract change orders or claims are included in sales only when we believe we have an enforceable right to the change order or claim, the amount can be reliably estimated and its realization is reasonably assured. The revisions in contract estimates, if significant, can materially affect our results of operations and cash flows, as well as reduce the valuations of contract assets; and in some cases, result in liabilities to complete contracts in a loss position.

Our business could be negatively impacted by cybersecurity threats and other disruptions.

As a U.S. defense contractor, we have faced, and continue to face, various security threats, including, but not limited to, threats to the physical security of our facilities and employees, cybersecurity threats to our information technology infrastructure and attempts to gain access to our proprietary or classified information as well as the proprietary or classified information of our customers.

Although we utilize various procedures and controls to monitor, deter and mitigate these threats, these procedures and controls may not be sufficient to prevent disruptions in mission critical systems, the unauthorized release of confidential, sensitive or classified information and the corruption of data, systems or networks. Any significant operational delays, or any destruction, manipulation or improper use of our or our customers' data, information systems or networks, could materially and adversely affect our financial results, damage the reputation of our products and services and require significant management attention and expense. In addition, our insurance coverage and/or indemnification arrangements that we enter into, if any, may not be adequate to cover all of the costs related to cybersecurity attacks or disruptions resulting from such events.

To date, cyber attacks directed at us have not had a material impact on our financial results. Due to the evolving nature and increased frequency and sophistication of security threats, however, the impact of any future incident cannot be predicted. The threats we face are more advanced and persistent than those common to most industries, as highly organized adversaries target us because we operate in the defense industry and protect national security information. If we are unable to protect sensitive information, our customers or governmental authorities could question the adequacy of our threat mitigation and detection processes and procedures, which could result in us having to spend a significant amount of money to upgrade our networks and systems and could otherwise have a material adverse effect on our business, financial condition, results of operations and cash flows.

In the current environment, there are also numerous and evolving risks to cybersecurity and privacy, including the use of viruses, worms or other malicious software programs and threats involving criminal hackers, state-sponsored intrusions, terrorist attacks, industrial espionage, employee malfeasance, and human or technological error. As these risks develop and these attacks become more frequent and sophisticated, we may find it necessary to make significant further investments to protect data and infrastructure from cyber and other security attacks.

We must also rely on the safeguards put in place by customers, suppliers, vendors, subcontractors, venture partners or other third parties to minimize the impact of cyber threats, other security threats or business disruptions. These third parties may have varying levels of cybersecurity expertise and safeguards, and their relationships with government contractors, such as L3, may increase the likelihood that they are targeted by the same cyber threats we face. In the event of a breach affecting these third parties, our business and financial results could suffer materially. With respect to our commercial arrangements with these third parties, we have processes designed to require that the third parties and their employees and agents agree to maintain certain standards for the storage, protection and transfer of confidential, personal and proprietary information. However, we remain at risk of a data breach due to the intentional or unintentional non-compliance by a third party's employee or agent, the breakdown of a third party's data protection processes, which may not be as sophisticated as ours, or a cyber attack on a third party's information network and systems.

Pension expense and funding may fluctuate significantly because of changes in key estimates and assumptions, including discount rates and the assumed long-term rate of return on plan assets, as well as our actual investment returns and regulatory actions, which could negatively impact our results of operations, cash flows and financial condition.

Determining our pension expense requires significant judgment, particularly with respect to our discount rates, the assumed long-term rates of return on plan assets and other actuarial assumptions. If our assumptions change significantly due to changes in economic, legislative, demographic experience and/or circumstances, our pension expense, the funded status of our plans and our cash contributions to such plans would be impacted, which could negatively affect our results of operations, cash flows and financial condition. In addition, differences between our actual investment returns and our assumed long-term rate of return on plan assets could also impact our pension expense, the funded status of our plans and our required cash contributions to the plans. Further, our pension expense and the funded status of our plans, including required cash contributions to the plans, may be impacted by regulatory actions in any given year.

Additionally, pension plan cost recoveries under Cost Accounting Standards (CAS) for our U.S. Government contracts occur in different periods from when pension expense is recognized under accounting principles generally accepted in the U.S. or when cash contributions are made. Although CAS has been revised to better align the minimum required contributions under the Employee Retirement Income Security Act of 1974 (ERISA), as amended by the Pension Protection Act of 2006, with pension plan cost recoveries under CAS, timing differences could have a material adverse effect on our cash flow.

If we are unable to attract and retain key management and personnel, we may become unable to operate our business effectively.

Our future success depends to a significant degree upon the continued contributions of our management and our ability to attract and retain highly qualified management and technical personnel, including employees who have U.S. Government security clearances, particularly clearances of top-secret and above. We do not maintain any key person life insurance policies for members of our management. We face competition for management and technical personnel from other companies and organizations. Failure to attract and retain such personnel would damage our future prospects.

Environmental laws and regulations may subject us to significant liability.

Our operations are subject to various U.S. federal, state and local as well as certain foreign environmental laws and regulations within the countries in which we operate relating to the discharge, storage, treatment, handling, disposal and remediation of certain materials, substances and wastes used in our operations.

New laws and regulations, stricter enforcement of existing laws and regulations, the discovery of previously unknown contamination or the imposition of new clean-up requirements may require us to incur a significant amount of additional costs in the future and could decrease the amount of cash flow available to us for other purposes, including capital expenditures, research and development and other investments and could have a material adverse effect on our business, financial condition, results of operations, cash flows and future prospects.

Our business acquisition strategy involves risks, and we may not successfully implement our strategy.

We opportunistically seek to acquire businesses that enhance our capabilities and add new technologies, products, services, programs, contracts and customers to our existing businesses. We may not be able to continue to identify acquisition candidates on commercially reasonable terms or at all. If we make additional business acquisitions, we may not realize the benefits anticipated from these acquisitions, including sales growth, cost synergies and margin improvement. Furthermore, we may not be able to obtain additional financing for business acquisitions, since such additional financing could be restricted or limited by the terms of our debt agreements or due to unfavorable capital market conditions.

The process of integrating the operations of acquired businesses into our existing operations may result in unforeseen difficulties and may require significant financial and managerial resources that would otherwise be available for the ongoing development or expansion of our existing operations. Possible future business acquisitions could result in the incurrence of additional debt and related interest expense and contingent liabilities, each of which could result in an increase to our already significant level of outstanding debt, as well as more restrictive covenants. Furthermore, in certain of our business acquisitions we have assumed all claims against and liabilities of the acquired business, including both asserted and unasserted claims and liabilities.

Our spin-off of Engility could result in substantial tax liability to us and our shareholders.

In connection with our spin-off of Engility in 2012, we received an Internal Revenue Service (IRS) Ruling stating that L3 and its shareholders would not recognize any taxable income, gain or loss for U.S. federal income tax purposes as a result of the transaction. In addition, we received an opinion of counsel that the spin-off satisfied certain requirements for tax-free treatment that are not covered in the IRS Ruling; however, an opinion of counsel is not binding on the IRS. Accordingly, the IRS or the courts may reach conclusions with respect to the spin-off that are different from the conclusions reached in the opinion of counsel. Moreover, both the IRS Ruling and the opinion of counsel are based on certain factual statements and representations made by us, which, if incomplete or untrue in any material respect, could invalidate the IRS Ruling or opinion of counsel.

If, notwithstanding receipt of the IRS Ruling and opinion of counsel, the spin-off and certain related transactions were determined to be taxable, then we would be subject to a substantial tax liability. In addition, if the spin-off were taxable, each holder of our common stock who received shares of Engility would generally be treated as having received a taxable distribution of property in an amount equal to the fair market value of the shares of Engility received.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

At December 31, 2018, we operated in 283 locations consisting of manufacturing facilities, administration, research and development and other properties throughout the United States and internationally. Of these, we owned 29 locations consisting of approximately 4.9 million square feet and leased space at 254 locations consisting of approximately 9.3 million square feet. Additionally, our ISRS segment utilized a facility consisting of approximately 3.3 million square feet through a land lease expiring in 2031 with the city of Greenville, Texas.

A summary of square footage by reportable segment at December 31, 2018, is presented below.

	Leased	Owned	Government-Owned	Total
	(Square feet in millions)			
ISRS	2.0	1.9	3.3	7.2
C&NS	4.4	0.9	—	5.3
Electronic Systems	2.7	2.1	—	4.8
Total	9.1	4.9	3.3	17.3

Our reportable segments have major operations at the following locations:

- ISRS — Tempe, Arizona; Orlando, Florida; Wilmington, Massachusetts; Londonderry, New Hampshire; Mason, Ohio; Pittsburgh, Pennsylvania; Greenville, Rockwall and Waco, Texas; Quebec and Ontario, Canada; and Tewkesbury, U.K.

- C&NS — Anaheim, San Diego, San Leandro, Simi Valley, Sylmar and Torrance, California; Ayer and Northampton, Massachusetts; Camden, New Jersey; Hauppauge, New York; Tulsa, Oklahoma; Philadelphia and Williamsport, Pennsylvania; Salt Lake City, Utah; and Bologna, Italy.

- Electronic Systems — Phoenix, Arizona; Anaheim, California; Pueblo, Colorado; Sanford, Sarasota and St. Petersburg, Florida; Tewksbury and Woburn, Massachusetts; Grand Rapids and Muskegon, Michigan; Mount Olive, New Jersey; Kirkwood, New York; Cincinnati, Ohio; Arlington, Grand Prairie and Plano, Texas; Hamilton, New Zealand; Tramaga, Portugal; and Bracknell, Crawley, Droitwich and Luton, U.K.

Additionally, our Corporate staff occupies a total of 0.2 million square feet of office space in New York, New York and Arlington, Virginia. Management believes all of our properties have been well maintained, are in good condition and are adequate and suitable for our business as presently conducted.

Item 3. Legal Proceedings

The information required with respect to this item can be found in Note 19 to our audited consolidated financial statements and is incorporated by reference into this Item 3.

Item 4. Mine Safety Disclosures

None.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

The common stock of L3 is traded on the New York Stock Exchange (NYSE) under the symbol "LLL." On February 14, 2019, the number of holders of L3's common stock was approximately 200,573.

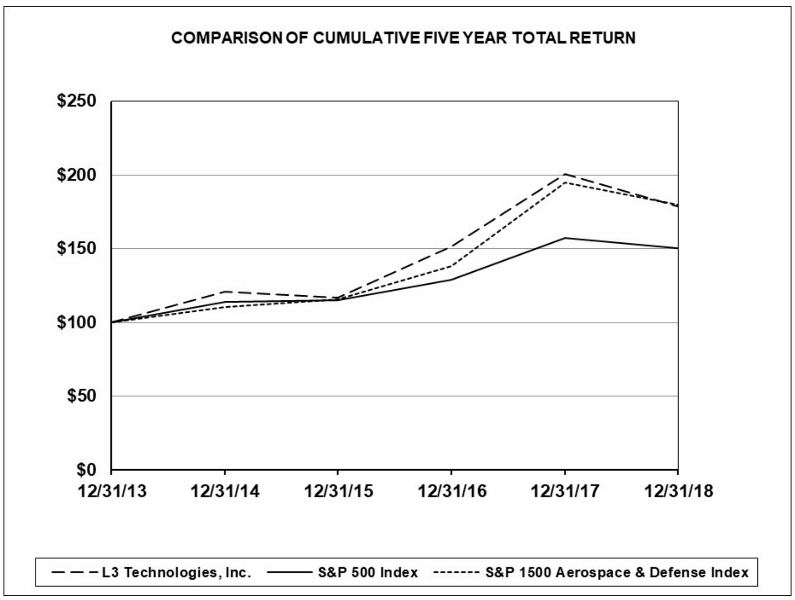
Issuer Purchases of Equity Securities

On May 8, 2017, L3's Board of Directors approved a share repurchase program that authorizes L3 to repurchase up to an additional $1.5 billion of its common stock. The program became effective on July 1, 2017 and has no set expiration date. Repurchases are made from time to time at management's discretion in accordance with applicable federal securities laws. All share repurchases of L3's common stock have been recorded as treasury shares. L3 repurchased 1.6 million shares of its common stock at an average price of $196.64 per share for an aggregate amount of $322 million from January 1, 2018 through September 28, 2018. All share repurchases of L3's common stock have been recorded as treasury shares.

We did not repurchase any shares of common stock from September 29, 2018 through February 14, 2019. The last repurchase of shares was in July 2018. In connection with the planned merger with Harris Corporation, we suspended our share repurchase program.

The graph below compares the cumulative total returns of our common stock with the cumulative total return of the Standard & Poor's 500 Composite Stock Index and the Standard & Poor's 1500 Aerospace & Defense Index, for the period from December 31, 2013 to December 31, 2018. These figures assume that all dividends paid over the performance period were reinvested and that the starting value of each index and the investment in our common stock was $100 on December 31, 2013.

We are one of the companies included in the Standard & Poor's 1500 Aerospace & Defense Index and the Standard & Poor's 500 Composite Stock Index. The starting point for the measurement of our common stock cumulative total return was our closing stock price on the NYSE of $106.86 per share on December 31, 2013. The graph is not, and is not intended to be, indicative of future performance of our common stock.



Item 6. Selected Financial Data

The selected financial data presented below is derived from our audited consolidated financial statements. The Company's selected financial data for the year ended December 31, 2018 is presented under ASC 606 while the Company's selected financial data for the years ended December 31, 2017, 2016, 2015 and 2014 are presented under ASC 605.

	Year Ended December 31,				
	2018[2]	2017[3]	2016[4]	2015[5]	2014
	(in millions, except per share data)				
Statements of Operations Data:					
Net sales	$ 10,244	$ 9,573	$ 9,210	$ 9,231	$ 9,691
Operating income	$ 1,120	$ 1,031	$ 958	$ 812	$ 984
Goodwill impairment charge	—	—	—	46	—
(Gain) loss related to business divestitures	(42)	—	—	31	—
Merger and acquisition related expenses	28	—	—	—	—
Segment operating income	$ 1,106	$ 1,031	$ 958	$ 889	$ 984
Operating margin	10.9%	10.8%	10.4%	8.8%	10.2%
Segment operating margin	10.8%	10.8%	10.4%	9.6%	10.2%
Interest expense	$ (164)	$ (169)	$ (164)	$ (162)	$ (147)
Interest and other income (loss), net	$ 37	$ 9	$ 17	$ (10)	$ 34
Debt retirement charges	$ (69)	$ —	$ (7)	$ (1)	$ —
Income from continuing operations before income taxes	$ 924	$ 871	$ 804	$ 639	$ 871
Provision for income taxes	(103)	(102)	(171)	(132)	(225)
Income from continuing operations	821	769	633	507	646
Net income from continuing operations attributable to noncontrolling interests	(21)	(16)	(14)	(15)	(13)
Net income from continuing operations attributable to L3	$ 800	$ 753	$ 619	$ 492	$ 633
Adjusted net income from continuing operations attributable to L3[1]	$ 856	$ 753	$ 623	$ 557	$ 633
Earnings per share from continuing operations allocable to L3 common shareholders:					
Basic	$ 10.19	$ 9.65	$ 7.99	$ 6.10	$ 7.41
Diluted	$ 10.05	$ 9.46	$ 7.86	$ 6.01	$ 7.21
Adjusted Diluted[1]	$ 10.75	$ 9.46	$ 7.91	$ 6.80	$ 7.21
L3 weighted average common shares outstanding:					
Basic	78.5	78.0	77.4	80.7	85.4
Diluted	79.6	79.6	78.8	81.9	87.8
Cash dividends declared per common share	$ 3.20	$ 3.00	$ 2.80	$ 2.60	$ 2.40

(1) Adjusted diluted EPS from continuing operations is diluted EPS from continuing operations excluding: (i) debt retirement charges, (ii) merger and acquisition related expenses, (iii) goodwill impairment charges and (iv) divestiture (gains) losses. We believe that the debt retirement charges, the merger and acquisition related expenses, goodwill impairment charges and divestiture (gains) losses affect the comparability of the results of operations. We also believe that disclosing diluted EPS excluding the debt retirement charges, the merger and acquisition related expenses, goodwill impairment charges and divestiture (gains) losses is useful to investors as it allows investors to more easily compare results. However, these non-GAAP financial measures may not be defined or calculated by other companies in the same manner.

(2) Income from continuing operations for the year ended December 31, 2018 includes: (i) debt retirement charges of $69 million ($52 million after income taxes), or $0.66 per diluted share, (ii) a pre-tax gain of $42 million ($19 million after income taxes), or $0.24 per diluted share, related to the divestiture of the Crestview Aerospace and TCS businesses and (iii) merger and acquisition related expenses of $28 million ($23 million after income taxes), or $0.28 per diluted share. Excluding these items, adjusted diluted EPS from continuing operations would have been $10.75.

(3) Provision for income taxes for the year ended December 31, 2017 includes estimated tax benefits of $79 million, or $0.99 per diluted share, related to the enactment of the U.S. Tax Cuts and Jobs Act (U.S. Tax Reform) in December 2017.

(4) Income from continuing operations for the year ended December 31, 2016 includes debt retirement charges of $7 million ($4 million after income taxes), or $0.05 per diluted share. Excluding this item, adjusted diluted EPS from continuing operations would have been $7.91.

(5) Income from continuing operations for the year ended December 31, 2015 includes: (i) non-cash goodwill impairment charge of $46 million ($44 million after income taxes), or $0.54 per diluted share, related to a business retained by L3 in connection with the sale of the National Security Solutions (NSS)

business and (ii) a pre-tax loss of $31 million ($20 million after income taxes), or $0.25 per diluted share, related to business divestitures. Excluding these items, adjusted diluted EPS from continuing operations would have been $6.80.

	Year Ended December 31,				
	2018	2017	2016	2015	2014
			(in millions)		
Balance Sheet Data (at year end):					
Working capital[1]	$ 2,363	$ 1,871	$ 1,467	$ 797	$ 1,580
Total assets	13,518	12,729	11,865	12,069	13,692
Long-term debt, including current portion	3,321	3,330	3,325	3,626	3,916
Equity	5,907	5,151	4,624	4,429	5,360
Cash Flow Data:					
Net cash from operating activities from continuing operations	$ 1,042	$ 985	$ 1,022	$ 1,035	$ 1,065
Net cash used in investing activities from continuing operations	(91)	(453)	(10)	(190)	(218)
Net cash used in financing activities from continuing operations	(520)	(366)	(856)	(1,205)	(893)

(1) Excludes net assets held for sale.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Overview and Outlook

L3's Business

L3 is a prime contractor in Intelligence, Surveillance and Reconnaissance (ISR) systems, aircraft sustainment (including modifications and fleet management of special mission aircraft), simulation and training, night vision and image intensification equipment, and security and detection systems. L3 is also a leading provider of a broad range of communication, electronic and sensor systems used on military, homeland security and commercial platforms. Our customers include the United States (U.S.) Department of Defense (DoD) and its prime contractors, U.S. Government intelligence agencies, the U.S. Department of Homeland Security (DHS), foreign governments, and domestic and foreign commercial customers.

In the third quarter of 2018, we completed a realignment of our business segments to maximize growth and improve our integration and collaboration across the enterprise. As a result of the realignment, L3's structure consists of the following three reportable segments: (1) ISR Systems (ISRS), (2) Communications and Networked Systems (C&NS) and (3) Electronic Systems. Financial information for our segments is included in Note 22 to our audited consolidated financial statements.

ISRS provides products and services for the global ISR and Command, Control and Communications (C^3) markets, specializing in ISR mission solutions from seabed to space, signals intelligence (SIGINT) and multi-intelligence platforms, including engineering, modernization and sustainment solutions for military and various government aircraft, ground support equipment and other platforms. These strategic and tactical products and services provide warfighters with the ability to detect, collect, identify, analyze and disseminate information from command centers, communication nodes and air defense systems for real-time situational awareness and response. Other major capabilities and mission solutions include space avionics and imaging payloads, Counter Unmanned Aircraft Systems mission solutions, cyber and electronic warfare, special mission command & control, modeling & simulation and life cycle support. ISRS sells these products and services primarily to the DoD and select foreign governments. The ISRS sectors are ISR Systems, Airborne Sensor Systems, Warrior Sensor Systems, Space & Sensor Systems, Aircraft Systems, MAS, Intelligence & Mission Systems and Advanced Programs.

C&NS provides network and communication systems, secure communications products, radio frequency (RF) components, satellite communication terminals and space, microwave and telemetry products. These products include secure data links that are used to connect a variety of space, airborne, ground and sea-based communication systems and are used in transmission, processing, recording, monitoring and dissemination functions of these communication systems. Other major capabilities include integrated maritime mission solutions, directed energy, lightweight unmanned undersea vehicles and naval power delivery on submarines and surface ships. C&NS sells these products and services primarily to the DoD and select foreign governments. The C&NS sectors are Broadband Communication Systems, Naval Power Systems, Advanced Communications, Space & Power Systems and Maritime Sensor Systems.

Electronic Systems provides a broad range of products and services, including components, products, subsystems, systems and related services to military and commercial customers. These products and services serve markets, such as commercial and military aircraft simulation and training, cockpit avionics, airport security and precision weapons. Electronic Systems sells these products and services primarily to the DoD and select foreign governments. The Electronic Systems sectors are Commercial Aviation Solutions, Precision Engagement Systems, Link Training & Simulation and Security & Detection Systems.

We adopted Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers* (commonly known as ASC 606), effective January 1, 2018 using the modified retrospective transition method. In accordance with the modified retrospective transition method, the year ended December 31, 2018 is presented under ASC 606, while the years ended December 31, 2017 and 2016 are presented under ASC 605, *Revenue Recognition*, the accounting standard in effect for periods ending prior to January 1, 2018. The cumulative effect of the change in accounting for periods prior to January 1, 2018 was recognized through retained earnings at the date of adoption.

Vertex Aerospace Divestiture: On June 29, 2018, we completed the sale of our Vertex Aerospace businesses for a sales price of $540 million subject to customary closing net working capital adjustments. In connection with the sale, we recognized: (1) a pre-tax gain from continuing operations of $42 million ($19 million after income taxes) related to the Crestview Aerospace and TCS businesses (the "Crestview & TCS Businesses") and (2) a pre-tax gain from discontinued operations of $234 million ($177 million after income taxes) related to the Vertex Aerospace business. The divestiture of the Vertex Aerospace business represents a strategic shift by us to exit the logistics solution and maintenance services business for military aircraft where we do not provide complex ISR systems integration and modification. The Vertex Aerospace business generated sales of $0.6 billion in 2018, $1.4 billion in 2017 and $1.3 billion in 2016. The assets and liabilities and results of operations of the Vertex Aerospace business are reported as discontinued operations for all periods presented.

All references made to financial data in this Annual Report on Form 10-K are to L3's continuing operations, unless specifically noted.

We generated sales of $10,244 million and $9,573 million for the years ended December 31, 2018 and 2017, respectively, and our primary customer was the DoD. See "Part I — Item 1 — Business — Major Customers" for additional information regarding a summary of our sales by end customer and the percent contributed by each to our total sales.

Most of our contracts (revenue arrangements) with the U.S. Government are subject to U.S. Defense Contract Audit Agency audits and various cost and pricing regulations and include standard provisions for termination for the convenience of the U.S. Government. Multiyear U.S. Government contracts and related orders are subject to cancellation if funds for contract performance for any subsequent year become unavailable. Foreign government contracts generally include comparable provisions relating to termination for the convenience of the relevant foreign government.

Planned Merger with Harris Corporation

On October 14, 2018, L3 and Harris Corporation ("Harris") announced an agreement to combine in an all stock merger of equals. Under the terms of the Agreement and Plan of Merger (the "Merger Agreement") governing the proposed transaction, which was unanimously approved by the boards of directors of both companies, L3 shareholders will receive a fixed exchange ratio of 1.30 shares of Harris common stock for each share of L3 common stock they hold. Upon completion of the merger, Harris shareholders will own approximately 54% and L3 shareholders will own approximately 46% of the combined company, which will be renamed L3 Harris Technologies, Inc. The merger is expected to close in the middle of 2019, subject to customary closing conditions, including the receipt of regulatory approvals and approval by the shareholders of both L3 and Harris.

Business Environment

U.S. Government Markets. Sales to U.S. Government customers represented 70% of our 2018 sales and were primarily to DoD customers, which comprised 66% of our sales. Therefore, our annual sales are generally highly correlated to changes in U.S. Government spending levels, especially DoD budget levels.

The total DoD budget for FY 2017 was $606 billion ($523 billion base budget, $83 billion Overseas Contingency Operations (OCO)), an increase of 4% compared to the appropriated FY 2016 DoD budget.

Because the FY 2018 DoD Appropriations bill was not enacted into law prior to start of fiscal year 2018 (October 1, 2017), the DoD's FY 2018 funding was addressed through a series of Continuing Resolutions (CR). However, on February 9, 2018, President Trump signed into law the Bipartisan Budget Act of 2018 (BBA), a bipartisan two-year budget and debt ceiling agreement that provides a level of stability in the U.S. Government budget process over the next two fiscal years (FYs 2018 and

2019). The BBA included a short-term CR extension to March 23, 2018, to allow for completion of the FY 2018 appropriations process (including enactment of the FY 2018 DoD Appropriations bill). On March 23, 2018, Congress passed, and President Trump signed into law, the Consolidated Appropriations Act, 2018 (2018 Appropriations Act), a $1.3 trillion spending package that funded the government through September 30, 2018. The 2018 Appropriations Act included $665 billion for the DoD ($599 billion base budget, $66 billion OCO). While 2018 BBA raised the spending caps for FY 2018 and FY 2019 previously constrained by the Budget Control Act of 2011 (BCA) and temporarily suspended the statutory debt ceiling through March 1, 2019, it did not modify the BCA's spending caps or sequestration mechanism beyond FY 2019.

On February 12, 2018, the Trump Administration submitted its FY 2019 DoD budget request to Congress, totaling $686 billion ($617 billion base budget, $69 billion OCO funding) and representing an increase of 3% compared to FY 2018 enacted levels. On May 24, 2018, the House passed its version of the FY 2019 National Defense Authorization Act (NDAA), and on June 18, 2018, the Senate passed its version of the FY19 NDAA. Both the House and Senate versions of the FY19 NDAA authorized a base DoD budget of $617 billion and $69 billion in OCO funding, consistent with the President's FY 2019 budget request. The final versions of the FY19 NDAA were passed by the House and Senate on July 26 and August 1, 2018, respectively, and President Trump signed it into law on August 13, 2018.

On June 28, 2018, the House passed its version of the Fiscal Year 2019 Defense Appropriations Bill, providing $674.4 billion for the Department of Defense and the Intelligence Community - funding levels aligned to those authorized in the NDAA. On August 23, 2018, the Senate passed its version of the Fiscal Year 2019 Defense Appropriations Bill, consistent with the total funding level included in the House's version. On September 13, 2018, House and Senate conferees announced a final conference agreement on the Fiscal Year 2019 Defense Appropriations Bill, and on September 28, 2018, the President signed the conference agreement into law. The enactment of the annual Defense Appropriations bill prior to the beginning of the fiscal year had not occurred in over a decade.

The table below presents the FY 2012 through FY 2019 DoD enacted budgets and the FY 2019 DoD Future Years Defense Plan (FYDP), as proposed within the FY 2019 DoD Budget Request. Although the budgets below are presented through FY 2023, they are subject to change each year.

	DoD Budget			
Fiscal Year (Ending September 30)	**Base**	**OCO**	**Total**	**Annual Total Budget Change**
		(in billions)		
2012	$ 530	$ 115	$ 645	-6 %
2013	$ 496	$ 82	$ 578	-10 %
2014	$ 496	$ 85	$ 581	+1 %
2015	$ 497	$ 63	$ 560	-4 %
2016	$ 522	$ 59	$ 581	+4 %
2017	$ 524	$ 82	$ 606	+4 %
2018	$ 529	$ 83	$ 612	+1 %
2019	$ 606	$ 68	$ 674	+10 %
2020	$ 681	$ 20	$ 701	+4 %
2021	$ 694	$ 20	$ 714	+2 %
2022	$ 707	$ 20	$ 727	+2 %
2023	$ 722	$ 20	$ 742	+2 %

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Source: United States Department of Defense FY 2019 Budget Request.

While the BBA and the Fiscal Year 2019 Defense Appropriations Bill provide a level of stability, future DoD budgets and spending levels are determined by a number of factors beyond our control, including changes to U.S. procurement policies, current and future domestic and international budget conditions, presidential administration priorities and changing national security and defense requirements. Furthermore, the U.S. Government's overall fiscal challenges remain, including uncertainties regarding BCA sequestration cuts after FY 2019, and, therefore, future DoD budgets and spending levels are difficult to predict. Although uncertainty exists, we believe that L3 will benefit from several of the DoD's focus areas such as ISR, unmanned systems, undersea warfare, precision strike, secure communications, missile defense and space programs, electronic warfare, aircraft readiness and the ability to project power in denied environments. For more information on the risks and uncertainties related to our U.S. Government contracts, see "Part I — Item 1A — Risk Factors" in this Annual Report on Form 10-K.

International and Commercial Markets. Sales to end customers other than the U.S. Government represented 30% of our 2018 sales. We expect sales to international and commercial customers to represent approximately 30% of our consolidated 2019 sales. These sales are generally affected by global economic conditions, geopolitical and security conditions and commodity prices, as well as our competitive success in winning new business and increasing our market share. We believe that L3 will benefit from a large addressable international market with sales directly to foreign allied governments and under foreign military sales agreements between the U.S. Government and foreign governments. Although our international sales are experiencing near-term softness, we believe the focus of our international markets in areas such as ISR, simulators, communication systems, night vision products and sensors systems will benefit L3 in the long term. We also believe that the commercial markets in which we participate such as aviation products, security and screening, simulation and training, and RF microwave and power have long-term favorable fundamentals.

Key Performance Measures

The primary financial performance measures that we use to manage our businesses and monitor results of operations are (i) sales, (ii) operating income and (iii) net cash from operating activities (Operating Cash Flow). Management believes that these financial performance measures are the primary growth drivers for our earnings per share. Generally, in evaluating our businesses and contract performance, we focus on net sales, operating income, operating margin, which we define as operating income as a percentage of sales, and the financial performance measure of Operating Cash Flow, and not the type or amount of operating costs.

One of our primary business objectives is to increase sales organically and through select business acquisitions. We define organic sales as net sales excluding the sales impact of acquisitions and divestitures. Sales declines related to business divestitures are sales from divestitures that are included in our actual results for a twelve-month period prior to the divestitures. Sales increases related to acquired businesses are sales from acquisitions that are included in our actual results for less than a twelve-month period. We expect to supplement, strengthen and enhance our existing businesses by selectively acquiring businesses that: (1) add important new technologies and products, (2) provide access to select customers, programs and contracts and (3) provide attractive returns on investment. Another important financial performance measure that we use is operating margin, because sales growth combined with operating margin levels determine our operating income levels. Operating Cash Flow is also an important financial performance measure because Operating Cash Flow measures our ability to convert operating income into cash after paying income taxes and interest expenses and investing in working capital.

Sales Trends. For the year ended December 31, 2018, consolidated net sales of $10,244 million increased by 7%, compared to the year ended December 31, 2017. Organic sales increased $635 million, or 7%, to $10,138 million, and net sales from business acquisitions was $106 million, or 1%. These increases were partially offset by divestitures of $70 million, or 1%. Our average annual sales increased for the five years ended December 31, 2018 by approximately 1% primarily due to an increase in average annual organic sales of approximately 1%. See “Results of Operations,” including segment results below for a further discussion of sales.

We derived approximately 66% of our 2018 sales from DoD customers; as a result, our sales are highly correlated to DoD budget levels. DoD budgets are a function of several factors and uncertainties beyond our control, including, but not limited to, changes in U.S. procurement policies, budget considerations, current and future economic conditions, presidential administration priorities, U.S. military engagements, changing national security and defense requirements, geo-political developments, actual fiscal year congressional appropriations for defense budgets, and sequestration and other DoD budget reductions. Any of these factors could result in a significant increase, decrease or redirection of DoD budgets and impact L3’s future results of operations, including our sales and operating income growth rates. Additionally, L3’s future results of operations will be affected by our ability to retain our existing business, including our revenue arrangements with DoD customers, and to successfully re-compete for existing business and compete for new business, which largely depends on: (1) our successful performance on existing contracts, (2) the effectiveness and innovation of our technologies and research and development activities, (3) our ability to offer better program performance than our competitors at an affordable cost and (4) our ability to retain our employees and hire new ones, particularly those employees who have U.S. Government security clearances and those with clearances of top-secret and above. We expect our 2019 consolidated and organic sales to increase by approximately 5% compared to 2018. We expect organic sales to the DoD and U.S. Government to increase by approximately 4% and organic international sales to increase by approximately 1%. We expect organic commercial sales to increase by approximately 10% primarily for commercial aviation products.

Operating Income and Margin Trends. For the year ended December 31, 2018, our consolidated operating income was $1,120 million, and our consolidated operating margin was 10.9%. Our consolidated operating income and consolidated operating margin for the year ended December 31, 2018 were impacted by the gain on sale of the Crestview & TCS Businesses of $42 million and merger and acquisition related expenses of $28 million. The gain on sale of the Crestview & TCS Businesses and merger and acquisition related expenses are excluded from segment operating income because they are excluded by management for purposes of evaluating the operating performance of our business segments. Our segment operating income was $1,106 million for the year ended December 31, 2018, an increase of 7% from $1,031 million for the year ended December 31, 2017, and our segment operating income as a percentage of sales (segment operating margin) was 10.8% for the years ended December 31, 2018 and 2017. See “Results of Operations”, including segment results below, for a further discussion of operating margin. In addition, general and administrative expenses as a percentage of sales was 15.6% for the year ended December 31, 2018, compared to 15.9% for the year ended December 31, 2017.

Our effective management of labor, material, subcontractor and other direct costs is an important element of cost control and favorable contract performance. We believe that proactively re-sizing our businesses to their anticipated sales, combined with continuous cost improvement, will enable us to increase our cost competitiveness. While we continue to undertake cost management actions, such as reducing our indirect costs, curtailing pension benefits for salaried employees, resizing select business units and improving our productivity and contract performance in an effort to maintain or increase operating margin, these efforts may not be successful and may be partially or fully offset by other cost increases. Furthermore, as a U.S. Government contractor, we do not retain the benefit of all cost management actions, particularly on cost-plus type contracts or on contracts where we are the sole-source provider. Although we expect our 2019 annual consolidated and segment operating margin to increase as compared to 2018, changes in the competitive environment and DoD procurement practices and changes in annual pension expense, including related assumptions such as the benefit obligation discount rates, among other factors, could result in lower operating margin. Furthermore, select business acquisitions and new business, including contract renewals and new contracts, could have lower future operating margins compared to our operating margins on existing contracts, and could reduce future operating margins.

Operating Cash Flow Trends. We generated $1,042 million of Operating Cash Flow during the year ended December 31, 2018, an increase of $57 million compared with $985 million generated during the year ended December 31, 2017. The increase in Operating Cash Flow was primarily due to higher operating income partially offset by higher working capital requirements, primarily contract assets and milestone payments for aircraft procurements related to U.S. and foreign government contracts.

Discontinued Operations

Vertex Aerospace. On June 29, 2018, we completed the sale of our Vertex Aerospace businesses for a sales price of $540 million subject to customary closing net working capital adjustments. In connection with the sale, we recognized: (1) a pre-tax gain from continuing operations of $42 million ($19 million after income taxes) related to the Crestview & TCS Businesses and (2) a pre-tax gain from discontinued operations of $234 million ($177 million after income taxes) related to the Vertex Aerospace business. The divestiture of the Vertex Aerospace business represents a strategic shift by us to exit the logistics solution and maintenance services business for military aircraft where we do not provide complex ISR systems integration and modification. The Vertex Aerospace business generated sales of $0.6 billion in 2018, $1.4 billion in 2017 and $1.3 billion in 2016. The assets and liabilities and results of operations of the Vertex Aerospace business are reported as discontinued operations for all periods presented.

National Security Solutions (NSS). On February 1, 2016, we completed the sale of our NSS segment to CACI International Inc. for a sales price of $547 million.

See Note 3 to our audited consolidated financial statements for additional information.

The table below presents the statements of operations data for Vertex Aerospace and NSS. The amounts presented in discontinued operations include allocated interest expenses for debt not directly attributable or related to L3's other operations. Interest expense was allocated in accordance with the accounting standards for discontinued operations and were based on the ratio of their net assets to the sum of: (1) total L3 consolidated net assets and (2) L3 consolidated total debt.

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Net sales	$ 597	$ 1,429	$ 1,402
Operating costs and expenses[1]	(561)	(1,531)	(1,357)
Operating income (loss) from discontinued operations	36	(102)	45
Interest expense allocated to discontinued operations	(1)	(2)	(5)
Gain on sale of businesses	234	—	64
Income (loss) from discontinued operations before income taxes	269	(104)	104
Income tax (expense) benefit	(64)	28	(13)
Income (loss) from discontinued operations, net of income taxes	$ 205	$ (76)	$ 91

(1) Due to a decline in estimated fair value, we recorded a goodwill impairment charge of $187 million during 2017 related to Vertex Aerospace.

Business Acquisitions and Divestitures

As discussed above, one aspect of our strategy is to selectively acquire businesses that add new products and technologies or provide access to select customers, programs and contracts. We intend to continue acquiring select businesses for reasonable valuations that will provide attractive returns to L3. Our business acquisitions, depending on their contract-type, sales mix or other factors, could reduce L3's consolidated operating margin while still increasing L3's operating income, earnings per share and net cash from operating activities. In addition, we may also dispose of certain businesses if we determine that they no longer fit into L3's overall business strategy and we are able to receive an attractive price.

Acquisitions. We regularly evaluate potential business acquisitions. The table below summarizes the acquisitions that we completed during the years ended December 31, 2016, 2017 and 2018, referred to herein as business acquisitions. See Note 3 to our audited consolidated financial statements for further information regarding our business acquisitions. During the year ended December 31, 2018, we used net cash of $369 million for business acquisitions.

Business Acquisitions	Date Acquired	Segment	Purchase Price[1]
			(in millions)
2016			
Advanced Technical Materials, Inc. (ATM)	January 22, 2016	C&NS	$ 27
Micreo Limited (Micreo) and Flight Training Acquisitions LLC (Aerosim)	September 30, 2016	ISRS and Electronic Systems	86
MacDonald Humfrey (Automation) Limited (MacH)	November 22, 2016	Electronic Systems	327 [2]
Total 2016			$ 440
2017			
Explosive Trace Detection business of Implant Sciences (ETD business)	January 5, 2017	Electronic Systems	$ 118
OceanServer Technology, Inc. (OceanServer), Open Water Power, Inc. (Open Water Power), and Doss Aviation, Inc. (Doss Aviation)	March 17, 2017 May 19, 2017 and September 12, 2017	C&NS and Electronic Systems	147 [3]
Adaptive Methods, Inc. (Adaptive Methods)	September 8, 2017	C&NS	33
Escola De Aviacao Aerocondor, S.A. (G-Air)	October 27, 2017	Electronic Systems	13
Kigre, Inc. (Kigre)	December 18, 2017	ISRS	13
Total 2017			$ 324

Business Acquisitions	Date Acquired	Segment	Purchase Price[1] (in millions)
2018			
Latitude Engineering, LLC	June 28, 2018	Electronic Systems	$ 15 [4]
Applied Defense Solutions, Inc.	June 29, 2018	ISRS	53 [5]
Azimuth Security and Linchpin Labs	August 31, 2018	ISRS	200 [6]
C.K. Industrial Engineers Limited	September 18, 2018	Electronic Systems	24 [7]
ASV Global, L.L.C.	September 20, 2018	C&NS	94 [8]
Total 2018			$ 386

(1) The purchase price represents the contractual consideration for the acquired business, excluding adjustments for net cash acquired and acquisition transaction costs.

(2) Excludes additional purchase price, not to exceed £30 million (approximately $38 million), which is contingent upon the post-acquisition financial performance of MacH for the three-year period ending December 31, 2019.

(3) Excludes additional purchase price, not to exceed $17 million, which is contingent upon Open Water Power achieving certain post-acquisition milestones for the four-year period ending December 31, 2021.

(4) Excludes additional purchase price, not to exceed $20 million, $15 million of which is based on Latitude Engineering's post-acquisition financial performance for the four-year period ending December 31, 2021, and the remaining $5 million of which is based on Latitude Engineering achieving certain post-acquisition milestones through December 31, 2020.

(5) The purchase price net of cash acquired of approximately $1 million was $52 million.

(6) The purchase price net of cash acquired of approximately $15 million was $185 million and excludes additional purchase price, not to exceed AUD $43 million (approximately $31 million), payable in L3 common stock, based on the combined company's post-acquisition sales for each of the 12-month periods ending June 30, 2019, 2020 and 2021.

(7) The purchase price net of cash acquired of £4 million (approximately $5 million) was £14 million (approximately $19 million).

(8) The purchase price net of cash acquired of approximately $1 million was $93 million.

All of our business acquisitions are included in our consolidated results of operations from their dates of acquisition.

Divestitures. We regularly evaluate potential business divestitures. Summarized below are the divestitures that we have completed during the years ended December 31, 2018, 2017 and 2016. See Note 3 to our audited consolidated financial statements for further information regarding our business divestitures.

2018 Divestitures

As discussed in Note 1 to our audited consolidated financial statements, on June 29, 2018, we completed the sale of our Crestview & TCS Businesses. The assets and liabilities of the Crestview & TCS Businesses were classified as held for sale in our audited consolidated balance sheet at December 31, 2017. The Crestview & TCS Businesses, which were within our ISRS segment, primarily provided aircraft fabrication and assembly of fixed and rotary wing aero structures as well as avionics hardware and software systems to address mission critical needs. The table below presents Crestview & TCS Businesses' results of operations and is included in continuing operations.

	Year Ended December 31, 2018 (in millions)
Net sales	$ 64
Gain on sale of businesses	$ 42
Income from continuing operations before income taxes	$ 45

Crestview & TCS Businesses. The major classes of assets and liabilities included as held for sale related to the Crestview & TCS Businesses are presented in the table below.

	December 31, 2017
	(in millions)
Assets	
Billed receivables	$ 14
Contracts in process	33
Total current assets	47
Property, plant and equipment, net	34
Goodwill	52
Identifiable intangible assets	2
Total assets classified as held for sale	$ 135
Liabilities	
Accounts payable, trade	$ 3
Accrued employment costs	2
Accrued expenses	3
Other current liabilities	5
Total current liabilities	13
Deferred income taxes	4
Total liabilities classified as held for sale	$ 17

Vertex Aerospace. On June 29, 2018, we completed the sale of our Vertex Aerospace business. See "*Discontinued Operations*" above for further discussion of the divestiture and impact on our audited consolidated statements of operations.

2017 Divestitures

During the year ended December 31, 2017, we completed the sales of the CTC Aviation Jet Services Limited (Aviation Jet Services) business, the L3 Coleman Aerospace (Coleman) business and the Display Product Line. The table below presents pre-tax (loss) gain recognized, the proceeds received and net sales included in continuing operations from these divestitures.

	Year Ended December 31, 2017		
	Pre-Tax (Loss) gain	Proceeds Received	Net Sales
	(in millions)		
Aviation Jet Services divestiture	$ (5)	$ 1	$ 1
Coleman divestiture	(3)	17	9
Display Product Line divestiture	4	7	—
Total	$ (4)	$ 25	$ 10

Aviation Jet Services Divestiture. On March 1, 2017, we divested our Aviation Jet Services business for a sales price of £1 million (approximately $1 million). Aviation Jet Services provided non-core aircraft management and operational services as part of commercial training solutions based in the United Kingdom and was included in the Electronic Systems segment.

Coleman Divestiture. On February 24, 2017, we divested our Coleman business for a sales price of $15 million. Coleman provided air-launch ballistic missile targets and was included in the Electronic Systems segment.

Display Product Line Divestiture. On February 23, 2017, we divested our Display Product Line for a sales price of $7 million. The Display Product Line provided cockpits to various military aircraft and was included in the Electronic Systems segment.

2016 Divestitures

NSS. On February 1, 2016, we completed the sale of our NSS segment to CACI International Inc. for a sales price of $547 million.

Critical Accounting Policies

Our significant accounting policies are described in Note 2 to our audited consolidated financial statements. The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP) requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of sales and cost of sales during the reporting period. The most significant of these estimates and assumptions relate to sales, profit and loss recognition for performance obligations satisfied over time, fair values of assets acquired and liabilities assumed in business combinations and investments, market values for inventories reported at lower of cost or market, pension and post-retirement benefit obligations, stock-based employee compensation expense, income taxes, including the valuations of deferred tax assets, litigation reserves, useful lives and valuation of recorded amounts of long-lived assets, identifiable intangible assets and goodwill. Changes in estimates are reflected in the periods during which they become known. Actual amounts may differ from these estimates and could differ materially. We believe that our critical accounting estimates have the following attributes: (1) we are required to make assumptions about matters that are uncertain and require judgment at the time of the estimate, (2) use of reasonably different assumptions could have changed our estimates, particularly with respect to estimates of contract transaction price and total costs at completion, and recoverability of assets, and (3) changes in the estimate could have a material effect on our financial condition or results of operations. We believe the following critical accounting policies contain the more significant judgments and estimates used in the preparation of our financial statements.

Revenue Recognition. Effective January 1, 2018, we adopted ASU 2014-09, *Revenue from Contracts with Customers,* as amended (commonly referred to as ASC 606), using the modified retrospective transition method. The cumulative effect of applying the standard was an increase of $13 million to shareholders' equity as of January 1, 2018. Our statement of operations for the year ended December 31, 2018 and our balance sheet as of December 31, 2018 are presented under ASC 606, while our statements of operations for the years ended December 31, 2017 and 2016 and our balance sheet as of December 31, 2017 are presented under ASC 605, *Revenue Recognition*. See Note 2 to our audited consolidated financial statements for disclosure of the impact of the adoption of ASC 606 on our statement of operations for the year ended December 31, 2018 and balance sheet as of December 31, 2018 and the effect of changes made to our consolidated balance sheet as of January 1, 2018.

A substantial majority of our consolidated net sales are generated from long-term contracts with customers that require us to design, develop, manufacture, modify, upgrade, test and integrate complex aerospace and electronic equipment and to provide engineering and technical services according to the customers' specifications. These contracts are primarily with agencies of, and prime system contractors to, the U.S. Government and foreign governments and are generally priced on a fixed-price, cost-plus or time-and-material type basis. Substantially all of our cost-plus and time-and-material type contracts are with the U.S. Government, primarily the DoD. Certain of our contracts with the U.S. Government are multi-year contracts incrementally funded by the customer. The transaction price for these incrementally funded contracts includes contract value amounts not yet funded by the U.S. Government when we have a firm order for the goods or services and it is probable that the customer will fund such amounts. In assessing probability, we consider, among other factors, the period of time before contract funding is expected, communication from the customer that indicates funding will be obtained and our history of receiving funding under the current contract or previous similar contracts. We also generate sales to a lesser extent from contracts with commercial and government customers for standard product and service offerings, which are priced on a firm fixed basis. See Note 22 to our audited consolidated financial statements for additional information regarding the composition of our net sales.

We record sales for a contract when we have the approval and commitment of all parties, the contract identifies the rights of the parties and payment terms, the contract has commercial substance and collectability of the consideration is probable.

To determine the proper revenue recognition method, we first evaluate each of our contractual arrangements to identify our performance obligations. A performance obligation is a promise in a contract to transfer a distinct good or service to the customer. The majority of our contracts have a single performance obligation because the promise to transfer the individual good or service is not separately identifiable from other promises within the contract and is, therefore, not distinct. These contractual arrangements either require the use of a highly specialized manufacturing process to provide goods according to customer specifications or represent a bundle of contracted goods and services that are integrated and together represent a combined output, which may include the delivery of multiple units. Some of our contracts have multiple performance obligations, primarily (i) related to the provision of multiple goods or services that have alternative use to us or that are not substantially the same or (ii) due to the contract covering multiple phases of the product lifecycle (development and engineering, production, maintenance and support). For contracts with more than one performance obligation, we allocate the total transaction price in an amount based on the estimated relative standalone selling prices underlying each performance obligation. In cases where a contract requires a customized good or service, the primary method used to estimate standalone selling price is the expected cost plus a margin approach. In cases where we sell a standard product or service offering, the standalone selling price is based on an observable standalone selling price.

The majority of our sales are from performance obligations satisfied over time and are primarily with agencies of, and prime system contractors to, the U.S. Government and foreign governments. Sales are recognized over time when control is continuously transferred to the customer during the contract. For U.S. Government contracts, the continuous transfer of control to the customer is supported by contract clauses that provide for: (i) progress or performance-based payments or (ii) the unilateral right of the customer to terminate the contract for its convenience, in which case we have the right to receive payment for costs incurred plus a reasonable profit for products and services that do not have alternative use to us. Foreign government and certain commercial contracts contain similar termination for convenience clauses, or we have a legally enforceable right to receive payment for costs incurred and a reasonable profit for products or services that do not have alternative use to us. Sales on fixed price and cost-plus type contracts that include performance obligations satisfied over time are generally recorded at amounts equal to the ratio of actual cumulative costs incurred divided by total estimated costs at completion, multiplied by (i) the transaction price, less (ii) the cumulative sales recognized in prior periods (cost-to-cost method).

Accounting for the sales and profits on performance obligations for which progress is measured using the cost-to-cost method involves the preparation of estimates of: (1) transaction price and (2) total costs at completion, which is equal to the sum of the actual incurred costs to date on the contract and the estimated costs to complete the contract's statement of work. Incurred costs include labor, material, overhead and, for our U.S. Government contractor businesses, general and administrative (G&A) expenses. Incurred costs represent work performed, which corresponds with and thereby represents the transfer of control to the customer. The estimated profit or loss at completion on a contract is equal to the difference between the transaction price and the total estimated cost at completion. In the case of a contract related to complex aerospace or electronic equipment for which the total estimated costs exceed the total transaction price, a loss arises, and a provision for the entire loss is recorded in the period that the loss becomes evident. The unrecoverable costs on a loss contract that are expected to be incurred in future periods are presented on the balance sheet as a component of other current liabilities entitled "Estimated cost in excess of estimated contract value to complete contracts in process in a loss position." See Note 8 to our audited consolidated financial statements for additional information.

Our contracts give rise to variable consideration, including award and incentive fees, as well as amounts incrementally funded by the U.S. Government, or other provisions that can either increase or decrease the transaction price. Award fees provide for a fee based on actual performance relative to contractually specified performance criteria. Incentive fees provide for a fee based on the relationship between total allowable costs and target costs. Variable consideration may require us to exercise significant judgment to determine the total transaction price of the contract. We include variable consideration in the transaction price when there is a basis to reasonably estimate the variable amount we will be entitled to receive and it is probable that a significant reversal in revenue recognized will not be required when the uncertainty is resolved. These estimates are based on historical experience, current and forecasted performance, and our judgment at the time of the evaluation.

Contract modifications routinely occur to account for changes in contract specifications or requirements. In most cases, contract modifications are for goods or services that are not distinct and, therefore, are accounted for as part of the existing contract. Transaction price estimates include additional consideration for submitted contract modifications or claims when we believe that we have an enforceable right to the modification or claim, the amount can be reliably estimated and its realization is reasonably assured. Amounts representing modifications accounted for as part of the existing contract are included in the transaction price and recognized as an adjustment to sales on a cumulative catch-up basis.

Our fixed-price type contracts with the U.S. Government typically allow for progress payments or performance-based payments. Progress payments are billed to the customer as contract costs are incurred at an amount generally equal to 80% of incurred costs. Performance based payments are billed to the customer upon the achievement of predetermined performance milestones at amounts not to exceed 90% of contract price. On contracts with progress or performance-based payments, the customer often retains a small portion of the contract price until satisfactory completion of the contractual statement of work. Since a small portion of the contract price is retained, we generally recognize sales in excess of billings, which are presented as contract assets on the balance sheet. The portion of the contract price retained by the customer is a normal business practice to ensure satisfactory contract completion and, therefore, is not considered a significant financing component. Contract assets also arise from cost-plus type contracts, time-and-material type contracts and fixed-price services type contracts for revenue amounts that have not been billed by the end of the accounting period due to the timing of preparation of invoices to customers. For certain fixed-price contracts with foreign governments and commercial customers, we receive advance payments. Advanced payments are not considered a significant financing component because they are a negotiated contract term to ensure the customer meets its financial obligation, particularly when there are significant upfront working capital requirements. We record a liability for advance payments received in excess of sales recognized, which is presented as a contract liability on the balance sheet.

Revisions or adjustments to estimates of the transaction price, estimated costs at completion and estimated profit or loss of a performance obligation are often required as work progresses under a contract, as experience is gained, as facts and circumstances change and as new information is obtained, even though the scope of work required under the contract may not change. Revisions or adjustments may also be required if contract modifications occur. The impact of revisions in profit or loss estimates are recognized on a cumulative catch-up basis in the period in which the revisions are made. The revisions in contract estimates, if significant, can materially affect our results of operations and cash flows, as well as reduce the valuations of contract assets, and in some cases result in liabilities to complete contracts in a loss position. Net sales recognized from our performance obligations partially satisfied in prior periods were $264 million for the year ended December 31, 2018 and relate to revisions in contract estimates. The aggregate impact of net changes in contract estimates is presented in the table below.

	Year Ended December 31,		
	2018	2017	2016
	(in millions, except per share data)		
Operating income	$ 213	$ 185	$ 149
Diluted earnings per share	$ 2.03	$ 1.49	$ 1.23

Sales from performance obligations satisfied at a point in time are typically for standard goods and are recognized when the customer obtains control, which is generally upon delivery and acceptance. We also record sales for performance obligations relating to standard services (i.e., maintenance and extended warranties covering standard goods sold by L3) over time by using output measures of time elapsed to measure progress toward satisfying the performance obligation.

Sales on time-and-material type contracts are generally recognized each period based on the amount billable to the customer, which is based on direct labor hours expended multiplied by the contractual fixed rate per hour, plus the actual costs of materials and other direct non-labor costs.

The following table presents a summary of our net sales by revenue recognition method as a percentage of total net sales for the year ended December 31, 2018.

	% of Total Net Sales
Over time (cost-to-cost method)	74%
Point in time	19%
Output method	4%
Billing method	3%
Total	100%

Goodwill and Identifiable Intangible Assets. In accordance with the accounting standards for business combinations, we record the assets acquired and liabilities assumed based on their estimated fair values at the date of acquisition (commonly referred to as the purchase price allocation). Identifiable intangible assets are recognized as assets apart from goodwill if they arise from contractual or other legal rights, or if they are capable of being separated or divided from the acquired business and sold, transferred, licensed, rented or exchanged. However, we do not recognize separate intangible assets for the assembled workforces of our business acquisitions.

Generally, the largest separately identifiable intangible asset from the businesses that we acquire is the value of their assembled workforces, which includes the human capital of the management, administrative, marketing and business development, scientific, engineering and technical employees of the acquired businesses. The success of our businesses, including their ability to retain existing business (revenue arrangements) and to successfully compete for and win new business (revenue arrangements), is primarily dependent on the management, marketing and business development, contracting, engineering and technical skills and knowledge of our employees, rather than on productive capital (plant and equipment, and technology and intellectual property). Additionally, for a significant portion of our businesses, our ability to attract and retain employees who have U.S. Government security clearances, particularly those with top-secret and above clearances, is critical to our success and is often a prerequisite for retaining existing revenue arrangements and pursuing new ones. Generally, patents, trademarks and licenses are not material for our acquired businesses. Furthermore, our U.S. Government contracts (revenue arrangements) generally permit other companies to use our patents in most domestic work performed by such other companies for the U.S. Government. Therefore, because intangible assets for assembled workforces are part of goodwill, the substantial majority of the intangible assets for our acquired business acquisitions are recognized as goodwill. Additionally, the value assigned to goodwill for our business acquisitions also includes the value that we expect to realize from growth expectations and cost reduction measures that we implement for our acquired businesses. Goodwill equals the amount of the purchase price of the business acquired in excess of the sum of the fair value of identifiable acquired assets, both tangible and intangible, less the fair value of liabilities assumed. At December 31, 2018, we had goodwill of $6,808 million and identifiable intangible assets of $390 million.

The most significant identifiable intangible asset that is separately recognized in accordance with U.S. GAAP for our business acquisitions is customer contractual relationships. All of our customer relationships are established through written customer contracts (revenue arrangements). The fair value for customer contractual relationships is determined, as of the date of acquisition, based on estimates and judgments regarding expectations for the estimated future after-tax earnings and cash flows (including cash flows from working capital) arising from the follow-on sales on contract (revenue arrangement) renewals expected from customer contractual relationships over their estimated lives, including the probability of expected future contract renewals and sales, less a contributory asset charge, all of which is discounted to present value. All identifiable intangible assets are amortized over their estimated useful lives as the economic benefits are consumed. We review customer contractual relationships for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable in accordance with the accounting standards for long-lived assets. If any such event or change in circumstances occurs, and, if our revised estimates of future after-tax cash flows are significantly lower than our estimates at the date we acquired the customer contractual relationships, we may be required to record an impairment charge to write-down these intangible assets to their realizable values. We also review and update our estimates of the duration of our customer contractual relationships, at least annually. If our current estimates indicate that the duration of our customer contractual relationships have decreased, then we adjust the remaining amortization period for our customer contractual relationships to their remaining useful economic life.

We review goodwill for impairment annually as of November 30 and whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. The accounting standards for goodwill allow for the assessment of qualitative factors, such as macroeconomic conditions, industry and market conditions and entity relevant events or circumstances, to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. In our latest annual impairment evaluation that occurred as of November 30, 2018, we used the qualitative method of assessing goodwill for all of our identified reporting units. In prior periods, we did not elect to use the qualitative approach to assessing goodwill, and we chose instead to complete the quantitative testing process for each reporting unit.

A reporting unit is an operating segment, as defined by the segment reporting accounting standards, or a component of an operating segment. A component of an operating segment is a reporting unit if the component constitutes a business for which discrete financial information is available and is reviewed by operating segment management. Two or more components of an operating segment may be aggregated and deemed a single reporting unit for goodwill impairment testing purposes if the components have similar economic characteristics.

L3 had 13 reporting units at December 31, 2018 and at November 30, 2018 when our annual goodwill impairment assessment was completed. Our annual impairment tests at November 30, 2018 and 2017 did not result in impairments to goodwill. In addition, the fair value of all of our reporting units exceeded the carrying value of the net assets of those reporting units by more than 50% as of the date of our last quantitative test at November 30, 2017.

L3's aggregate balance of goodwill from continuing operations increased by $193 million to $6,808 million at December 31, 2018 from $6,615 million at December 31, 2017 due to increases of $247 million for business acquisitions, net of divestitures, partially offset by $54 million for foreign currency translation adjustments. The table below presents the number of reporting units and the associated goodwill at December 31, 2018 for each of our reportable segments.

Reportable Segment	**Number of Reporting Units**	**Aggregate Goodwill**
		(in millions)
ISRS	6	$ 2,596
C&NS	3	2,007
Electronic Systems	4	2,205
Total	13	$ 6,808

2018 Impairment Test

As noted above, in our latest annual impairment evaluation that occurred as of November 30, 2018, we used the qualitative method of assessing goodwill for all of our identified reporting units. For each of the reporting units, we determined that it was not more likely than not that the fair values were less than their net book values. In making this determination, we considered several factors, including but not limited to the following:

- the amount by which the fair values of each reporting unit exceeded their carrying values as of the date of the most recent quantitative impairment analysis (November 30, 2017), which indicated there would need to be substantial negative developments in the markets in which these reporting units operate in order for there to be potential impairment;
- the carrying values of these reporting units as of November 30, 2018 compared to the previously calculated fair values as of the date of the most recent quantitative impairment analysis;
- the current forecasts as compared to the forecasts included in the most recent quantitative impairment analysis;
- public information from competitors and other industry information to determine if there were any significant adverse trends in our competitors' businesses, such as significant declines in market capitalization or significant goodwill impairment charges that could be an indication that the goodwill of our reporting units was potentially impaired;
- changes related to U.S. Tax Reform;
- changes in the value of major U.S. stock indices that could suggest declines in overall market stability that could impact the valuation of our reporting units;
- changes in our market capitalization and overall enterprise valuation to determine if there were any significant decreases that could be an indication that the valuation of our reporting units had significantly decreased; and
- whether there had been any significant increases to the weighted-average cost of capital (WACC) rates for each reporting unit, which could materially lower our prior valuation conclusions under a discounted cash flow approach.

As discussed previously, in addition to the annual goodwill impairment assessment, we review goodwill for impairment whenever events or changes in circumstances indicate that the carrying amount of a reporting unit's goodwill may not be recoverable. Accordingly, depending on their outcomes, certain circumstances, such as the ability of the reporting units to: (1) achieve 2019 projected sales, operating income and cash flow and (2) win contract re-competitions and new business pursuits, may require us to review goodwill for impairment prior to the next annual assessment (November 30, 2019).

2017 Impairment Test

In the November 30, 2017 quantitative assessment, to test goodwill for potential impairment, we compared the carrying value of each reporting unit to its fair value. To the extent the carrying value of a reporting unit exceeded its fair value, a goodwill impairment charge would have been recognized. Our methodology for determining the fair value of a reporting unit utilized a discounted cash flow (DCF) valuation approach, and was dependent on estimates for future sales, operating income, depreciation and amortization, income tax payments, working capital changes and capital expenditures, as well as expected long-term growth rates for cash flows. All of these factors are affected by economic conditions related to the industries in which we operate (predominantly the U.S. defense industry), as well as conditions in the U.S. capital markets.

The more significant assumptions used in our DCF valuations to determine the fair values of our reporting units in connection with the goodwill valuation assessment at November 30, 2017 were: (1) detailed three-year cash flow projections for each of our reporting units, (2) the expected long-term cash flow growth rates for each of our reporting units (commonly known as Terminal Growth Rates), which approximate the expected long-term nominal growth rate for the U.S. DoD budget, the U.S. economy and the respective industries in which the reporting units operate, expected inflation rates, and specific circumstances for each reporting unit, including contracts or programs ending and expected new business and (3) risk adjusted discount rates, which represent the WACC for each reporting unit and include the estimated risk-free rate of return that is used to discount future cash flow projections to their present values.

The WACC for each reporting unit was comprised of: (1) an estimated required rate of return on equity, based on publicly traded companies with business and economic risk characteristics comparable to each of L3's reporting units (Market Participants), including a risk free rate of return of 2.65% on the 20-year U.S. Treasury Bond at November 30, 2017 and an equity risk premium of 6% at November 30, 2017, and (2) an after-tax rate of return on Market Participants' debt, which was derived from a selected corporate bond index having a Baa debt rating, consistent with the credit rating of the Market Participants. Each of the estimated required rate of return on equity and the after-tax rate of return on Market Participants' debt is weighted by the relative market value percentages of the Market Participants' equity and debt. The WACC assumptions for each reporting unit are based on a number of market inputs that are outside of our control and are updated annually to reflect changes to such market inputs as of the date of our annual goodwill impairment assessments, including changes to: (1) the estimated required rate of return on equity based on historical returns on common stock of Market Participants and the Standard & Poor's 500 Index over the prior five-year period, (2) the risk free rate of return based on the prevailing market yield on the 20 year U.S. Treasury Bond, (3) the rate of return on corporate bonds having a debt rating consistent with the credit rating of the Market Participants and (4) the relative market value percentages of Market Participants' equity and debt.

The annual cash flows generated by each of our reporting units vary from year to year, and, therefore, the annual cash flow growth rates do not result in linear trends due to a number of factors, including, but not limited to: (1) variability of annual sales volume and sales growth rates, (2) increases and decreases in working capital, including customer advance payments and billings on multi-year contracts (revenue arrangements) with long-term performance periods (exceeding one year), (3) the timing of invoicing and cash collections between fiscal years from receivables due from customers on multi-year contracts (revenue arrangements), (4) the timing of increases and decreases of select inventories procured and produced in anticipation of future product sales, which frequently overlap the ending and beginning of fiscal years, (5) the timing of the receipt of award fee and incentive fee payments from customers on contracts (revenue arrangements), (6) variability in annual cash outlays for research and development costs, (7) changes in cash outlays for capital expenditures for property, plant and equipment and (8) increases in annual sales and costs and expense volumes of a reporting unit resulting from business acquisitions. As a result of the factors discussed above and the varying sizes of our reporting units, the annual cash flow levels and growth rates at the reporting unit level tend to fluctuate significantly from year to year.

We consider several factors to determine expected future annual cash flows for our reporting units, including historical multi-year average cash flow trends by reporting unit and the expected future cash flow growth rates for each of our reporting units primarily based on our estimates of future sales, operating income and working capital changes. Furthermore, the substantial majority of our reporting units are primarily dependent upon the DoD budget and spending. Sales from DoD customers generate a significant portion of our annual sales and have historically represented approximately 66% or more of our total sales. Accordingly, to determine expected future annual cash flows for our reporting units we also consider: (1) the DoD budget and spending priorities, (2) expansion into new markets, (3) changing conditions in existing markets for our products, systems and services, (4) possible termination of certain government contracts, (5) expected success in new business competitions and re-competitions on existing business and (6) anticipated operating margins and working capital requirements, which vary significantly depending on the stage of completion (early, mature, ending) of contracts (revenue arrangements). We closely monitor changes in these factors and their impact on the expected cash flow of our reporting units.

Additionally, our actual cash flows may be higher than our projections, and the DCF valuation does not reflect actions that we may take to increase the profitability and cash flows of our reporting units. Actions we may take include consolidating and streamlining select business operations, creating future synergies with other L3 businesses or pursuing incremental targeted growth opportunities. Additionally, the DCF valuations do not assume future business acquisitions or divestitures.

A decline in the estimated fair value of a reporting unit could result in a goodwill impairment and a related non-cash impairment charge against earnings if the estimated fair value for the reporting unit is less than the carrying value of the net assets of the reporting unit, including its goodwill. A large decline in the estimated fair value of a reporting unit could result in an adverse effect on our financial condition and results of operations.

Pension Plan and Postretirement Benefit Plan Obligations. The obligations for our pension plans and postretirement benefit plans and the related annual costs of employee benefits are calculated based on several long-term assumptions, including discount rates and expected mortality for employee benefit liabilities, rates of return on plan assets, expected annual rates for salary increases for employee participants in the case of pension plans, and expected annual increases in the costs of medical and other health care benefits in the case of postretirement benefit obligations. These long-term assumptions are subject to revision based on changes in interest rates, financial market conditions, expected versus actual returns on plan assets, expected participant mortality and other actuarial assumptions, including future rates of salary increases, benefit formulas and levels, and rates of increase in the costs of benefits. Changes in the assumptions, if significant, could materially affect the amount of annual net periodic benefit costs recognized in our results of operations from one year to the next, the liabilities for the pension plans and postretirement benefit plans, and our annual cash requirements to fund these plans.

Our pension expense for 2019 is expected to decrease by $67 million to $29 million from $96 million in 2018. The expected decrease in our 2019 pension expense is primarily due to the discontinuation or reduction of benefit accruals for future service covering all salaried participants in our domestic pension plans effective January 1, 2019. For pension plans with no benefit accruals for future service, we changed the amortization period for actuarial gains and losses effective January 1, 2019 from the remaining expected service period to the remaining expected lifetime of the plan participants. Other changes in pension expense include a decrease due to an increase in the weighted average discount rate, offset by increases in pension expense due to lower than expected asset returns in 2018 and a 25 basis point decrease in the long-term assumption for returns on U.S. pension plan assets from 8.0% to 7.75%. Our discount rate assumption increased from a weighted average rate of 3.78% at December 31, 2017 to 4.43% at December 31, 2018.

We use a spot rate approach in the measurement of the service and interest cost components of expense for all of our pension and postretirement benefit plans by applying specific spot rates along the yield curve to the relevant projected cash flows. The estimated weighted average discount rates used to measure pension service and interest costs were 3.84% and 3.45% in 2018, respectively, compared to 4.55% and 3.84% in 2017, respectively.

Discount rates are used to determine the present value of our pension obligations and also affect the amount of pension expense in any given period. The discount rate assumptions used to determine our pension and postretirement benefit obligations at December 31, 2018 and 2017 were based on a hypothetical AA yield curve represented by a series of annualized individual discount rates. Each bond issue underlying the yield curve is required to have a rating of AA or better by Moody's Investors Service, Inc. and/or Standard & Poor's. The resulting discount rate reflects the matching of plan liability cash flows to the yield curve. For a sensitivity analysis projecting the impact of a change in the discount rate on our projected benefit obligation and pension expense, see "— Liquidity and Capital Resources — Pension Plans."

Valuation of Deferred Income Tax Assets and Liabilities. At December 31, 2018, we had deferred tax assets of $492 million, a valuation allowance of $14 million and deferred tax liabilities of $669 million. The deferred tax assets included $13 million for loss carryforwards and $4 million for tax credit carryforwards which are subject to various limitations and will expire if unused within their respective carryforward periods. Deferred income taxes are determined separately for each of our tax-paying entities in each tax jurisdiction. The future realization of our deferred income tax assets ultimately depends on our ability to generate sufficient taxable income of the appropriate character (for example, ordinary income or capital gains) within the carryback and carryforward periods available under the tax law and, to a lesser extent, our ability to execute successful tax planning strategies. Based on our estimates of the amounts and timing of future taxable income and tax planning strategies, we believe that we will be able to realize our deferred tax assets, except for certain U.S. Federal, foreign and state net operating losses. A change in the ability of our operations to continue to generate future taxable income, or our ability to implement desired tax planning strategies, could affect our ability to realize the future tax deductions underlying our deferred tax assets, and require us to provide a valuation allowance against our deferred tax assets. The recognition of a valuation allowance would result in a reduction to net income and, if significant, could have a material impact on our effective tax rate, results of operations and financial position in any given period.

Liabilities for Pending and Threatened Litigation. We are subject to litigation, government investigations, proceedings, claims or assessments and various contingent liabilities incidental to our business or assumed in connection with certain business acquisitions. In accordance with the accounting standards for contingencies, we accrue a charge for a loss contingency when we believe it is both probable that a liability has been incurred and the amount of the loss can be reasonably estimated. If the loss is within a range of specified amounts, the most likely amount is accrued, and we accrue the minimum amount in the range if no amount within the range represents a better estimate. Generally, we record the loss contingency at the amount we expect to pay to resolve the contingency and the amount is generally not discounted to the present value. Amounts recoverable under insurance contracts are recorded as assets when recovery is deemed probable. Contingencies that might result in a gain are not recognized until realizable. Changes to the amount of the estimated loss or resolution of one or more contingencies could have a material impact on our results of operations, financial position and cash flows. See Note 19 to our audited consolidated financial statements for further discussion of our litigation matters.

Valuation of Long-Lived Assets. In addition to goodwill and identifiable intangible assets recognized in connection with our business acquisitions, our long-lived assets also include property, plant and equipment, capitalized software development costs for software to be sold, leased or otherwise marketed, and certain long-term investments. At December 31, 2018, the consolidated carrying values of our property, plant and equipment were $1,169 million, capitalized software development costs were $54 million and certain long-term investments were $48 million. At December 31, 2018, the carrying value of our property, plant and equipment represented 9% of total assets, and the carrying value of our capitalized software development costs and certain long-term investments each represented less than 1% of total assets. We review the valuation of our long-lived assets whenever events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable. An impairment loss is recognized when the carrying amount of a long-lived asset exceeds its fair value or net realizable value expected to result from the asset's use and eventual disposition. We use a variety of factors to assess valuation, depending upon the asset. Long-lived assets are evaluated based upon the expected period the asset will be utilized, and other factors depending on the asset, including estimated future sales, profits and related cash flows, estimated product acceptance and product life cycles, changes in technology and customer demand, and the performance of invested companies and joint ventures. Changes in estimates and judgments on any of these factors could have a material impact on our results of operations and financial position.

Results of Operations

The following information should be read in conjunction with our audited consolidated financial statements. Our results of operations for the periods presented are affected by our business acquisitions. See Note 3 to our audited consolidated financial statements for a discussion of our business acquisitions and dispositions.

Consolidated Results of Operations

The table below provides selected financial data, excluding discontinued operations, for the years ended December 31, 2018, 2017 and 2016.

	Year Ended December 31,			Year Ended December 31,		
(in millions, except per share data)	2018	2017	Increase/(decrease)	2017	2016	Increase/(decrease)
Net sales(1)	$ 10,244	$ 9,573	7 %	$ 9,573	$ 9,210	4 %
Operating income(1)	$ 1,120	$ 1,031	9 %	$ 1,031	$ 958	8 %
Less: Gain on sale of the Crestview & TCS businesses	(42)	—	nm	—	—	nm
Plus: Merger and acquisition related expenses	28	—	nm	—	—	nm
Segment operating income	$ 1,106	$ 1,031	7 %	$ 1,031	$ 958	8 %
Operating margin	10.9%	10.8%	10 bpts	10.8%	10.4%	40 bpts
Segment operating margin	10.8%	10.8%	— bpts	10.8%	10.4%	40 bpts
Interest expense	$ (164)	$ (169)	(3) %	$ (169)	$ (164)	3 %
Interest and other income, net	$ 37	$ 9	311 %	$ 9	$ 17	(47) %
Debt retirement charges	$ (69)	$ —	nm	$ —	$ (7)	nm
Effective income tax rate(2)	11.1%	11.7%	nm	11.7%	21.3%	nm
Net income from continuing operations attributable to L3	$ 800	$ 753	6 %	$ 753	$ 619	22 %
Adjusted net income from continuing operations attributable to L3(3)	$ 856	$ 753	14 %	$ 753	$ 623	21 %
Diluted earnings per share from continuing operations	$ 10.05	$ 9.46	6 %	$ 9.46	$ 7.86	20 %
Adjusted diluted earnings per share from continuing operations(3)	$ 10.75	$ 9.46	14 %	$ 9.46	$ 7.91	20 %
Diluted weighted average common shares outstanding	79.6	79.6	— %	79.6	78.8	1 %

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(1) The adoption of ASC 606 resulted in net increases to sales and operating income of approximately $139 million and $27 million, respectively, for the year ended December 31, 2018. Under ASC 606, sales from certain contracts previously accounted for under the units-of-delivery method are recognized earlier in the performance period as costs are incurred as opposed to when the units are delivered under ASC 605. See Note 2 to our audited consolidated financial statements for additional information on the impact by segment.

(2) The effective income tax rate corresponding to adjusted diluted EPS was 10.4% for the year ended December 31, 2018.

(3) Income from continuing operations for the year ended December 31, 2018 includes: (i) debt retirement charges of $69 million ($52 million after income taxes), or $0.66 per diluted share, (ii) a pre-tax gain of $42 million ($19 million after income taxes), or $0.24 per diluted share, related to the divestiture of the Crestview Aerospace and TCS businesses and (iii) merger and acquisition related expenses of $28 million ($23 million after income taxes), or $0.28 per diluted share. Excluding these items, adjusted diluted EPS from continuing operations would have been $10.75 for the year ended December 31, 2018. Income from continuing operations for the year ended December 31, 2016 includes debt retirement charges of $7 million ($4 million after income taxes), or $0.05 per diluted share. Excluding this item, adjusted diluted EPS from continuing operations would have been $7.91 for the year ended December 31, 2016. We believe that the debt retirement charges, the merger and acquisition related expenses and divestiture gains affect the comparability of the results of operations. We also believe that disclosing diluted EPS excluding the debt retirement charges, the merger and acquisition related expenses and divestiture gains is useful to investors as it allows investors to more easily compare results. However, these non-GAAP financial measures may not be defined or calculated by other companies in the same manner.

nm – not meaningful

2018 Compared with 2017

Net Sales: For the year ended December 31, 2018, consolidated net sales of $10,244 million increased $671 million, or 7%, compared to the year ended December 31, 2017. Organic sales increased by $635 million, or 7%, to $10,138 million for the year ended December 31, 2018. Organic sales exclude $106 million of sales increases related to business acquisitions and $70 million of sales declines related to business divestitures. For the year ended December 31, 2018, organic sales to the U.S. Government increased $428 million, or 6%, to $7,072 million, and organic sales to international and commercial customers increased $207 million, or 7%, to $3,066 million.

Sales from products increased by $432 million to $7,165 million for the year ended December 31, 2018, compared to $6,733 million for the year ended December 31, 2017. Product sales represented 70% of consolidated net sales for both of the years ended December 31, 2018 and 2017. The increase in sales from products was due to: (1) $120 million due to increased deliveries of airborne turret systems, primarily to foreign militaries, (2) $118 million for ISR Systems primarily due to the procurement and ISR missionization of business jet aircraft systems for a foreign military customer, the U.S. Air Force (USAF) EC-37B aircraft and the U.S. Missile Defense Agency (MDA) High Altitude Observatory (HALO) aircraft, and higher volume related to special mission aircraft for the U.S. Government, (3) $111 million due to increased deliveries of night vision products, (4) $89 million at Precision Engagement Systems due to increased deliveries and volume on fuzing and ordnance and guidance systems products primarily to the U.S. Army, (5) $84 million increase at Maritime Sensor Systems due to increased volume for new commercial contracts, (6) $47 million for Space Sensor Systems primarily due to higher volume for optical systems, and space electronics and infrared detection products to the U.S. military, (7) $45 million due to increased deliveries for airport screening devices, (8) $23 million due to increased deliveries of electronic warfare countermeasures products, (9) $13 million for Commercial Aviation Solutions due to increased deliveries of air traffic collision avoidance systems and (10) $7 million for Advanced Programs due to increased task order volume on U.S. Government contracts. These increases were partially offset by $201 million of lower production volume for Unmanned Aerial Vehicle (UAV) communication systems for the U.S. DoD and $24 million due to business acquisitions, net of divestitures.

Sales from services increased by $239 million to $3,079 million for the year ended December 31, 2018, compared to $2,840 million for the year ended December 31, 2017. Service sales represented 30% of consolidated net sales for both of the years ended December 31, 2018 and 2017. The increase in sales for services was due to: (1) $69 million at Broadband Communication Systems primarily due to operational and sustainment services on U.S. Army satellite communication systems, (2) $60 million due to business acquisitions, net of divestitures, (3) $32 million due to higher volume for mission management systems, (4) $31 million for Advanced Programs due to increased task order volume on U.S. Government contracts, (5) $28 million for support services on airport screening devices and (6) $19 million due to higher volume related to commercial training and simulation. See reportable segment results below for additional detail.

Cost of Sales: Cost of sales from products increased by $378 million to $5,345 million for the year ended December 31, 2018, compared to $4,967 million for the year ended December 31, 2017. The increase was primarily due to higher products cost of sales of $113 million at Security & Detection Systems, $108 million at ISR Systems, $80 million at Maritime Sensor Systems, $80 million at Precision Engagement Systems, $60 million at Airborne Sensor Systems, $27 million at Space Sensor Systems $14 million at Intelligence & Mission Systems, $12 million at Naval Power Systems, $11 million at Link Training & Simulation, $10 million at Warrior Systems and $4 million at Advanced Programs. These increases were partially offset by $115 million at Broadband Communication Systems and $26 million due to business acquisitions, net of divestitures. These changes are consistent with the change in sales from products described above.

Cost of sales from services increased by $137 million to $2,192 million for the year ended December 31, 2018, compared to $2,055 million for the year ended December 31, 2017. The increase was primarily due to higher services cost of sales of $62 million due to business acquisitions, net of divestitures, $30 million at Commercial Aviation Solutions, $23 million at Advanced Programs, $19 million at Link Training & Simulation, $18 million at ISR Systems and $10 million at Security & Detection Systems. These increases were partially offset by lower cost of sales from services of $25 million at Broadband Communication Systems. These changes are consistent with the change in sales from services described above.

Operating income and operating margin: Consolidated operating income for the year ended December 31, 2018 increased by $89 million, or 9%, compared to the year ended December 31, 2017. Segment operating income for the year ended December 31, 2018 increased by $75 million, or 7%, compared to the year ended December 31, 2017. Segment operating margin was 10.8% for both of the years ended December 31, 2018 and 2017. Favorable contract performance at Electronic Systems was offset by lower manufacturing yields, inventory provisions and unfavorable contract performance for the Traveling Wave Tube (TWT) business in C&NS and higher research and development costs, primarily at ISRS. See the reportable segment results below for additional discussion of sales and operating margin trends.

Interest expense, interest and other (income) expense, net: Interest expense and other for the year ended December 31, 2018 decreased by $33 million, primarily due to lower non-service cost on pension and postretirement benefits.

Effective income tax rate: The effective income tax rate for the year ended December 31, 2018 decreased to 11.1% compared to 11.7% for the same period last year due to a lower U.S. federal statutory tax rate, higher tax benefits related to stock-based compensation and the reversal of previously accrued amounts related to various U.S. Federal, foreign and state tax matters.

Net income from continuing operations attributable to L3 and diluted earnings per share (EPS) from continuing operations: Net income from continuing operations attributable to L3 increased 6% to $800 million for the year ended December 31, 2018, compared to $753 million for the year ended December 31, 2017. Diluted EPS from continuing operations increased 6% to $10.05 for the year ended December 31, 2018, compared to $9.46 for the year ended December 31, 2017. Diluted EPS for the year ended December 31, 2018 included: (1) debt retirement charges of $0.66 per diluted share, (2) merger and acquisition related expenses of $0.28 per diluted share and (3) a gain of $0.24 per diluted share related to divestitures.

Diluted weighted average common shares outstanding: Diluted weighted average common shares outstanding for the year ended December 31, 2018 were substantially unchanged compared to the year ended December 31, 2017.

2017 Compared with 2016

Net Sales: For the year ended December 31, 2017, consolidated net sales of $9,573 million increased $363 million, or 4%, compared to the year ended December 31, 2016. Organic sales increased by $213 million, or 2%, to $9,369 million for the year ended December 31, 2017. Organic sales exclude $204 million of sales increases related to business acquisitions and $54 million of sales declines related to business divestitures. For the year ended December 31, 2017, organic sales to the U.S. Government increased $288 million, or 5%, to $6,642 million, and organic sales to international and commercial customers decreased $75 million, or 3%, to $2,727 million.

Sales from products increased by $280 million to $6,733 million for the year ended December 31, 2017, compared to $6,453 million for the year ended December 31, 2016. Product sales represented 70% of consolidated net sales for both of the years ended December 31, 2017 and 2016. Sales from products increased by: (1) $147 million primarily driven by Broadband Communication Systems due to increased deliveries of secure networked communication systems primarily for the U.S. DoD, (2) $120 million due to business acquisitions, net of divestitures, (3) $98 million for Commercial Aviation Solutions primarily due to higher volume on commercial flight simulators and training systems for the USAF and (4) $73 million for Precision Engagement Systems primarily due to increased deliveries of fuzing and ordnance products and higher volume for guidance and control products to the U.S. Army and U.S. USAF. These increases were partially offset by decreases of (1) $90 million for Aircraft Systems due to lower volume for international aircraft modifications, primarily international head-of-state aircraft and the procurement and delivery of two aircraft for a foreign military customer in 2016 compared to one for the USAF Compass Call Recap in 2017, (2) $43 million due to reduced deliveries for UH-1Y aircraft cabin assemblies and (3) $25 million primarily due to fewer deliveries of enhanced night vision goggle products to the U.S. Army as contracts near completion.

Sales from services increased by $83 million to $2,840 million for the year ended December 31, 2017, compared to $2,757 million for the year ended December 31, 2016. Service sales represented 30% of consolidated net sales for both of the years ended December 31, 2017 and 2016. Sales from services increased primarily by: (1) $37 million for Commercial Aviation Solutions due to increased support services primarily to the USAF, (2) $31 million due to business acquisitions, net of divestitures and (3) $12 million due to higher volume of mission management software upgrades for the USAF. See the reportable segment results below for additional discussion of our segment sales trends.

Cost of Sales: Cost of sales from products increased by $88 million to $4,967 million for the year ended December 31, 2017, compared to $4,879 million for the year ended December 31, 2016. The increase was primarily due to higher products cost of sales of $122 million at Broadband Communication Systems, $112 million due to business acquisitions, net of divestitures, $58 million at Precision Engagement Systems and $32 million at Space Sensor Systems. These increases were partially offset by $94 million at ISR Systems, $65 million at Security & Detection Systems, $38 million at Warrior Systems, $27 million at Aerostructures and $12 million at Airborne Systems. These changes are consistent with the change in sales from products described above.

Cost of sales from services decreased by $31 million to $2,055 million for the year ended December 31, 2017, compared to $2,086 million for the year ended December 31, 2016. The decrease was primarily due to lower services cost of sales of $46 million at ISR Systems, $13 million at Broadband Communication Systems and $8 million at Security & Detection Systems. These decreases were partially offset by higher cost of sales from services of $36 million due to business acquisitions, net of divestitures. These changes are consistent with the change in sales from services described above.

Operating income and operating margin: Operating income for the year ended December 31, 2017 increased by $73 million, or 8%, to $1,031 million, compared to the year ended December 31, 2016. Operating margin increased by 40 basis points to 10.8% for the year ended December 31, 2017, compared to 10.4% for the year ended December 31, 2016. The increase in operating margin was driven by: (1) 70 basis points primarily due to improved contract performance for C&NS and (2) 30 basis points at ISRS for a settlement of the class action litigation and product return allowances recorded in 2016 that did not recur. These increases were partially offset by 60 basis points due to severance and restructuring costs of $59 million, including a $12 million non-cash loss on the sale of a building in ISRS and a $4 million pension curtailment charge in connection with the decision to discontinue future service accruals for substantially all salaried employee defined benefit plans effective January 1, 2019 (Pension Curtailment). See the reportable segment results below for additional discussion of sales and operating margin trends.

Interest expense, interest and other (income) expense, net: Interest expense and other for the year ended December 31, 2017 increased by $13 million primarily due to higher non-service cost on pension and postretirement benefits and higher average interest rates on outstanding debt.

Effective income tax rate: The effective income tax rate for the year ended December 31, 2017 decreased to 11.7% compared to 21.3% for the year ended December 31, 2016. The decrease was driven by: (1) $79 million of estimated tax benefits related to U.S. Tax Reform and (2) $30 million of tax benefits from a realignment of foreign legal entities to conform with our segment reporting structure. These decreases were partially offset by $21 million for the reversal of previously accrued amounts related to various U.S. Federal, foreign and state tax matters in 2016 that did not recur.

Net income from continuing operations attributable to L3 and diluted EPS from continuing operations: Net income from continuing operations attributable to L3 increased 22% to $753 million for the year ended December 31, 2017, compared to $619 million for the year ended December 31, 2016. Diluted EPS from continuing operations increased 20% to $9.46 for the year ended December 31, 2017, compared to $7.86 for the year ended December 31, 2016. Diluted EPS for 2017 included $0.99 of estimated tax benefits related to U.S. Tax Reform.

Diluted weighted average common shares outstanding: Diluted weighted average common shares outstanding for the year ended December 31, 2017 increased by 1% compared to the year ended December 31, 2016, due to changes in the dilutive impact of common share equivalents, primarily caused by a higher L3 stock price.

Reportable Segment Results of Operations

The table below presents selected data by reportable segment reconciled to consolidated totals. The results of operations of the Vertex Aerospace business and the NSS segment sold to CACI International Inc. are classified as discontinued operations for all periods presented. See Note 22 to our audited consolidated financial statements for additional reportable segment data.

	Year Ended December 31,		
	2018	2017	2016
	(dollars in millions)		
Net sales:[1]			
ISRS	$ 4,441	$ 3,995	$ 4,101
C&NS	3,059	3,113	2,897
Electronic Systems	2,744	2,465	2,212
Consolidated net sales	$ 10,244	$ 9,573	$ 9,210
Operating income:			
ISRS	$ 448	$ 348	$ 362
C&NS	282	362	298
Electronic Systems	376	321	298
Total segment operating income	1,106	1,031	958
Gain on sale of the Crestview & TCS businesses	42	—	—
Merger and acquisition related expenses	(28)	—	—
Consolidated operating income	$ 1,120	$ 1,031	$ 958
Operating margin:			
ISRS	10.1 %	8.7%	8.8%
C&NS	9.2 %	11.6%	10.3%
Electronic Systems	13.7 %	13.0%	13.5%
Total segment operating margin	10.8 %	10.8%	10.4%
Gain on sale of the Crestview & TCS businesses	0.4 %	—%	—%
Merger and acquisition related expenses	(0.3)%	—%	—%
Consolidated operating margin	10.9 %	10.8%	10.4%

(1) Net sales are after intercompany eliminations.

ISRS

	Year Ended December 31,			Year Ended December 31,		
	2018	2017	Increase	2017	2016	Decrease
	(dollars in millions)					
Net sales	$ 4,441	$ 3,995	11 %	$ 3,995	$ 4,101	(3) %
Operating income	$ 448	$ 348	29 %	$ 348	$ 362	(4) %
Operating margin	10.1%	8.7%	140 bpts	8.7%	8.8%	(10) bpts

2018 Compared with 2017

ISRS net sales for the year ended December 31, 2018 increased by $446 million, or 11%, compared to the year ended December 31, 2017. Organic sales increased by $469 million, or 12%, compared to the year ended December 31, 2017. Organic sales exclude $37 million of sales increases related to business acquisitions and $60 million of sales declines related to business divestitures. Organic sales increased by: (1) $222 million for ISR Systems primarily due to the procurement and ISR missionization of business jet aircraft systems for a foreign military customer, the USAF EC-37B aircraft and the MDA HALO aircraft, and higher volume related to special mission aircraft for the U.S. Government, (2) $111 million for Warrior Systems due to increased deliveries of night vision products, primarily to foreign military customers, (3) $104 million primarily due to increased deliveries of airborne turret systems, primarily to foreign militaries, (4) $38 million for Advanced Programs primarily due to increased task order volume on U.S. Government contracts, (5) $32 million for Space Sensor Systems primarily due to higher volume for optical systems, and space electronics and infrared detection products to the U.S. military and (6) $27 million for Intelligence & Mission Systems primarily due to increased deliveries of electronic warfare countermeasures products primarily to foreign militaries. These increases were partially offset by lower volume related to international aircraft modifications primarily the Australian Defence Force (ADF) C-27J aircraft.

ISRS operating income for the year ended December 31, 2018 increased by $100 million, or 29%, compared to the year ended December 31, 2017. Operating margin increased by 140 basis points to 10.1%. Operating margin increased by: (1) 120 basis points primarily due to higher volume at Airborne Sensor Systems and Warrior Systems, (2) 40 basis points due to lower pension costs, (3) 40 basis points due to lower severance and restructuring costs, (4) 30 basis points due to improved contract performance primarily at Space Sensor Systems and (5) 30 basis points due to a $12 million loss on the sale of a building during 2017 fourth quarter related to the consolidation of two focal plane array foundries. These increases were partially offset by 120 basis points primarily due to higher research and development costs related to imaging and space investments growth expenses.

2017 Compared with 2016

ISRS net sales for the year ended December 31, 2017 decreased by $106 million, or 3%, compared to the year ended December 31, 2016. Organic sales decreased by $119 million, or 3%, compared to the year ended December 31, 2016. Organic sales exclude $13 million of sales increases related to business acquisitions. Organic sales decreased by: (1) $71 million due to lower volume for large ISR aircraft systems for foreign military customers as contracts near completion, (2) $67 million due to lower volume for international aircraft modifications, primarily international head-of-state aircraft and ADF C-27J aircraft, (3) $58 million due to the procurement and delivery of two aircraft to a foreign military customer in the 2016 second quarter compared to one for the USAF Compass Call Recap in the 2017 fourth quarter and (4) $46 million due to reduced deliveries for UH-1Y aircraft cabin assemblies. These decreases were partially offset by: (1) $79 million primarily due to higher volume for ISR systems to the U.S. Government, (2) $38 million for increased task order volume on U.S. Government contracts and (3) $6 million due to increased deliveries of airborne turret systems to the USAF.

ISRS operating income for the year ended December 31, 2017 decreased by $14 million, or 4%, compared to the year ended December 31, 2016. Operating margin decreased by 10 basis points to 8.7%. Operating margin decreased by: (1) 60 basis points due to severance and restructuring costs of $24 million, (2) 30 basis points due to a $12 million loss on the sale of a building during the 2017 fourth quarter in anticipation of consolidating two focal plane array foundries during 2018 and 2019 and (3) 20 basis points primarily due to unfavorable contract performance adjustments on international aircraft modification contracts at Aircraft Systems. These decreases were partially offset by 70 basis points for a settlement of the class action litigation and product return allowances recorded in 2016 that did not recur at EoTech and 30 basis points due to reserves for excess and obsolete inventory recorded in 2016 that did not recur.

C&NS

	Year Ended December 31,			Year Ended December 31,		
	2018	2017	Decrease	2017	2016	Increase
			(dollars in millions)			
Net sales	$ 3,059	$ 3,113	(2) %	$ 3,113	$ 2,897	7 %
Operating income	$ 282	$ 362	(22) %	$ 362	$ 298	21 %
Operating margin	9.2%	11.6%	(240) bpts	11.6%	10.3%	130 bpts

2018 Compared with 2017

C&NS net sales for the year ended December 31, 2018 decreased by $54 million, or 2%, compared to the year ended December 31, 2017. Organic sales decreased by $81 million, or 3%, compared to the year ended December 31, 2017. Organic sales exclude $27 million of sales increases related to business acquisitions. Organic sales decreased by: (1) $132 million for Broadband Communication Systems primarily due to lower production volume for UAV communication systems for the U.S. DoD and (2) $26 million for Naval Power Systems primarily due to lower volume on the landing craft, air cushion service life extension program. These decreases were partially offset by increased volume for new commercial contracts at Maritime Sensor Systems and higher volume on TWTs for military satellites at Space & Power Systems.

C&NS operating income for the year ended December 31, 2018 decreased by $80 million, or 22%, compared to the year ended December 31, 2017. Operating margin decreased by 240 basis points to 9.2%. Operating margin decreased by 210 basis points primarily due to lower manufacturing yields and unfavorable contract performance primarily at the TWT business in Space & Power Systems, which reduced operating income by $64 million, and 30 basis points primarily due to a $10 million inventory charge in the 2018 fourth quarter for the TWT business.

2017 Compared with 2016

C&NS net sales for the year ended December 31, 2017 increased by $216 million, or 7%, compared to the year ended December 31, 2016. Organic sales increased by $202 million, or 7%, compared to the year ended December 31, 2016. Organic sales exclude $13 million of sales increases related to business acquisitions. Organic sales increased by: (1) $175 million for Broadband Communication Systems due to increased deliveries of secure networked communication systems primarily for the U.S. DoD and (2) $27 million primarily for Naval Power Systems due to higher volume for U.S. Navy power conversion and distribution systems.

C&NS operating income for the year ended December 31, 2017 increased by $64 million, or 21%, compared to the year ended December 31, 2016. Operating margin increased 130 basis points to 11.6%. Improved contract performance, primarily at Broadband Communication Systems and Maritime Sensor Systems, increased operating margin by 240 basis points. These increases were partially offset by 80 basis points due to sales mix changes primarily for Space & Power Systems. Consolidation activities primarily related to the TWT businesses further reduced operating margin by 30 basis points consisting of severance and restructuring costs of $48 million partially offset by a pre-tax gain of $42 million on the sale of the company's property in San Carlos, California in the second quarter of 2017.

Electronic Systems

	Year Ended December 31,			Year Ended December 31,		
	2018	2017	Increase	2017	2016	Increase/(decrease)
			(dollars in millions)			
Net sales	$ 2,744	$ 2,465	11 %	$ 2,465	$ 2,212	11 %
Operating income	$ 376	$ 321	17 %	$ 321	$ 298	8 %
Operating margin	13.7%	13.0%	70 bpts	13.0%	13.5%	(50) bpts

2018 Compared with 2017

Electronic Systems net sales for the year ended December 31, 2018 increased by $279 million, or 11%, compared to the year ended December 31, 2017. Organic sales increased by $247 million, or 10%, compared to the year ended December 31, 2017. Organic sales exclude $42 million of sales increases related to business acquisitions and $10 million of sales declines related to business divestitures. Organic sales increased by: (1) $114 million for Precision Engagement Systems due to increased deliveries and volume on fuzing and ordnance and guidance systems products primarily to the U.S. Army, (2) $68 million for Security & Detection Systems due to increased deliveries for airport screening devices primarily to the U.S. Transportation Security Administration (TSA) and higher volume on an industrial automation control contract for a commercial customer, (3) $35 million primarily for Link Training & Simulation due to higher volume for training systems to the USAF, and (4) $30 million for Commercial Aviation Solutions due to increased deliveries of air traffic collision avoidance systems and higher volume for pilot training services.

Electronic Systems operating income for the year ended December 31, 2018 increased by $55 million, or 17%, compared to the year ended December 31, 2017. Operating margin increased by 70 basis points to 13.7%. Operating margin increased by 180 basis points primarily due to favorable contract performance across all business areas. This increase was partially offset by 110 basis points primarily due to product sales mix changes at Security & Detection Systems.

2017 Compared with 2016

Electronic Systems net sales for the year ended December 31, 2017 increased by $253 million, or 11%, compared to the year ended December 31, 2016. Organic sales increased by $129 million, or 6%, compared to the year ended December 31, 2016. Organic sales exclude $178 million of sales increases related to business acquisitions and $54 million of sales declines related to business divestitures. Organic sales increased by: (1) $135 million for Commercial Aviation Solutions primarily due to higher volume on commercial flight simulators and (2) $80 million for Precision Engagement Systems primarily due to increased deliveries of fuzing and ordnance products and higher volume for guidance and control products to the U.S. Army and USAF. These increases were partially offset by $87 million for Security & Detection due to fewer deliveries for airport screening devices to the U.S. TSA and foreign customers and fewer deliveries of cargo screening devices to foreign customers.

Electronic Systems operating income for the year ended December 31, 2017 increased by $23 million, or 8%, compared to the year ended December 31, 2016. Operating margin decreased by 50 basis points to 13.0%. Operating margin decreased by: (1) 90 basis points primarily due to lower margins related to acquisitions and (2) 50 basis points due to higher severance costs of $13 million. These decreases were partially offset by an increase of 90 basis points due to higher sales volume and mix changes, primarily for Commercial Aviation Solutions and Precision Engagement Systems.

Liquidity and Capital Resources

Anticipated Sources and Uses of Cash Flow

At December 31, 2018, we had total cash and cash equivalents of $1,066 million. While no amounts of the cash and cash equivalents are considered restricted, $308 million of cash was held by our foreign subsidiaries at December 31, 2018. The repatriation of cash held in non-U.S. jurisdictions is subject to local capital requirements. Our primary sources of liquidity are cash flow generated from operations, cash on hand and our five-year unsecured $1 billion revolving credit facility (Credit Facility), which we entered into on October 31, 2016. At December 31, 2018, we had the full availability of our Credit Facility. We generated $1,042 million of net cash from operating activities from continuing operations during the year ended December 31, 2018.

We currently believe that our cash from operating activities generated during the year, together with our cash on hand and available borrowings under our Credit Facility, will be adequate for the foreseeable future to meet our anticipated uses of cash flow, including working capital, capital expenditures, defined benefit plan contributions, commitments, contingencies, research and development expenditures, select business acquisitions (depending on the size), program and other discretionary investments, interest payments, income tax payments and L3 dividends.

Balance Sheet

We made certain presentation changes to our consolidated balance sheet on January 1, 2018 to comply with ASC 606. The components of contracts in process as reported under ASC 605, which included unbilled contract receivables and inventoried contract costs, have been reclassified to contract assets and inventories, respectively, after certain adjustments to comply with ASC 606 presentation requirements. Specifically, the adoption of ASC 606 resulted in an increase in unbilled contract receivables (referred to as contract assets under ASC 606) primarily from converting contracts previously applying the units-of-delivery method to the cost-to-cost method with a corresponding reduction in inventoried contract costs. The remainder of inventoried contract costs, primarily related to work in process not controlled by our customers, were classified to inventories. Additionally, under ASC 606, we capitalize costs to fulfill a contract (i.e., non-recurring costs for contract-related activities that do not transfer a good or service to the customer) and costs to obtain a contract (i.e., commissions paid to third-party agents or representatives) to prepaid expense and other current assets or other assets (non-current). We previously accounted for costs to fulfill a contract either as inventoried contract costs or expensed them as incurred. Costs to obtain a contract were generally expensed as incurred. Advance payments and billings in excess of costs and deferred revenue, previously classified in other current liabilities, have been combined and are presented as contract liabilities.

Billed receivables increased by $196 million to $919 million at December 31, 2018, from $723 million at December 31, 2017, primarily due to the timing of billings and collections for Airborne Sensor Systems, Security & Detection Systems, Link Training & Simulation and ISR Systems, and $10 million from acquisitions, partially offset by $11 million for foreign currency translation adjustments.

Contract assets increased by $241 million to $1,590 million at December 31, 2018, from $1,349 million at January 1, 2018, primarily due to sales exceeding billings for Commercial Aviation Solutions, ISR Systems, Space & Power Systems, Warrior Sensor Systems and Space & Sensor Systems and $5 million from acquisitions, partially offset by $10 million for foreign currency translation adjustments.

Inventories increased by $490 million to $879 million at December 31, 2018 from $389 million at December 31, 2017, primarily due to $537 million from reclassifications related to the adoption of ASC 606, partially offset by a $47 million decrease in inventories primarily due to inventory provisions and completed contracts for the TWT business.

The increase in prepaid expenses and other current assets was primarily due to milestone payments (deposits) to OEM's for aircraft procurements related to U.S. and foreign government contracts at ISR Systems.

The increase in net property, plant and equipment (PP&E) was primarily due to capital expenditures and $14 million of acquired PP&E from completed business acquisitions, primarily ASV Global and fair value purchase price allocation adjustments for Doss Aviation, partially offset by depreciation expense.

Goodwill increased by $193 million to $6,808 million at December 31, 2018 from $6,615 million at December 31, 2017. The table below presents the changes in goodwill by segment.

	ISRS	C&NS	Electronic Systems	Consolidated Total
	(in millions)			
December 31, 2017	$ 2,458	$ 1,962	$ 2,195	$ 6,615
Business acquisitions[1]	158	56	33	247
Foreign currency translation adjustments	(20)	(11)	(23)	(54)
December 31, 2018	$ 2,596	$ 2,007	$ 2,205	$ 6,808

(1) Business acquisitions for the ISRS segment included the acquisitions of the Azimuth Security and Linchpin Labs and Applied Defense Solutions businesses and the purchase price allocation adjustments for the Kigre business acquisition. Business acquisitions for the C&NS segment included the acquisitions of the ASV Global business and purchase price allocation adjustments for the Adaptive Methods business acquisition. Business acquisitions for the Electronic Systems segment included the acquisitions of the Latitude Engineering and C.K. Industrial Engineers businesses and purchase price allocation adjustments for the G-Air and Doss Aviation business acquisitions.

The increase in identifiable intangible assets was primarily due to $151 million of intangible assets recognized for the Azimuth Security and Linchpin Labs, ASV Global, Applied Defense Solutions, C.K. Industrial Engineers and Latitude Engineering business acquisitions and purchase price allocation adjustments for Doss Aviation, partially offset by amortization expense and by $4 million for foreign currency translation adjustments.

The increase in other assets from January 1, 2018 was primarily due to investments in nonconsolidated affiliates made during the year ended December 31, 2018.

The increase in accounts payable and accrued expenses was primarily due to the timing of when invoices for purchases from third party vendors and subcontractors were received and payments were made.

Deferred income taxes increased primarily due to the amortization of certain goodwill and other identifiable assets for tax purposes.

Pension Plans

L3 maintains defined benefit pension plans covering approximately 22% of employees. At December 31, 2018, L3's projected benefit obligation (PBO), which includes accumulated benefits plus the incremental benefits attributable to projected future salary increases for covered employees, was $3,937 million and exceeded the fair value of L3's pension plan assets of $2,840 million by $1,097 million. At December 31, 2017, L3's PBO was $4,228 million and exceeded the fair value of L3's pension plan assets of $3,047 million by $1,181 million. The $84 million decrease in our unfunded status was primarily due to the increase in our weighted average discount rate from 3.78% at December 31, 2017 to 4.43% at December 31, 2018, partially offset by an increase in our unfunded status due to a decrease in plan asset balances caused by negative asset returns.

The expected long-term return on plan assets assumption represents the average rate that we expect to earn over the long-term on the assets of our benefit plans, including those from dividends, interest income and capital appreciation, net of investment management fees. We utilize a third party consultant to assist in the development of the expected long-term return on plan assets, which is based on expectations regarding future long-term rates of return for the plans' investment portfolio, with consideration given to the allocation of investments by asset class and historical and forward looking rates of return for each individual asset class. With respect to the determination of our expected long-term return on plan assets assumption for the year ended December 31, 2018, we considered: (1) a 20-year forward looking return on plan assets as developed with the assistance of our third party consultant, which is currently 7.56% for our U.S. plans and 7.25% for our Canadian plans, and (2) our historical returns. While we review historical rates of return on our plan assets, the substantial volatility in any one year can result in historical data that is less indicative of future returns. Accordingly, we give greater consideration toward forward looking returns in developing our expected long-term return on plan assets assumption. In reviewing our historical returns, we noted that the average annual return on our U.S. pension plan assets over the period since L3's formation in 1997 through 2017, net of investment management fees and determined on an arithmetic basis, was 7.42%. Arithmetic annual averages represent the simple average returns over independent annual periods. In addition, the actual annual returns have exceeded our long-term return on plan assets assumption in 13 of the past 21 years since L3's formation. The long-term return on plan assets assumption of 8.00% for our U.S. plans and 7.25% for our Canadian plans did not change. Based on the forward looking and historical returns on our plan assets discussed above and an allotment for active management, we believe our weighted average long-term return on plan assets assumption in 2018 of 7.92% was within a reasonable range.

We recorded net actuarial gains of $3 million in the year ended December 31, 2018, which is included in the accumulated other comprehensive loss component of shareholders' equity. Actuarial gains and losses in a period represent the difference between actual and actuarially assumed experience, primarily due to discount rates and pension plan asset returns. Actuarial gains and losses that our pension plans experience are not recognized in pension expense in the year incurred, but rather are recorded as a component of accumulated other comprehensive income (loss). The accumulated gains and losses in excess of a corridor, defined as the greater of 10% of the fair value of a plan's assets and 10% of its projected benefit obligation, are amortized to pension expense in future periods over the estimated average remaining service periods of the covered employees or the estimated remaining lifetime of the plan participants. See Note 20 to our audited consolidated financial statements for additional information regarding our pension plans.

Our pension expense for 2018 was $96 million. We currently expect pension expense for 2019 to decrease by $67 million to approximately $29 million primarily due to the discontinuation or reduction of benefit accruals for future service covering all salaried participants in our domestic pension plans effective January 1, 2019. Other changes in pension expense include a decrease due to an increase in the weighted average discount rate, offset by increases in pension expense due to lower than expected asset returns in 2018 and a 25 basis point decrease in the long-term assumption for returns on U.S. pension plan assets from 8.0% to 7.75%.

Our pension expense for 2019 may be different from our current expectations when finalized due to a number of factors, including the effect of any future business acquisitions and divestitures for which we assume liabilities for pension benefits, changes in headcount at our businesses that sponsor pension plans, actual pension plan contributions and changes (if any) to our pension assumptions for 2019, including the discount rate, mortality rates, expected long-term return on plan assets and salary increases.

Our cash pension contributions for 2018 were $96 million, and we currently expect to contribute approximately $80 million to our pension plans in 2019. Actual 2019 pension contributions could be affected by changes in the funded status of our pension plans during 2019. A substantial portion of our pension plan contributions for L3's businesses that are U.S. Government contractors are recoverable as allowable indirect contract costs at amounts generally equal to the annual pension contributions.

Our projected benefit obligation and annual pension expense are significantly affected by, holding all other assumptions constant, certain actuarial assumptions. The following table illustrates the sensitivity of a change in certain assumptions for our pension plans and resulting increase (decrease) to the 2019 expected pension expense and PBO at December 31, 2018.

	Effect on 2019 Pension Expense	Effect on December 31, 2018 PBO
	(in millions)	
25 basis point decrease in discount rate	$ 6	$ 138
25 basis point increase in discount rate	(6)	(130)
25 basis point decrease in expected return on assets	7	N/A
25 basis point increase in expected return on assets	(7)	N/A

Statement of Cash Flows

The table below provides a summary of our cash flows from (used in) operating, investing and financing activities for the periods indicated.

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Net cash from operating activities from continuing operations	$ 1,042	$ 985	$ 1,022
Net cash used in investing activities from continuing operations	(91)	(453)	(10)
Net cash used in financing activities from continuing operations	(520)	(366)	(856)

Operating Activities — Continuing Operations

2018 Compared with 2017. We generated $1,042 million of cash from operating activities during the year ended December 31, 2018, an increase of $57 million compared with $985 million generated during the year ended December 31, 2017. The increase was primarily due to higher operating income partially offset by higher working capital requirements, primarily contract assets and milestone payments for aircraft procurements related to U.S. and foreign government contracts. The net cash from changes in operating assets and liabilities is further discussed above under “Balance Sheet.”

2017 Compared with 2016. We generated $985 million of cash from operating activities during the year ended December 31, 2017, a decrease of $37 million compared with $1,022 million generated during the year ended December 31, 2016. The decrease was primarily driven by higher income tax payments.

Interest Payments. Our cash from operating activities included interest payments on debt of $183 million for the year ended December 31, 2018, $165 million for the year ended December 31, 2017 and $162 million for the year ended December 31, 2016. Our interest expense also included amortization of deferred debt issuance costs and bond discounts, which are non-cash items.

Investing Activities — Continuing Operations

During 2018, we used $91 million of cash in investing activities, which included $535 million of cash received from the sale of Vertex Aerospace and Crestview & TCS Businesses, partially offset by acquisitions of Azimuth Security and Linchpin Labs for $185 million (net of cash acquired), ASV Global for $93 million, Applied Defense Solutions for $52 million, C.K. Industrial Engineers for $24 million and Latitude Engineering for $15 million. Furthermore, we used cash of $232 million for capital expenditures and $30 million from investments in nonconsolidated affiliates, primarily Peak Nano.

During 2017, we used $453 million of cash in investing activities, which included $316 million for business acquisitions discussed above under “Business Acquisitions and Divestitures” and $224 million for capital expenditures, partially offset by $74 million of cash generated primarily from the sale of the property in San Carlos, California and $18 million from business divestitures.

During 2016, we used $10 million of cash in investing activities, which included $388 million for business acquisitions discussed above under “Business Acquisitions and Divestitures” and $210 million for capital expenditures, partially offset by $561 million of cash received from business divestitures (primarily NSS).

Financing Activities — Continuing Operations

Debt

At December 31, 2018, total outstanding debt was $3,321 million, compared to $3,330 million at December 31, 2017, all of which was senior debt. The decrease was due to the completion of our tender offers for $1,215 million and our redemptions for $581 million in carrying value of the 2019 Senior Notes and 2020 Senior Notes, partially offset by the issuance of $1,782 million of the 2023 Senior Notes and 2028 Senior Notes. See tables below for additional details. At December 31, 2018, there were no borrowings or letters of credit outstanding under our Credit Facility. Accordingly, we had the full availability of our $1 billion facility for future borrowings. We also had $410 million of outstanding standby letters of credit with financial institutions covering performance and financial guarantees per contractual requirements with certain customers at December 31, 2018. These standby letters of credit may be drawn upon in the event that we do not perform on certain of our contractual requirements. At December 31, 2018, our outstanding debt matures between February 15, 2021 and June 15, 2028. See Note 10 to our audited consolidated financial statements for the components of our debt at December 31, 2018.

We consider our credit rating as an important element of our capital allocation strategy, and, while no assurances can be given, we intend to maintain our investment grade credit rating. Effective October 16, 2018, our senior unsecured credit rating from both Standard and Poor’s and Fitch Ratings of BBB- was placed on CreditWatch Positive. Our senior unsecured credit rating from Moody’s Investors Service remains at Baa3 with a stable outlook.

Issuance of Senior Notes

In connection with debt refinancing, on June 6, 2018, L3 issued two series of senior notes, which are unsecured senior obligations of L3. The terms of each series of senior notes are presented in the table below.

Note	Date of Issuance		Amount Issued		Discount[1]		Net Cash Proceeds[2]	Effective Interest Rate	Redemption at Treasury Rate[3][4]
						(dollars in millions)			
3.85% Senior Notes due June 15, 2023 (the 2023 Notes)	June 6, 2018	$	800	$	2	$	792	3.89%	20 bps
4.40% Senior Notes due June 15, 2028 (the 2028 Notes)	June 6, 2018	$	1,000	$	1	$	990	4.41%	25 bps

(1) Bond discounts are recorded as a reduction to the principal amount of the notes and are amortized as interest expense over the term of the notes.

(2) The net cash proceeds of $1,782 million (after deduction of the discount, underwriting expenses and commissions and other related expenses) plus cash on hand were used to fund the concurrent cash tender offers (the Tender Offers) for any and all of $1 billion aggregate principal amount of the 2019 Notes and $800 million aggregate principal amount of the 2020 Notes and any related redemption of notes not tendered in the Tender Offers.

(3) The 2023 Notes may be redeemed at any time prior to May 15, 2023 (one month prior to maturity), and the 2028 Notes may be redeemed at any time prior to March 15, 2028 (three months prior to maturity), at the option of L3, in whole or in part, at a redemption price equal to the greater of: (i) 100% of the principal amount, or (ii) the present value of the remaining principal and interest payments discounted to the date of redemption, on a semi-annual basis, at the Treasury Rate (as defined in the indentures governing the senior notes), plus the spread indicated in the table above. In addition, if the 2023 Notes and the 2028 Notes are redeemed at any time on or after May 15, 2023 and March 15, 2028, respectively, the redemption price would be equal to 100% of the principal amount.

(4) Upon the occurrence of a change in control (as defined in the indentures governing the senior notes) along with a "change of control triggering event" (generally described as the applicable series of senior notes ceasing to be rated investment grade, as defined in the indentures governing the senior notes), each holder of the notes will have the right to require L3 to repurchase all or any part of such holder's notes at an offer price in cash equal to 101% of the aggregate principal amount plus accrued and unpaid interest, if any, to the date of purchase.

Repurchases, Redemptions, and Maturities of Senior Notes

The repurchases, redemptions and maturities of senior notes are presented in the table below. See Note 10 to our audited consolidated financial statements for additional information on the redemption provisions of our outstanding senior notes.

Note	Settlement Type	Date Settled		Aggregate Amount	Premium		Cash Payments		Interest		Total Cash Payments		Debt Retirement Charge
							(dollars in millions)						
5.20% Senior Notes due 2019 [1]	Redemption	July 6, 2018	$	317	103.048%	$	327	$	4	$	331	$	10
4.75% Senior Notes due 2020 [1]	Redemption	July 6, 2018	$	265	103.818%	$	275	$	6	$	281	$	11
5.20% Senior Notes due 2019 [2]	Tender Offer	June 6, 2018	$	683	103.282%	$	705	$	5	$	710	$	24
4.75% Senior Notes due 2020 [2]	Tender Offer	June 6, 2018	$	535	104.092%	$	557	$	10	$	567	$	24
1.50% Senior Notes due 2017	Redemption	December 30, 2016	$	350	100.323%	$	351	$	1	$	352	$	2
3.95% Senior Notes due 2016	Maturity	November 15, 2016	$	200	100.000%	$	200	$	—	$	200	$	—
3.95% Senior Notes due 2016	Redemption	May 20, 2016	$	300	101.475%	$	305	$	—	$	305	$	5

(1) The debt retirement charge includes $1 million which represents the non-cash retirement of associated unamortized debt issue costs and discounts.

(2) Cash payments exclude $1 million of tender offer fees. The debt retirement charge includes $1 million of tender offer fees and $3 million which represents the non-cash retirement of associated unamortized debt issue costs and discounts.

Debt Covenants and Other Provisions. The Credit Facility and senior notes contain financial and/or other restrictive covenants. See Note 10 to our audited consolidated financial statements for a description of our debt, related financial covenants and cross default provisions. We were in compliance with our financial and other restrictive covenants at December 31, 2018.

Guarantees. The borrowings under the Credit Facility are fully and unconditionally guaranteed by L3 and by substantially all of the material 100% owned domestic subsidiaries of L3 on an unsecured senior basis. The payment of principal and premium, if any, and interest on the senior notes is fully and unconditionally guaranteed, jointly and severally, by L3's material 100% owned domestic subsidiaries that guarantee any of its other indebtedness. The guarantees of the Credit Facility and the senior notes rank pari passu with each other.

Equity

During 2018 and 2017, L3's Board of Directors authorized the following quarterly cash dividends:

Date Declared	Record Date	Cash Dividend Per Share	Total Cash Dividends Declared (in millions)	Date Paid
2018				
February 12	March 1	$ 0.80	$ 63 [1]	March 15
May 8	May 18	$ 0.80	$ 63 [1]	June 15
July 10	August 17	$ 0.80	$ 63 [1]	September 17
October 22	November 16	$ 0.80	$ 64 [1]	December 17
2017				
February 13	March 1	$ 0.75	$ 59 [2]	March 15
May 9	May 19	$ 0.75	$ 59 [2]	June 15
July 19	August 17	$ 0.75	$ 59 [2]	September 15
October 17	November 17	$ 0.75	$ 59 [2]	December 15

(1) During the year ended December 31, 2018, we paid $254 million of cash dividends, offset by a $1 million net reduction of previously accrued dividends for employee-held stock awards.

(2) During the year ended December 31, 2017, we paid $236 million of cash dividends. Payments of previously accrued dividends for employee held stock awards were offset by accrued dividends to be paid in future periods.

L3 repurchased $322 million, or 1.6 million shares, of its common stock during the year ended December 31, 2018, $180 million, or 1.0 million shares, of its common stock during the year ended December 31, 2017 and $373 million, or 3.0 million shares, of its common stock during the year ended December 31, 2016.

L3 did not repurchase any shares of common stock from September 29, 2018 through February 14, 2019. The last repurchase of shares was in July 2018. In connection with the planned merger with Harris Corporation, L3 suspended the share repurchase program.

On February 12, 2019, L3 announced that its Board of Directors increased L3's regular quarterly cash dividend from $0.80 per share to $0.85 per share, or 6%, payable on March 15, 2019, to shareholders of record at the close of business on March 1, 2019.

On February 14, 2019, the number of holders of record of L3's common stock was approximately 200,573 and the closing price of L3's common stock as reported by the NYSE was $209.04 per share.

Contractual Obligations

The table below presents our estimated total contractual obligations from our continuing operations at December 31, 2018, including the amounts expected to be paid or settled for each of the periods indicated below.

		Payments due by Period			
	Total	Less than 1 year	1 – 3 years	3 – 5 years	More than 5 years
			(in millions)		
Contractual Obligations					
Debt[1]	$ 3,350	$ —	$ 650	$ 800	$ 1,900
Interest payments[2]	883	142	268	204	269
Non-cancelable operating leases[3]	968	114	214 [4]	136	504
Notes payable and capital lease obligations	44	4	3	7	30
Purchase obligations[5]	1,971	1,798	156	5	12
Other long-term liabilities[6]	215	88 [7]	78	12	37
Total[8]	$ 7,431	$ 2,146	$ 1,369	$ 1,164	$ 2,752

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(1) Represents principal amount of debt and only includes scheduled principal payments.

(2) Represents expected interest payments on L3's debt balance at December 31, 2018 using the stated interest rate on our fixed rate debt, assuming that current borrowings remain outstanding to the contractual maturity date.

(3) Non-cancelable operating leases are presented net of estimated sublease rental income.

(4) Includes the residual value guarantee for three real estate lease agreements, expiring on August 31, 2020, that are accounted for as operating leases. We have the right to exercise options under the lease agreements to renew the leases, to purchase the properties for $45 million or sell the properties on behalf of the lessor. If we elect to sell the properties, we must pay the lessor a residual value guarantee of $39 million. See Note 19 to our audited consolidated financial statements for a further description of these leases.

(5) Represents open purchase orders at December 31, 2018 for amounts expected to be paid for goods or services that are legally binding.

(6) Other long-term liabilities primarily consist of workers compensation and deferred compensation for the years ending December 31, 2020 and thereafter and also include pension and postretirement benefit plan contributions that we expect to pay in 2019.

(7) Our pension and postretirement benefit plan funding policy is generally to contribute in accordance with cost accounting standards that affect government contractors, subject to the Internal Revenue Code and regulations thereon. For 2019, we expect to contribute approximately $80 million to our pension plans and approximately $8 million to our postretirement benefit plans. Due to the current uncertainty of the amounts used to compute our expected pension and postretirement benefit plan funding, we believe it is not practicable to reasonably estimate such future funding for periods in excess of one year, and we may decide or be required to contribute more than we expect to our pension and postretirement benefit plans.

(8) Excludes unrecognized tax benefits in connection with uncertain tax positions taken, or expected to be taken, on our income tax returns as of December 31, 2018 since we cannot determine the time period of future tax consequences. For additional information regarding income taxes, see Note 17 to our audited consolidated financial statements.

We also may enter into industrial cooperation agreements, sometimes referred to as offset agreements, as a condition to obtaining orders for our products and services from certain customers in foreign countries. These agreements are designed to enhance the social and economic environment of the foreign country by requiring the contractor to promote investment in the country. Offset agreements may be satisfied through activities that do not require us to use cash, including transferring technology, providing manufacturing and other consulting support to in-country projects and the purchase by third parties of supplies from in-country vendors. These agreements also may be satisfied through our use of cash for such activities as purchasing supplies from in-country vendors, providing financial support for in-country projects, establishment of ventures with local companies and building or leasing facilities for in-country operations. We typically do not commit to offset agreements until orders for our products or services are definitive. The amounts ultimately applied against our offset agreements are based on negotiations with the customer and typically require cash outlays that represent only a fraction of the original amount in the offset agreement. The costs to satisfy our offset obligations are included in the estimates of our total costs to complete the contract and may impact our profitability and cash flows. The ability to recover investments that we make are generally dependent upon the successful operation of ventures that we do not control and may involve products and services that are dissimilar to our business activities. At December 31, 2018, the remaining obligations under our outstanding offset agreements totaled $1.0 billion, which primarily relate to our ISRS segment, some of which extend through 2028. To the extent we have entered into purchase obligations at December 31, 2018 that also satisfy offset agreements, those amounts are included in the preceding table. Offset programs usually extend over several years and may provide for penalties, estimated at approximately $84 million at December 31, 2018, in the event we fail to perform in accordance with offset requirements. While historically we have not been required to pay material penalties, resolution of offset requirements are often the result of negotiations and subjective judgments.

Off Balance Sheet Arrangements

The table below presents our estimated total contingent commitments and other guarantees at December 31, 2018, including the amounts expected to be paid or settled for each of the periods indicated below.

	Total	Commitment Expiration by Period 2019	2020 - 2021	2022 - 2023	2024 and thereafter
			(in millions)		
Contingent Commitments					
Other standby letters of credit[1]	$ 410	$ 291	$ 99	$ 14	$ 6
Total[2][3][4]	$ 410	$ 291	$ 99	$ 14	$ 6

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(1) Represents outstanding letters of credit with financial institutions covering performance and financial guarantees per contractual requirements with certain customers. These letters of credit may be drawn upon in the event of L3's nonperformance.

(2) The total amount does not include residual value guarantees for three real estate lease agreements, expiring on August 31, 2020, that are accounted for as operating leases. We have the right to exercise options under the lease agreements to purchase both properties for $45 million on or before August 31, 2020. See Note 19 to our audited consolidated financial statements for a further description of these leases.

(3) The total amount does not include the fair value of the contingent consideration liability for the future potential earn-out payments related to the MacH, Open Water Power and Latitude Engineering acquisitions. See Note 13 to our audited consolidated financial statements for additional information on the fair value of the contingent consideration.

(4) The total does not include future minimum payments under non-cancelable operating leases. See Note 19 to our audited consolidated financial statements for a further description of these leases.

Legal Proceedings and Contingencies

We are engaged in providing products and services under contracts with the U.S. Government and, to a lesser degree, under foreign government contracts, some of which are funded by the U.S. Government. All such contracts are subject to extensive legal and regulatory requirements, and, periodically, agencies of the U.S. Government investigate whether such contracts were and are being conducted in accordance with these requirements. Under U.S. Government procurement regulations, an indictment by a federal grand jury, or an administrative finding against us as to our present responsibility to be a U.S. Government contractor or subcontractor, could result in suspension for a period of time from eligibility for awards of new government contracts or task orders or in a loss of export privileges, and could have a material adverse effect on our results of operations and cash flows. A conviction, or an administrative finding that satisfies the requisite level of seriousness, could result in debarment from contracting with the federal government for a specified term and could have a material adverse effect on our results of operations and cash flows. We are currently cooperating with the U.S. Government on several investigations, none of which we anticipate will have a material adverse effect on our results of operations or cash flows. Also, we have been periodically subject to litigation, government investigations, proceedings, claims or assessments and various contingent liabilities incidental to our business. We accrue for these contingencies when it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. For a description of our legal proceedings and contingencies, see Note 19 to our audited consolidated financial statements.

We continually assess our obligations with respect to applicable environmental protection laws. While it is difficult to determine the timing and ultimate cost that we will incur to comply with these laws, based upon available internal and external assessments, with respect to those environmental loss contingencies of which we are aware, we believe that even without considering potential insurance recoveries, if any, there are no environmental loss contingencies that, in the aggregate, would be material to our consolidated financial position, results of operations or cash flows.

Derivative Financial Instruments and Other Market Risk

Included in our derivative financial instruments are foreign currency forward contracts. All of our derivative financial instruments that are sensitive to market risk are entered into for purposes other than trading.

Interest Rate Risk. Our Credit Facility is subject to variable interest and is therefore sensitive to changes in interest rates. The interest rates on the senior notes are fixed-rate and are not affected by changes in interest rates. Additional data on our debt obligations and our applicable borrowing spreads included in the interest rates we would pay on borrowings under the Credit Facility, if any, are provided in Note 10 to our audited consolidated financial statements.

Foreign Currency Exchange Risk. Our U.S. and foreign businesses enter into contracts with customers, subcontractors or vendors that are denominated in currencies other than their functional currencies. To protect the functional currency equivalent cash flows associated with certain of these contracts, we enter into foreign currency forward contracts, which are generally designated and accounted for as cash flow hedges. At December 31, 2018, our foreign currency forward contracts had maturities ranging through 2023, a notional value of $415 million and a corresponding net fair value that was a liability of $16 million.

Accounting Standards Issued and Not Yet Implemented

For a discussion of accounting standards issued and not yet implemented, see Note 2 to our audited consolidated financial statements.

Inflation

The effect of inflation on our sales and earnings has not been significant. Although a majority of our sales are made under long-term contracts (revenue arrangements), the selling prices of such contracts, established for deliveries in the future, generally reflect estimated costs to be incurred in these future periods. In addition, some of our contracts provide for price adjustments through cost escalation clauses.

Forward-Looking Statements

Certain of the matters discussed concerning our operations, cash flows, financial position, economic performance and financial condition, including in particular, the likelihood of our success in developing and expanding our business and the realization of sales from backlog, include forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act.

All statements other than historical facts may be forward-looking statements, such as “may,” “will,” “should,” “likely,” “projects,” “expects,” “anticipates,” “intends,” “plans,” “believes,” “estimates,” and similar expressions are used to identify forward-looking statements. We caution investors that these statements are subject to risks and uncertainties many of which are difficult to predict and generally beyond our control that could cause actual results to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. Some of the factors that could cause actual results to differ include, but are not limited to, the following: the occurrence of any event, change or other circumstances that could give us or Harris the right to terminate the definitive merger agreement between us and Harris; the outcome of any legal proceedings that have been or may be instituted against us, Harris or our respective directors with respect to the merger; the risk that we or Harris may not obtain the required stockholder approvals on the expected schedule or at all; the ability to obtain regulatory approvals and satisfy other closing conditions to the merger in a timely manner or at all, including the risk that regulatory approvals required for the merger are not obtained or are obtained subject to conditions that are not anticipated; delay in closing the merger; difficulties and delays in integrating our business with Harris business or fully realizing anticipated cost savings and other benefits; business disruptions from the proposed merger that may harm our business or Harris business, including current plans and operations; any announcement relating to the proposed transaction could have adverse effects on our ability or the ability of Harris to retain and hire key personnel or maintain relationships with suppliers and customers, including the U.S. government and other governments, or on our or Harris operating results and businesses generally; the risk that the announcement of the proposed transaction could have adverse effects on the market price of our common stock or Harris common stock and the uncertainty as to the long-term value of the common stock of the combined company following the merger; certain restrictions during the pendency of the merger that may impact our ability or the ability of Harris to pursue certain business opportunities or strategic transactions; the business, economic and political conditions in the markets in which we and Harris operate; our dependence on the defense industry; backlog processing and program slips resulting from delayed awards and/or funding from the DoD and other major customers; the U.S. Government fiscal situation; changes in DoD budget levels and spending priorities; our reliance on contracts with a limited number of customers and the possibility of termination of government contracts by unilateral government action or for failure to perform; the extensive legal and regulatory requirements surrounding many of our contracts; our ability to retain our existing business and related contracts; our ability to successfully compete for and win new business, or, identify, acquire and integrate additional businesses; our ability to maintain and improve our operating margin; the availability of government funding and changes in customer requirements for our products and services; the consequences of geo-political events, including Brexit; the outcome of litigation matters; results of audits by U.S. Government agencies and of ongoing governmental investigations; our significant amount of debt and the restrictions contained in our debt agreements and actions taken by rating agencies that could result in a downgrade of our debt; our ability to continue to recruit, retain and train our employees; actual future interest rates, volatility and other assumptions used in the determination of pension benefits and equity based compensation, as well as the market performance of benefit plan assets; our collective bargaining agreements; our ability to successfully negotiate contracts with labor unions and our ability to favorably resolve labor disputes should they arise; the business, economic and political conditions in the markets in which we operate; the risk that our commercial aviation products and services businesses are affected by a downturn in global demand for air travel or a reduction in commercial aircraft Original Equipment Manufacturer (OEM) production rates; the DoD’s Better Buying Power and other efficiency initiatives; events beyond our control such as acts of terrorism; our ability to perform contracts on schedule; our international operations including currency risks and compliance with foreign laws; our extensive use of fixed-price type revenue arrangements; the rapid change of technology and high level of competition in which our businesses participate; risks relating to technology and data security; our introduction of new products into commercial markets or our investments in civil and commercial products or companies; the impact on our business of improper conduct by our employees, agents or business partners; goodwill impairments and the fair values of our assets; and the ultimate resolution of contingent matters, claims and investigations relating to acquired businesses, and the impact on the final purchase price allocations.

In addition, for a discussion of other risks and uncertainties that could impair our results of operations or financial condition, see "Part I — Item 1A — Risk Factors" and Note 19 to our audited consolidated financial statements, in each case included in this Annual Report on Form 10-K for the year ended December 31, 2018 and any material updates to these factors contained in any of our future filings.

Readers of this document are cautioned that our forward-looking statements are not guarantees of future performance and the actual results or developments may differ materially from the expectations expressed in the forward-looking statements.

As for the forward-looking statements that relate to future financial results and other projections, actual results will be different due to the inherent uncertainties of estimates, forecasts and projections and may be better or worse than projected and such differences could be material. Given these uncertainties, you should not place any reliance on these forward-looking statements. These forward-looking statements also represent our estimates and assumptions only as of the date that they were made. We expressly disclaim a duty to provide updates to these forward-looking statements, and the estimates and assumptions associated with them, after the date of this filing, to reflect events or changes in circumstances or changes in expectations or the occurrence of anticipated events.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

For data regarding quantitative and qualitative disclosures related to our market risk sensitive financial instruments, see "Part II — Item 7 — Management's Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources — Derivative Financial Instruments and Other Market Risk" and Note 14 to our audited consolidated financial statements. See Notes 13 and 15 to our audited consolidated financial statements for the aggregate fair values and notional amounts of our foreign currency forward contracts at December 31, 2018.

Item 8. Financial Statements and Supplementary Data

See our audited consolidated financial statements beginning on page F-1.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Conclusions Regarding Effectiveness of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to provide reasonable assurance that information required to be disclosed in our reports that we file or submit under the Securities Exchange Act of 1934 related to L3 Technologies, Inc. is recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms, and that such information is accumulated and communicated to our management, including our Chairman, Chief Executive Officer and President and our Senior Vice President and Chief Financial Officer, to allow timely decisions regarding required disclosures. Any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. Our management, with the participation of our Chairman, Chief Executive Officer and President and our Senior Vice President and Chief Financial Officer, has evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2018. Based upon that evaluation, our Chairman, Chief Executive Officer and President and our Senior Vice President and Chief Financial Officer concluded that, as of December 31, 2018, the design and operation of our disclosure controls and procedures were effective to accomplish their objectives at the reasonable assurance level.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our consolidated financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of L3 Technologies, Inc., (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of consolidated financial statements in accordance with U.S. generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors, and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the consolidated financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements in our consolidated financial statements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of L3 Technologies, Inc. internal control over financial reporting as of December 31, 2018. In making these assessments, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control —Integrated Framework*, issued in 2013. Based on our assessments and those criteria, management determined that L3 Technologies, Inc. maintained effective internal control over financial reporting as of December 31, 2018.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2018 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report. See page F-2 to our audited consolidated financial statements for their report.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during the quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The Company posts its Code of Ethics and Business Conduct on the Corporate Governance webpage of its website at http://www.L3T.com under the link "Code of Ethics and Business Conduct." The Company's Code of Ethics and Business Conduct applies to all directors, officers and employees, including our chairman, chief executive officer and president, our senior vice president and chief financial officer, and our corporate controller and principal accounting officer. We will post any amendments to the Code of Ethics and Business Conduct, and any waivers that are required to be disclosed by the rules of either the SEC or the NYSE, on our website within the required periods.

The remaining information called for by Item 10 will be included in an amendment to this Annual Report on Form 10-K in accordance with General Instruction G(3) to Form 10-K.

Item 11. Executive Compensation

The information required by this Item will be provided in an amendment to this Annual Report on Form 10-K in accordance with General Instruction G(3) to Form 10-K.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this Item will be provided in an amendment to this Annual Report on Form 10-K in accordance with General Instruction G(3) to Form 10-K.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this Item will be provided in an amendment to this Annual Report on Form 10-K in accordance with General Instruction G(3) to Form 10-K.

Item 14. Principal Accounting Fees and Services

The information required by this Item will be provided in an amendment to this Annual Report on Form 10-K in accordance with General Instruction G(3) to Form 10-K.

PART IV

Item 15. Exhibits, Financial Statement Schedules

The agreements and other documents filed as exhibits to this report are not intended to provide factual information or other disclosure other than with respect to the terms of the agreements or other documents themselves, and you should not rely on them for that purpose. In particular, any representations and warranties made by us in these agreements or other documents were made solely within the specific context of the relevant agreement or document and may not describe the actual state of affairs as of the date they were made or at any other time.

(a)(1) Financial statements filed as part of this report:

(a)(2) Financial Statement Schedules

Financial statement schedules are omitted since the required information is either not applicable or is included in our audited consolidated financial statements.

Item 16. Form 10-K Summary

None.

Exhibits

Exhibit No.	Description of Exhibits
2.1	Distribution Agreement between L-3 Communications Holdings, Inc. and Engility Holdings, Inc. dated as of July 16, 2012 (incorporated by reference to Exhibit 2.1 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 28, 2012 (File No. 333-46983)).
**2.2	Stock Purchase Agreement, dated as of December 7, 2015, by and among L-3 Communications Corporation, CACI International Inc and CACI, Inc.-Federal (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on December 11, 2015 (File No. 333-46983)).
**2.3	Stock and Asset Purchase Agreement, dated as of May 1, 2018, by and among L-3 Communications Integrated Systems L.P., L3 Technologies, Inc. and 450 Madison Acquireco LLC (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on May 2, 2018 (File No. 001-37975)).
**2.4	Agreement and Plan of Merger, dated as of October 12, 2018, by and among Harris Corporation, L3 Technologies, Inc. and Leopard Merger Sub Inc. (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on October 15, 2018 (File No. 001-37975)).
3.1	Restated Certificate of Incorporation of L3 Technologies, Inc. (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on January 3, 2017 (File No. 001-37975)).
3.2	Amended and Restated Bylaws of L3 Technologies, Inc. (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K filed on February 13, 2018 (File No. 333-46983)).
4.1	Form of Common Stock Certificate of L3 Technologies, Inc. (incorporated by reference to Exhibit 4.1 to the Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 (File No. 001-37975)).
4.2	Indenture, dated as of May 21, 2010, among L-3 Communications Corporation, the guarantors named therein and The Bank of New York Mellon Trust Company, N.A., as Trustee (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K dated May 24, 2010 (File No. 333-46983)).
4.3	Second Supplemental Indenture, dated as of February 7, 2011, among L-3 Communications Corporation, the guarantors named therein and The Bank of New York Mellon Trust Company, N.A., as Trustee (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K dated February 8, 2011 (File No. 333-46983)).
4.4	Third Supplemental Indenture, dated as of November 22, 2011, among L-3 Communications Corporation, the guarantors named therein and The Bank of New York Mellon Trust Company, N.A, as Trustee (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K dated November 22, 2011 (File No. 333-46983)).
4.5	Fourth Supplemental Indenture, dated as of February 3, 2012, among L-3 Communications Corporation, the guarantors named therein and The Bank of New York Mellon Trust Company, N.A, as Trustee (incorporated by reference to Exhibit 4.12 to the Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2011 (File No. 333-46983)).
4.6	Fifth Supplemental Indenture, dated as of May 28, 2014, among L-3 Communications Corporation, the guarantors named therein and The Bank of New York Mellon Trust Company, N.A, as Trustee (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K dated May 28, 2014 (File No. 333-46983)).
4.7	Sixth Supplemental Indenture, dated as of June 21, 2016, among L-3 Communications Corporation, the guarantors named therein and The Bank of New York Mellon Trust Company, N.A, as Trustee (incorporated by reference to Exhibit 4.2 to L-3 Communications Corporation's Registration Statement on Form S-3ASR filed on June 21, 2016 (File No. 333-212152)).
4.8	Seventh Supplemental Indenture, dated as of October 31, 2016, among L-3 Communications Corporation, the guarantors named therein and The Bank of New York Mellon Trust Company, N.A, as Trustee (incorporated by reference to Exhibit 4.12 of the Registrant's Annual Report on Form 10-K for the period ended December 31, 2016 (File No. 001-37975)).
4.9	Eighth Supplemental Indenture, dated as of December 5, 2016, among L-3 Communications Corporation, the guarantors named therein and The Bank of New York Mellon Trust Company, N.A, as Trustee (incorporated by reference to Exhibit 4.6 to the Registrant's Current Report on Form 8-K dated December 5, 2016 (File No. 333-46983)).
4.10	Ninth Supplemental Indenture, dated as of March 30, 2018 among L3 Technologies, Inc., The Bank of New York Mellon Trust Company, N.A., as Trustee, and the guarantors named therein (incorporated by reference to Exhibit 4.15 to the Registrant's Quarterly Report on Form 10-Q for the period ended March 30. 2018 (File No. 001-37975)).
4.11	Tenth Supplemental Indenture, dated as of June 6, 2018, among L3 Technologies, Inc., The Bank of New York Mellon Trust Company, N.A., as Trustee, and the guarantors named therein (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed on June 6, 2018 (File No. 001-37975)).

Exhibit No.	Description of Exhibits
4.12	Eleventh Supplemental Indenture, dated as of September 27, 2018, among L3 Technologies, Inc., The Bank of New York Mellon Trust Company, N.A., as Trustee, and the guarantors named therein (incorporated by reference to Exhibit 4.12 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 28, 2018 (File No. 001-37975)).
10.1	Credit Agreement, dated as of October 31, 2016, among L-3 Communications Corporation, L-3 Communications Holdings, Inc. and certain subsidiaries of the Registrant from time to time party thereto as guarantors, certain lenders from time to time party thereto, and Bank of America, N.A., as administrative agent (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K dated October 31, 2016 (File No. 333-46983)).
10.2	Amendment to Credit Agreement, dated as of December 22, 2016, among L-3 Communications Corporation, certain subsidiaries of the Registrant from time to time party thereto as guarantors, certain lenders from time to time party thereto, certain L/C issuers from time to time party thereto and Bank of America, N.A., as administrative agent (incorporated by reference to Exhibit 10.2 to the Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 (File No. 001-37975)).
†10.3	L3 Technologies, Inc. Amended and Restated 2008 Long Term Performance Plan (incorporated by reference to Exhibit 10.7 of the Registrant's Annual Report on Form 10-K for the period ended December 31, 2016 (File No. 001-37975)).
†10.4	Form of L-3 Communications Holdings, Inc. 2008 Long Term Performance Plan Nonqualified Stock Option Agreement (2009 Version) (incorporated by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q for the period ended June 26, 2009 (File No. 333-46983)).
†10.5	Form of L-3 Communications Holdings, Inc. 2008 Long Term Performance Plan Nonqualified Stock Option Agreement (2011 Version) (incorporated by reference to Exhibit 10.12 of the Registrant's Annual Report on Form 10-K for the year ended December 31, 2010 (File No. 333-46983)).
†10.6	Form of L-3 Communications Holdings, Inc. 2008 Long Term Performance Plan Nonqualified Stock Option Agreement (2014 Version) (incorporated by reference to Exhibit 10.3 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 28, 2014 (File No. 333-46983)).
†10.7	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Nonqualified Stock Option Agreement (2017 Version) (incorporated by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2017 (File No. 001-37975)).
†10.8	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Nonqualified Stock Option Agreement (2018 Version) (incorporated by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 30, 2018 (File No. 001-37975)).
†10.9	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Nonqualified Stock Option Agreement (2017 CEO Version) (incorporated by reference to Exhibit 10.2 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2017 (File No. 001-37975)).
†10.10	Form of L-3 Technologies, Inc. 2008 Long Term Performance Plan Nonqualified Stock Option Agreement (2018 CEO Version) (incorporated by reference to Exhibit 10.2 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 30, 2018 (File No. 001-37975)).
†10.11	Form of L-3 Communications Holdings, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2014 Version) (incorporated by reference to Exhibit 10.5 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 28, 2014 (File No. 333-46983)).
†10.12	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2017 Version) (incorporated by reference to Exhibit 10.3 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2017 (File No. 001-37975)).
†10.13	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2018 Version) (incorporated by reference to Exhibit 10.3 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 30, 2018 (File No. 001-37975)).
†10.14	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2017 CEO Version) (incorporated by reference to Exhibit 10.4 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2017 (File No. 001-37975)).
†10.15	Form of L-3 Communications Holdings, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2016 Senior Executive Version) (incorporated by reference to Exhibit 10.3 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 25, 2016 (File No. 333-46983)).
†10.16	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2017 Senior Executive Version) (incorporated by reference to Exhibit 10.5 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2017 (File No. 001-37975)).

Exhibit No.	Description of Exhibits
†10.17	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2017-2 Senior Executive Version) (incorporated by reference to Exhibit 10.23 of the Registrant's Annual Report on Form 10-K for the period ended December 31, 2017 (File No. 001-37975)).
†10.18	Form of L-3 Communications Holdings, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2013 Non-Employee Directors Version) (incorporated by reference to Exhibit 10.7 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 29, 2013 (File No. 333-46983)).
†10.19	Form of L-3 Communications Holdings, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2014 Non-Employee Directors Annual Equity Award Version) (incorporated by reference to Exhibit 10.4 of the Registrant's Quarterly Report on Form 10-Q for the period ended June 27, 2014 (File No. 333-46983)).
†10.20	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2017 Non-Employee Directors Annual Equity Award Version) (incorporated by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2017 (File No. 001-37975)).
†10.21	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Deferred Stock Unit Agreement (2018 Non-Employee Directors Annual Equity Award Version) (incorporated by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q for the period ended June 29, 2018) (File No. 001-37975)).
†10.22	Form of L-3 Communications Holdings, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2014 Non-Employee Directors Deferred Compensation Version) (incorporated by reference to Exhibit 10.5 of the Registrant's Quarterly Report on Form 10-Q for the period ended June 27, 2014 (File No. 333-46983)).
†10.23	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2017 Non-Employee Directors Deferred Compensation Version) (incorporated by reference to Exhibit 10.6 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2017 (File No. 001-37975)).
†10.24	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement (2018 Non-Employee Directors Deferred Compensation Version) (incorporated by reference to Exhibit 10.4 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 30, 2018 (File No. 001-37975)).
†10.25	Form of L-3 Communications Holdings, Inc. 2008 Long Term Performance Plan Performance Unit Agreement (2014 Version) (incorporated by reference to Exhibit 10.8 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 28, 2014 (File No. 333-46983)).
†10.26	Form of L-3 Communications Holdings, Inc. 2008 Long Term Performance Plan Performance Unit Award Notice (2016 Version) (incorporated by reference to Exhibit 10.4 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 25, 2016 (File No. 333-46983)).
†10.27	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Performance Unit Agreement (2017 Version) (incorporated by reference to Exhibit 10.7 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2017 (File No. 001-37975)).
†10.28	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Performance Unit Agreement (2018 Version) (incorporated by reference to Exhibit 10.5 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 30, 2018 (File No. 001-37975)).
†10.29	L3 Technologies, Inc. Amended and Restated 2012 Cash Incentive Plan (incorporated by reference to Exhibit 10.8 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2017 (File No. 001-37975)).
†10.30	Form of L-3 Communications Holdings, Inc. 2012 Cash Incentive Plan Performance Cash Award Agreement (2014 Version) (incorporated by reference to Exhibit 10.10 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 28, 2014 (File No. 333-46983)).
†10.31	Form of L-3 Communications Holdings, Inc. 2012 Cash Incentive Plan Performance Cash Award Notice (2016 Version) (incorporated by reference to Exhibit 10.5 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 25, 2016 (File No. 333-46983)).
†10.32	Form of L3 Technologies, Inc. 2012 Cash Incentive Plan Performance Cash Award Agreement (2017 Version) (incorporated by reference to Exhibit 10.9 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2017 (File No. 001-37975)).
†10.33	Form of L3 Technologies, Inc. 2012 Cash Incentive Plan Performance Cash Award Agreement (2018 Version) (incorporated by reference to Exhibit 10.6 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 30, 2018 (File No. 001-37975)).
†10.34	L3 Technologies, Inc. Amended and Restated 2008 Directors Stock Incentive Plan (incorporated by reference to Exhibit 10.34 of the Registrant's Annual Report on Form 10-K for the period ended December 31, 2016 (File No. 001-37975)).

Exhibit No.	Description of Exhibits
†10.35	Form of L-3 Communications Holdings, Inc. 2008 Directors Stock Incentive Plan Restricted Stock Unit Agreement (incorporated by reference to Exhibit 10.2 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 27, 2009 (File No. 333-46983)).
†10.36	Global Spin-Off Amendment to Equity Award Agreements dated as of July 18, 2012 (incorporated by reference to Exhibit 10.26 of the Registrant's Annual Report on Form 10-K for the year ended December 31, 2012 (File No. 333-46983)).
†10.37	Global Amendment to Non-Employee Director RSU Agreements dated as of April 30, 2013 (incorporated by reference to Exhibit 10.10 of the Registrant's Quarterly Report on Form 10-Q for the period ended March 29, 2013 (File No. 333-46983)).
†10.38	Global Amendment to Equity-Based Award Agreements and Award Notices and Cash-Based Award Agreements and Award Notices dated as of December 31, 2016 (incorporated by reference to Exhibit 10.38 of the Registrant's Annual Report on Form 10-K for the period ended December 31, 2016 (File No. 001-37975)).
†10.39	Global Amendment to Performance Unit Agreements dated as of July 25, 2018 (incorporated by reference to Exhibit 10.4 of the Registrant's Quarterly Report on Form 10-Q for the period ended June 29, 2018 (File No. 001-37975)).
†10.40	Global Amendment to Performance Cash Award Agreements dated as of July 25, 2018 (incorporated by reference to Exhibit 10.5 of the Registrant's Quarterly Report on Form 10-Q for the period ended June 29, 2018 (File No. 001-37975)).
†10.41	L3 Technologies, Inc. Amended and Restated Change in Control Severance Plan (incorporated by reference to Exhibit 10.3 of the Registrant's Quarterly Report on Form 10-Q for the period ended June 29, 2018 (File No. 001-37975)).
†10.42	L3 Technologies, Inc. Executive Severance Plan (incorporated by reference to Exhibit 10.2 of the Registrant's Quarterly Report on Form 10-Q for the period ended June 29, 2018 (File No. 001-37975)).
†10.43	L3 Technologies, Inc. Supplemental Executive Retirement Plan (incorporated by reference to Exhibit 10.40 of the Registrant's Annual Report on Form 10-K for the period ended December 31, 2016 (File No. 001-37975)).
†10.44	L3 Technologies, Inc. Deferred Compensation Plan I (incorporated by reference to Exhibit 10.41 of the Registrant's Annual Report on Form 10-K for the period ended December 31, 2016 (File No. 001-37975)).
†10.45	L3 Technologies, Inc. Deferred Compensation Plan II (incorporated by reference to Exhibit 10.42 of the Registrant's Annual Report on Form 10-K for the period ended December 31, 2016 (File No. 001-37975)).
†10.46	L3 Technologies, Inc. Supplemental Savings Plan II (incorporated by reference to Exhibit 4.1 of the Registrant's Registration Statement on Form S-8 filed on November 29, 2017 (File No. 333-221805)).
†10.47	Offer Letter between L3 Technologies, Inc. and Christopher E. Kubasik (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K/A dated October 31, 2017 (File No. 001-37975)).
†10.48	L3 Technologies, Inc. 2008 Long Term Performance Plan Nonqualified Stock Option Agreement, effective as of December 20, 2017, between L3 Technologies, Inc. and Christopher E. Kubasik (incorporated by reference to Exhibit 10.49 of the Registrant's Annual Report on Form 10-K for the period ended December 31, 2017 (File No. 001-37975)).
†10.49	L3 Technologies, Inc. 2008 Long Term Performance Plan Restricted Stock Unit Agreement, effective as of December 20, 2017, between L3 Technologies, Inc. and Christopher E. Kubasik (incorporated by reference to Exhibit 10.50 of the Registrant's Annual Report on Form 10-K for the period ended December 31, 2017 (File No. 001-37975)).
*†10.50	Letter Agreement between L3 Technologies, Inc. and Christopher E. Kubasik dated November 5, 2018.
†10.51	L3 Technologies, Inc. 2008 Long Term Performance Plan Restricted Stock Agreement, effective as of December 14, 2018, between L3 Technologies, Inc. and Christopher E. Kubasik (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K dated December 18, 2018 (File No. 001-37975)).
*†10.52	Form of L3 Technologies, Inc. 2008 Long Term Performance Plan Restricted Stock Agreement.
†10.53	Retirement Agreement and General Release between L3 Technologies, Inc. and Michael T. Strianese (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K dated November 8, 2017 (File No. 001-37975)).
†10.54	Retirement Agreement and General Release between L3 Technologies, Inc. and Mark R. Von Schwarz (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K dated October 16, 2018 (File No. 001-37975)).
†10.55	Form of Acknowledgment Letter Agreement Regarding Potential Repayment Obligations (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K dated December 18, 2018 (File No. 001-37975)).

Exhibit No.	Description of Exhibits
10.56	Tax Matters Agreement between L-3 Communications Holdings, Inc. and Engility Holdings, Inc. dated as of July 16, 2012 (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 28, 2012 (File No. 333-46983)).
+10.57	Master Supply Agreement between L-3 Communications Corporation (as Seller) and Engility Corporation (as Buyer) dated as of July 16, 2012 (incorporated by reference to Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 28, 2012 (File No. 333-46983)).
+10.58	Master Supply Agreement between L-3 Communications Corporation (as Buyer) and Engility Corporation (as Seller) dated as of July 16, 2012 (incorporated by reference to Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 28, 2012 (File No. 333-46983)).
*21	Subsidiaries of the Registrant.
*23	Consent of PricewaterhouseCoopers LLP.
*31.1	Certification of Chairman, Chief Executive Officer and President pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended.
*31.2	Certification of Senior Vice President and Chief Financial Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended.
*32	Section 1350 Certification.
***101.INS	XBRL Instance Document
***101.SCH	XBRL Taxonomy Extension Schema Document
***101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
***101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
***101.LAB	XBRL Taxonomy Extension Label Linkbase Document
***101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* Filed herewith.

** Certain schedules and exhibits to this agreement have been omitted in accordance with Item 601(b)(2) of Regulation S-K. The descriptions of the omitted schedules and exhibits are contained within the relevant agreement. A copy of any omitted schedule and/or exhibit will be furnished supplementally to the SEC upon request.

*** Filed electronically with this report.

† Represents management contract, compensatory plan or arrangement in which directors and/or executive officers are entitled to participate.

\+ Pursuant to a request for confidential treatment, portions of these exhibits have been redacted from the publicly filed document and have been furnished separately to the Securities and Exchange Commission as required by Rule 24b-2 under the Securities Exchange Act of 1934, as amended.

The agreements and other documents filed as exhibits to this report are not intended to provide factual information or other disclosure other than the terms of the agreements or other documents themselves, and you should not rely on them for that purpose. In particular, any representations and warranties made by the Company in these agreements or other documents were made solely within the specific context of the relevant agreement or document and may not describe the actual state of affairs at the date they were made or at any other time.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on their behalf by the undersigned, thereunto duly authorized.

L3 TECHNOLOGIES, INC.

By:	/s/ Ralph G. D'Ambrosio
Title:	Senior Vice President and Chief Financial Officer

Date: February 21, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant in the capacities indicated on February 21, 2019.

Signature	Title
/s/ Christopher E. Kubasik Christopher E. Kubasik	Chairman, Chief Executive Officer and President (Principal Executive Officer) and Director
/s/ Ralph G. D'Ambrosio Ralph G. D'Ambrosio	Senior Vice President and Chief Financial Officer (Principal Financial Officer)
/s/ Dan Azmon Dan Azmon	Vice President, Controller and Principal Accounting Officer
/s/ Robert B. Millard Robert B. Millard	Lead Director
/s/ Claude R. Canizares Claude R. Canizares	Director
/s/ Thomas A. Corcoran Thomas A. Corcoran	Director
/s/ Ann E. Dunwoody Ann E. Dunwoody	Director
/s/ Lewis Kramer Lewis Kramer	Director
/s/ Rita S. Lane Rita S. Lane	Director
/s/ Lloyd W. Newton Lloyd W. Newton	Director
/s/ Vincent Pagano, Jr. Vincent Pagano, Jr.	Director
/s/ H. Hugh Shelton H. Hugh Shelton	Director

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Consolidated Financial Statements as of December 31, 2018 and 2017 and for the years ended December 31, 2018, 2017 and 2016.

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of L3 Technologies, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of L3 Technologies, Inc. and its subsidiaries (the "Company") as of December 31, 2018 and 2017, and the related consolidated statements of operations, comprehensive income, equity and cash flows for each of the three years in the period ended December 31, 2018, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for revenue from contracts with customers in 2018.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP
New York, New York
February 21, 2019

We have served as the Company's auditor since 1997.

L3 TECHNOLOGIES, INC.
CONSOLIDATED BALANCE SHEETS
(in millions, except share data)

	December 31, 2018	December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 1,066	$ 662
Billed receivables, net of allowances of $12 in 2018 and $18 in 2017	919	723
Contract assets	1,590	—
Contracts in process	—	1,933
Inventories	879	389
Prepaid expenses and other current assets	356	300
Assets held for sale	—	135
Assets of discontinued operations	—	306
Total current assets	4,810	4,448
Property, plant and equipment, net	1,169	1,110
Goodwill	6,808	6,615
Identifiable intangible assets	390	292
Other assets	341	264
Total assets	$ 13,518	$ 12,729
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable, trade	$ 699	$ 531
Accrued employment costs	491	493
Accrued expenses	251	217
Contract liabilities	669	—
Advance payments and billings in excess of costs incurred	—	509
Income taxes payable	49	19
Other current liabilities	288	367
Liabilities held for sale	—	17
Liabilities of discontinued operations	—	226
Total current liabilities	2,447	2,379
Pension and postretirement benefits	1,211	1,313
Deferred income taxes	196	158
Other liabilities	436	398
Long-term debt	3,321	3,330
Total liabilities	7,611	7,578
Commitments and contingencies (see Note 19)		
Equity:		
Shareholders' equity:		
Common stock: $.01 par value; 300,000,000 shares authorized, 78,800,714 shares outstanding at December 31, 2018 and 77,876,687 shares outstanding at December 31, 2017	6,866	6,519
Treasury stock (at cost), 84,999,711 shares at December 31, 2018 and 83,362,412 shares at December 31, 2017	(7,726)	(7,404)
Retained earnings	7,424	6,659
Accumulated other comprehensive loss	(725)	(691)
Total shareholders' equity	5,839	5,083
Noncontrolling interests	68	68
Total equity	5,907	5,151
Total liabilities and equity	$ 13,518	$ 12,729

See notes to consolidated financial statements.

L3 TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in millions, except per share data)

	Year ended December 31,		
	2018	2017	2016
Net sales:			
Products	$ 7,165	$ 6,733	$ 6,453
Services	3,079	2,840	2,757
Total net sales	10,244	9,573	9,210
Operating costs and expenses:			
Cost of sales — Products	(5,345)	(4,967)	(4,879)
Cost of sales — Services	(2,192)	(2,055)	(2,086)
General and administrative expenses	(1,601)	(1,520)	(1,287)
Total operating costs and expenses	(9,138)	(8,542)	(8,252)
Gain on sale of the Crestview Aerospace and TCS businesses	42	—	—
Merger and acquisition related expenses	(28)	—	—
Operating income	1,120	1,031	958
Interest expense	(164)	(169)	(164)
Interest and other income, net	37	9	17
Debt retirement charges	(69)	—	(7)
Income from continuing operations before income taxes	924	871	804
Provision for income taxes	(103)	(102)	(171)
Income from continuing operations	821	769	633
Income (loss) from discontinued operations, net of income taxes	205	(76)	91
Net income	1,026	693	724
Net income from continuing operations attributable to noncontrolling interests	(21)	(16)	(14)
Net income attributable to L3	$ 1,005	$ 677	$ 710
Basic earnings (loss) per share attributable to common shareholders:			
Continuing operations	$ 10.19	$ 9.65	$ 7.99
Discontinued operations	2.61	(0.97)	1.18
Basic earnings per share	$ 12.80	$ 8.68	$ 9.17
Diluted earnings (loss) per share attributable to common shareholders:			
Continuing operations	$ 10.05	$ 9.46	$ 7.86
Discontinued operations	2.58	(0.95)	1.15
Diluted earnings per share	$ 12.63	$ 8.51	$ 9.01
Cash dividends declared per common share	$ 3.20	$ 3.00	$ 2.80
Weighted average common shares outstanding:			
Basic	78.5	78.0	77.4
Diluted	79.6	79.6	78.8

See notes to consolidated financial statements.

L3 TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in millions)

	Year Ended December 31,		
	2018	2017	2016
Net income	$ 1,026	$ 693	$ 724
Other comprehensive income (loss):			
Foreign currency translation adjustments	(82)	124	(77)
Unrealized (losses) gains on hedging instruments[1]	(19)	3	14
Pension and postretirement benefit plans:			
Amortization of net loss and prior service cost previously recognized[2]	53	45	30
Net gain (loss) arising during the period[3]	14	(137)	(119)
Net change in pension and postretirement benefit plans	67	(92)	(89)
Total other comprehensive (loss) income	(34)	35	(152)
Comprehensive income	992	728	572
Comprehensive income attributable to noncontrolling interests	(21)	(16)	(14)
Comprehensive income attributable to L3	$ 971	$ 712	$ 558

(1) Net of income tax benefits of $5 million in 2018, net of income taxes of $1 million in 2017 and $5 million in 2016.

(2) Net of income taxes of $15 million in 2018, $14 million in 2017 and $18 million in 2016.

(3) Net of income taxes of $4 million in 2018, net of income tax benefits of $42 million in 2017 and $69 million in 2016.

See notes to consolidated financial statements.

L3 TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF EQUITY
(in millions, except per share data)

	Common Stock							
	Shares Outstanding	Par Value	Additional Paid-in Capital	Treasury Stock	Retained Earnings	Accumulated Other Comprehensive Loss	Noncontrolling Interests	Total Equity
Balance at December 31, 2015	78.1	$ 1	$ 6,051	$ (6,851)	$ 5,728	$ (574)	$ 74	$ 4,429
Net income					710		14	724
Other comprehensive loss						(152)		(152)
Distributions to noncontrolling interests							(17)	(17)
Cash dividends declared ($2.80 per share)					(220)			(220)
Shares issued:								
Employee savings plans	0.9		115					115
Exercise of stock options	0.6		53					53
Employee stock purchase plan	0.4		31					31
Vesting of restricted stock and performance units	0.5							
Repurchases of common stock to satisfy tax withholding obligations	(0.3)		(21)					(21)
Stock-based compensation expense			49					49
Treasury stock purchased	(3.0)			(373)				(373)
Other			6					6
Balance at December 31, 2016	77.2	1	6,284	(7,224)	6,218	(726)	71	4,624
Net income					677		16	693
Other comprehensive income						35		35
Distributions to noncontrolling interests							(19)	(19)
Cash dividends declared ($3.00 per share)					(236)			(236)
Shares issued:								
Employee savings plans	0.8		113					113
Exercise of stock options	0.5		46					46
Employee stock purchase plan	0.2		32					32
Vesting of restricted stock and performance units	0.3							
Repurchases of common stock to satisfy tax withholding obligations	(0.1)		(18)					(18)
Stock-based compensation expense			53					53
Treasury stock purchased	(1.0)			(180)				(180)
Other			8					8
Balance at December 31, 2017	77.9	1	6,518	(7,404)	6,659	(691)	68	5,151
Cumulative effect adjustment of ASC 606 on January 1, 2018, net of taxes					13			13
Net income					1,005		21	1,026
Other comprehensive loss						(34)		(34)
Distributions to noncontrolling interests							(21)	(21)
Cash dividends declared ($3.20 per share)					(253)			(253)
Shares issued:								
Employee savings plans	0.6		119					119
Exercise of stock options	1.5		149					149
Employee stock purchase plan	0.2		33					33
Vesting of restricted stock and performance units	0.3							
Repurchases of common stock to satisfy tax withholding obligations	(0.1)		(31)					(31)
Stock-based compensation expense			60					60
Treasury stock purchased	(1.6)			(322)				(322)
Other			17					17
Balance at December 31, 2018	78.8	$ 1	$ 6,865	$ (7,726)	$ 7,424	$ (725)	$ 68	$ 5,907

See notes to consolidated financial statements.

L3 TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in millions)

	Year Ended December 31,		
	2018	2017	2016
Operating activities:			
Net income	$ 1,026	$ 693	$ 724
Less: (income) loss from discontinued operations, net of tax	(205)	76	(91)
Income from continuing operations	821	769	633
Depreciation of property, plant and equipment	182	172	156
Amortization of intangibles and other assets	59	53	42
Deferred income tax (benefit) provision	(7)	(8)	27
Stock-based employee compensation expense	60	53	49
Contributions to employee savings plans in common stock	115	106	102
Amortization of pension and postretirement benefit plans net loss and prior service cost	68	59	48
Loss (gain) on sale of property, plant and equipment	4	(31)	(5)
Gain on sale of the Crestview Aerospace and TCS businesses	(42)	—	—
Debt retirement charges	69	—	7
Other non-cash items	6	15	26
Changes in operating assets and liabilities, excluding amounts from acquisitions, divestitures, and discontinued operations:			
Billed receivables	(195)	(18)	1
Contract assets	(246)	—	—
Contracts in process	—	(70)	26
Inventories	57	(69)	22
Prepaid expenses and other current assets	(75)	(58)	(23)
Accounts payable, trade	158	99	(5)
Accrued employment costs	—	28	10
Accrued expenses	55	32	(6)
Contract liabilities	108	—	—
Advance payments and billings in excess of costs incurred	—	13	(73)
Income taxes	9	(39)	33
All other operating activities	(164)	(121)	(48)
Net cash from operating activities from continuing operations	1,042	985	1,022
Investing activities:			
Business acquisitions, net of cash acquired	(369)	(316)	(388)
Proceeds from the sale of businesses, net of closing date cash balances	535	18	561
Capital expenditures	(232)	(224)	(210)
Dispositions of property, plant and equipment	3	74	21
Other investing activities	(28)	(5)	6
Net cash used in investing activities from continuing operations	(91)	(453)	(10)
Financing activities:			
Proceeds from sale of senior notes	1,798	—	547
Repurchases, redemptions and maturities of senior notes	(1,865)	—	(856)
Borrowings under revolving credit facility	501	1,328	819
Repayments of borrowings under revolving credit facility	(501)	(1,328)	(819)
Common stock repurchased	(322)	(180)	(373)
Dividends paid	(254)	(236)	(220)
Proceeds from exercise of stock options	149	46	53
Proceeds from employee stock purchase plan	33	32	31
Repurchases of common stock to satisfy tax withholding obligations	(31)	(18)	(21)
Debt issue costs	(15)	—	(10)
Other financing activities	(13)	(10)	(7)
Net cash used in financing activities from continuing operations	(520)	(366)	(856)
Effect of foreign currency exchange rate changes on cash and cash equivalents	(15)	20	(13)
Net cash (used in) from discontinued operations:			

Operating activities	(10)	117	19
Investing activities	(2)	(4)	(6)
Net cash (used in) from discontinued operations	(12)	113	13
Net increase in cash and cash equivalents	404	299	156
Cash and cash equivalents, beginning of the year	662	363	207
Cash and cash equivalents, end of the year	$ 1,066	$ 662	$ 363

See notes to consolidated financial statements.

1. Description of Business

L3 Technologies, Inc. (L3 Technologies, Inc. and, together with its subsidiaries, referred to herein as L3 or the Company) is a prime contractor in Intelligence, Surveillance and Reconnaissance (ISR) systems, aircraft sustainment (including modifications and fleet management of special mission aircraft), simulation and training, night vision and image intensification equipment, and security and detection systems. L3 is also a leading provider of a broad range of communication, electronic and sensor systems used on military, homeland security and commercial platforms. The Company's customers include the United States (U.S.) Department of Defense (DoD) and its prime contractors, U.S. Government intelligence agencies, the U.S. Department of Homeland Security (DHS), foreign governments, and domestic and foreign commercial customers.

In the third quarter of 2018, the Company completed a realignment of its business segments to maximize growth and improve its integration and collaboration across the enterprise. As a result of the realignment, L3's structure consists of the following three reportable segments: (1) ISR Systems (ISRS), (2) Communications and Networked Systems (C&NS) and (3) Electronic Systems. Financial information with respect to each of its segments is included in Note 22.

ISRS provides products and services for the global ISR and Command, Control and Communications (C^3) markets, specializing in ISR mission solutions from seabed to space, signals intelligence (SIGINT) and multi-intelligence platforms, including engineering, modernization and sustainment solutions for military and various government aircraft, ground support equipment and other platforms. These strategic and tactical products and services provide warfighters with the ability to detect, collect, identify, analyze and disseminate information from command centers, communication nodes and air defense systems for real-time situational awareness and response. Other major capabilities and mission solutions include space avionics and imaging payloads, Counter Unmanned Aircraft Systems mission solutions, cyber and electronic warfare, special mission command & control, modeling & simulation and life cycle support. ISRS sells these products and services primarily to the DoD and select foreign governments. The ISRS sectors are ISR Systems, Airborne Sensor Systems, Warrior Sensor Systems, Space & Sensor Systems, Aircraft Systems, MAS, Intelligence & Mission Systems and Advanced Programs.

C&NS provides network and communication systems, secure communications products, radio frequency (RF) components, satellite communication terminals and space, microwave and telemetry products. These products include secure data links that are used to connect a variety of space, airborne, ground and sea-based communication systems and are used in transmission, processing, recording, monitoring and dissemination functions of these communication systems. Other major capabilities include integrated maritime mission solutions, directed energy, lightweight unmanned undersea vehicles and naval power delivery on submarines and surface ships. C&NS sells these products and services primarily to the DoD and select foreign governments. The C&NS sectors are Broadband Communication Systems, Naval Power Systems, Advanced Communications, Space & Power Systems and Maritime Sensor Systems.

Electronic Systems provides a broad range of products and services, including components, products, subsystems, systems and related services to military and commercial customers. These products and services serve markets, such as commercial and military aircraft simulation and training, cockpit avionics, airport security and precision weapons. Electronic Systems sells these products and services primarily to the DoD and select foreign governments. The Electronic Systems sectors are Commercial Aviation Solutions, Precision Engagement Systems, Link Training & Simulation and Security & Detection Systems.

On June 29, 2018, the Company completed the sale of its Vertex Aerospace businesses for a sales price of $540 million subject to customary closing net working capital adjustments. In connection with the sale, the Company recognized: (1) a pre-tax gain from continuing operations of $42 million ($19 million after income taxes) related to the Crestview Aerospace and TCS businesses (the "Crestview & TCS Businesses") and (2) a pre-tax gain from discontinued operations of $234 million ($177 million after income taxes) related to the Vertex Aerospace business. The divestiture of the Vertex Aerospace business represents a strategic shift by the Company to exit the logistics solution and maintenance services business for military aircraft where the Company does not provide complex ISR systems integration and modification. The Vertex Aerospace business generated sales of $0.6 billion in 2018, $1.4 billion in 2017 and $1.3 billion in 2016. The assets and liabilities and results of operations of the Vertex Aerospace business are reported as discontinued operations for all periods presented. See Note 3 for additional information.

All references made to financial data in this Annual Report on Form 10-K are to the Company's continuing operations, unless specifically noted.

Planned Merger with Harris Corporation

On October 14, 2018, L3 and Harris Corporation ("Harris") announced an agreement to combine in an all stock merger of equals. Under the terms of the Agreement and Plan of Merger (the "Merger Agreement") governing the proposed transaction, which was unanimously approved by the boards of directors of both companies, L3 shareholders will receive a fixed exchange ratio of 1.30 shares of Harris common stock for each share of L3 common stock they hold. Upon completion of the merger, Harris shareholders will own approximately 54% and L3 shareholders will own approximately 46% of the combined company, which will be renamed L3 Harris Technologies, Inc. The merger is expected to close in the middle of 2019, subject to customary closing conditions, including the receipt of regulatory approvals and approval by the shareholders of both L3 and Harris.

2. Summary of Significant Accounting Policies

Principles of Consolidation: The accompanying financial statements comprise the consolidated financial statements of L3. The consolidated financial statements of the Company include all wholly-owned and majority-owned subsidiaries and variable interest entities (VIEs) if the Company is the primary beneficiary. The Company also holds interests in certain VIEs for which it was determined the Company is not the primary beneficiary. All significant intercompany transactions are eliminated in consolidation. Investments in equity securities, joint ventures and limited liability corporations over which the Company has significant influence but does not have voting control are accounted for using the equity method. Investments over which the Company does not have significant influence are accounted for using the cost method. For the classification of certain current assets and liabilities, the Company uses the duration of the related contract or program as its operating cycle, which may be longer than one year.

Certain reclassifications have been made to conform prior-year amounts to the current-year presentation.

Accounting Estimates: The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of sales and cost of sales during the reporting period. The most significant of these estimates and assumptions relate to sales, profit and loss recognition for performance obligations satisfied over time, fair values of assets acquired and liabilities assumed in business combinations and investments, market values for inventories reported at lower of cost or market, pension and post-retirement benefit obligations, stock-based employee compensation expense, income taxes, including the valuations of deferred tax assets, litigation reserves, useful lives and valuation of recorded amounts of long-lived assets, identifiable intangible assets and goodwill. Changes in estimates are reflected in the periods during which they become known. Actual amounts may differ from these estimates and could differ materially.

Revenue Recognition: Effective January 1, 2018, the Company adopted Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers,* as amended (commonly referred to as ASC 606), using the modified retrospective transition method. The cumulative effect of applying the standard was an increase of $13 million to shareholders' equity as of January 1, 2018. The Company's statement of operations for the year ended December 31, 2018 and the Company's balance sheet as of December 31, 2018 are presented under ASC 606, while the Company's statement of operations for the years ended December 31, 2017 and 2016 and the Company's balance sheet as of December 31, 2017 are presented under ASC 605, *Revenue Recognition*.

A substantial majority of the Company's consolidated net sales are generated from long-term contracts with customers that require it to design, develop, manufacture, modify, upgrade, test and integrate complex aerospace and electronic equipment and to provide engineering and technical services according to the customers' specifications. These contracts are primarily with agencies of, and prime system contractors to, the U.S. Government and foreign governments and are generally priced on a fixed-price, cost-plus or time-and-material type basis. Substantially all of the Company's cost-plus and time-and-material type contracts are with the U.S. Government, primarily the DoD. Certain of the Company's contracts with the U.S. Government are multi-year contracts incrementally funded by the customer. The transaction price for these incrementally funded contracts includes contract value amounts not yet funded by the U.S. Government when the Company has a firm order for the goods or services and it is probable that the customer will fund such amounts. In assessing probability, the Company considers, among other factors, the period of time before contract funding is expected, communication from the customer that indicates funding will be obtained and the Company's history of receiving funding under the current contract or previous similar contracts. The Company also generates sales to a lesser extent from contracts with commercial and government customers for standard product and service offerings, which are priced on a firm fixed basis. See Note 22 for additional information regarding the composition of the Company's net sales.

The Company records sales for a contract when it has the approval and commitment of all parties, the contract identifies the rights of the parties and payment terms, the contract has commercial substance and collectability of the consideration is probable.

To determine the proper revenue recognition method, the Company first evaluates each of its contractual arrangements to identify its performance obligations. A performance obligation is a promise in a contract to transfer a distinct good or service to the customer. The majority of the Company’s contracts have a single performance obligation because the promise to transfer the individual good or service is not separately identifiable from other promises within the contract and is, therefore, not distinct. These contractual arrangements either require the use of a highly specialized manufacturing process to provide goods according to customer specifications or represent a bundle of contracted goods and services that are integrated and together represent a combined output, which may include the delivery of multiple units. Some of the Company's contracts have multiple performance obligations, primarily (i) related to the provision of multiple goods or services that have alternative use to the Company or that are not substantially the same or (ii) due to the contract covering multiple phases of the product lifecycle (development and engineering, production, maintenance and support). For contracts with more than one performance obligation, the Company allocates the total transaction price in an amount based on the estimated relative standalone selling prices underlying each performance obligation. In cases where a contract requires a customized good or service, the primary method used to estimate standalone selling price is the expected cost plus a margin approach. In cases where the Company sells a standard product or service offering, the standalone selling price is based on an observable standalone selling price.

The majority of the Company's sales are from performance obligations satisfied over time and are primarily with agencies of, and prime system contractors to, the U.S. Government and foreign governments. Sales are recognized over time when control is continuously transferred to the customer during the contract. For U.S. Government contracts, the continuous transfer of control to the customer is supported by contract clauses that provide for (i) progress or performance-based payments or (ii) the unilateral right of the customer to terminate the contract for its convenience, in which case the Company has the right to receive payment for costs incurred plus a reasonable profit for products and services that do not have alternative use to the Company. Foreign government and certain commercial contracts contain similar termination for convenience clauses, or the Company has a legally enforceable right to receive payment for costs incurred and a reasonable profit for products or services that do not have alternative use to the Company. Sales on fixed price and cost-plus type contracts that include performance obligations satisfied over time are generally recorded at amounts equal to the ratio of actual cumulative costs incurred divided by total estimated costs at completion, multiplied by (i) the transaction price, less (ii) the cumulative sales recognized in prior periods (cost-to-cost method).

Accounting for the sales and profits on performance obligations for which progress is measured using the cost-to-cost method involves the preparation of estimates of: (1) transaction price and (2) total costs at completion, which is equal to the sum of the actual incurred costs to date on the contract and the estimated costs to complete the contract's statement of work. Incurred costs include labor, material, overhead and, for the Company's U.S. Government contractor businesses, general and administrative (G&A) expenses. Incurred costs represent work performed, which corresponds with and thereby represents the transfer of control to the customer. The estimated profit or loss at completion on a contract is equal to the difference between the transaction price and the total estimated cost at completion. In the case of a contract related to complex aerospace or electronic equipment for which the total estimated costs exceed the total transaction price, a loss arises, and a provision for the entire loss is recorded in the period that the loss becomes evident. The unrecoverable costs on a loss contract that are expected to be incurred in future periods are presented on the balance sheet as a component of other current liabilities entitled "Estimated cost in excess of estimated contract value to complete contracts in process in a loss position." See Note 8 for additional information.

The Company’s contracts give rise to variable consideration, including award and incentive fees, as well as amounts incrementally funded by the U.S. Government, or other provisions that can either increase or decrease the transaction price. Award fees provide for a fee based on actual performance relative to contractually specified performance criteria. Incentive fees provide for a fee based on the relationship between total allowable costs and target costs. Variable consideration may require the Company to exercise significant judgment to determine the total transaction price of the contract. The Company includes variable consideration in the transaction price when there is a basis to reasonably estimate the variable amount it will be entitled to receive and it is probable that a significant reversal in revenue recognized will not be required when the uncertainty is resolved. These estimates are based on historical experience, current and forecasted performance, and the Company’s judgment at the time of the evaluation.

Contract modifications routinely occur to account for changes in contract specifications or requirements. In most cases, contract modifications are for goods or services that are not distinct and, therefore, are accounted for as part of the existing contract. Transaction price estimates include additional consideration for submitted contract modifications or claims when the Company believes it has an enforceable right to the modification or claim, the amount can be reliably estimated and its realization is reasonably assured. Amounts representing modifications accounted for as part of the existing contract are included in the transaction price and recognized as an adjustment to sales on a cumulative catch-up basis.

The Company’s fixed-price type contracts with the U.S. Government typically allow for progress payments or performance-based payments. Progress payments are billed to the customer as contract costs are incurred at an amount generally equal to 80% of incurred costs. Performance based payments are billed to the customer upon the achievement of predetermined performance milestones at amounts not to exceed 90% of contract price. On contracts with progress or performance-based payments, the customer often retains a small portion of the contract price until satisfactory completion of the contractual statement of work. Since a small portion of the contract price is retained, the Company generally recognizes sales in excess of billings, which are presented as contract assets on the balance sheet. The portion of the contract price retained by the customer is a normal business practice to ensure satisfactory contract completion and, therefore, is not considered a significant financing component. Contract assets also arise from cost-plus type contracts, time-and-material type contracts and fixed-price services type contracts for revenue amounts that have not been billed by the end of the accounting period due to the timing of preparation of invoices to customers. For certain fixed-price contracts with foreign governments and commercial customers, the Company receives advance payments. Advanced payments are not considered a significant financing component because they are a negotiated contract term to ensure the customer meets its financial obligation, particularly when there are significant upfront working capital requirements. The Company records a liability for advance payments received in excess of sales recognized, which is presented as a contract liability on the balance sheet.

Revisions or adjustments to estimates of the transaction price, estimated costs at completion and estimated profit or loss of a performance obligation may be required as work progresses under a contract, as experience is gained, as facts and circumstances change and as new information is obtained, even though the scope of work required under the contract may not change. Revisions or adjustments may also be required if contract modifications occur. The impact of revisions in profit or loss estimates are recognized on a cumulative catch-up basis in the period in which the revisions are made. The revisions in contract estimates, if significant, can materially affect the Company’s results of operations and cash flows, as well as reduce the valuations of contract assets, and in some cases result in liabilities to complete contracts in a loss position. Net sales recognized from the Company's performance obligations partially satisfied in prior periods were $264 million for the year ended December 31, 2018 and relate to revisions in contract estimates. The aggregate impact of net changes in contract estimates is presented in the table below.

	Year Ended December 31,		
	2018	2017	2016
	(in millions, except per share data)		
Operating income	$ 213	$ 185	$ 149
Diluted earnings per share	$ 2.03	$ 1.49	$ 1.23

Sales from performance obligations satisfied at a point in time are typically for standard goods and are recognized when the customer obtains control, which is generally upon delivery and acceptance. The Company also records sales for performance obligations relating to standard services (i.e., maintenance and extended warranties covering standard goods sold by the Company) over time by using output measures of time elapsed to measure progress toward satisfying the performance obligation.

Sales on time-and-material type contracts are generally recognized each period based on the amount billable to the customer, which is based on direct labor hours expended multiplied by the contractual fixed rate per hour, plus the actual costs of materials and other direct non-labor costs.

The following table presents a summary of the Company’s net sales by revenue recognition method as a percentage of total net sales for the year ended December 31, 2018.

	% of Total Net Sales
Over time (cost-to-cost method)	74%
Point in time	19%
Output method	4%
Billing method	3%
Total	100%

Remaining Performance Obligations: On December 31, 2018, the Company had $11.6 billion of remaining performance obligations, which represents the transaction price of firm orders less inception to date sales recognized. Remaining performance obligations exclude unexercised contract options and potential orders under basic ordering agreements or master-type contracts (i.e., indefinite-delivery, indefinite-quantity). The Company expects to recognize sales relating to existing performance obligations of approximately $7.3 billion in 2019, $2.7 billion in 2020, $0.7 billion in 2021 and $0.9 billion in the periods thereafter.

Investments in and Loans to Nonconsolidated Affiliates: The Company's investments in nonconsolidated affiliates are primarily accounted for using the equity method of accounting and are carried at cost, plus or minus the Company's share of net earnings or losses of the investment, subject to certain other adjustments. The cost of equity method investments includes transaction costs of the acquisition. As required by U.S. GAAP, to the extent that there is a basis difference between the cost and the underlying equity in the net assets of an equity investment, the Company allocates such differences between tangible and intangible assets. The Company's share of net earnings or losses of the investment, inclusive of amortization expense for any basis difference associated with the investment, are presented in interest and other income, net, on the Company's consolidated statements of operations. Dividends received from the investee reduce the carrying amount of the investment. Due to the timing of receiving financial information from its nonconsolidated affiliates, the Company may record its share of net earnings or losses of such affiliates on a three-month lag basis.

Research and Development: Independent research and development (IRAD) costs sponsored by the Company and bid and proposal (B&P) costs relate to both U.S. Government contracts and those for international and commercial customers. The IRAD and B&P costs for certain of the Company's businesses that are U.S. Government contractors are recoverable indirect contract costs that are allocated to U.S. Government contracts in accordance with U.S. Government procurement regulations, and are specifically excluded from research and development accounting standards. The Company includes the recoverable IRAD and B&P costs allocated to U.S. Government contracts in inventoried contract costs, and charges them to general and administrative expenses when the related contract sales are recognized as revenue. Research and development costs that are not recoverable on U.S. Government contracts are accounted for in accordance with research and development accounting standards and are expensed to general and administrative expenses as incurred. The total research and development expenses incurred were $326 million, $287 million and $258 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Customer-funded research and development costs are incurred pursuant to contracts (revenue arrangements) to perform research and development activities according to customer specifications. These direct contract costs and are charged to cost of sales when the corresponding revenue is recognized, which is generally as the research and development services are performed. Customer-funded research and development costs are substantially all incurred under cost-plus type contracts with the U.S. Government.

Contract Costs: The Company capitalizes the incremental costs of obtaining a contract with foreign governments and foreign and domestic commercial customers (third-party sales commissions) if the Company expects to recover the costs under the contract. The Company expenses the costs to obtain a contract as incurred when the expected amortization period is one year or less. The Company classifies the portion of capitalized costs of obtaining a contract to be amortized over the next 12 months within prepaid expense and other current assets and classifies the remaining amount within other assets in its consolidated balance sheets.

Product Warranties: Product warranty costs are accrued when revenue is recognized for the covered products. Product warranty expense is recognized based on the terms of the product warranty and the related estimated costs. Accrued warranty costs are reduced as product warranty costs are incurred or as warranty periods expire.

The table below presents the changes in the Company's accrued product warranty costs.

	Year Ended December 31,	
	2018	2017
	(in millions)	
Accrued product warranty costs[1]:		
Balance at January 1	$ 99	$ 109
Acquisitions during the period	—	3
Accruals for product warranties issued during the period	44	52
Changes to accruals for product warranties existing before January 1	1	—
Settlements made during the period	(55)	(66)
Foreign currency translation adjustments	(1)	1
Balance at December 31	$ 88	$ 99

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(1) The balances above include both the current and non-current amounts.

Deferred Debt Issue Costs: Costs to issue debt are capitalized and deferred when incurred, and subsequently amortized to interest expense over the term of the related debt using the effective interest rate method. Deferred debt issuance costs, other than for line-of-credit arrangements, are presented in the Company's consolidated balance sheets as a direct deduction from the carrying amount of the associated debt liability. Deferred debt issue costs for line-of-credit arrangements are presented in the Company's consolidated balance sheets in other assets.

Pension Plan and Postretirement Benefit Plan Obligations: The Company maintains multiple pension plans, both contributory and non-contributory, covering employees at certain locations. Eligibility for participation in these plans varies and benefits are generally based on the participant's compensation and/or years of service. The Company's funding policy is generally to contribute in accordance with cost accounting standards that affect government contractors, subject to the Internal Revenue Code and regulations thereon.

The Company also provides postretirement medical and life insurance benefits for retired employees and dependents at certain locations. Participants are eligible for these benefits when they retire from active service and meet the eligibility requirements for the Company's pension plans. These benefits are funded primarily on a pay-as-you-go basis with the retiree generally paying a portion of the cost through contributions, deductibles and coinsurance provisions.

In accordance with accounting standards for employee pension and postretirement benefits, the Company recognizes on a plan-by-plan basis the unfunded status of its pension and postretirement benefit plans in the consolidated financial statements and measures its pension and postretirement benefit plan assets and benefit obligations at December 31.

The obligation for the Company's pension plans and postretirement benefit plans and the related annual costs of employee benefits are calculated based on several long-term assumptions, including discount rates and expected mortality for employee benefit liabilities, and rates of return on plan assets, and expected annual rates for salary increases for employee participants in the case of pension plans, and expected annual increases in the costs of medical and other health care benefits in the case of postretirement benefit obligations. See Note 20, *Pension and Other Postretirement Benefits* for additional information.

Stock-Based Compensation: The Company follows the fair value based method of accounting for stock-based employee compensation, which requires the Company to expense all stock-based employee compensation. Stock-based employee compensation is primarily a non-cash expense because the Company settles these obligations by issuing shares of L3 common stock instead of settling such obligations with cash payments.

Compensation expense for restricted stock unit and stock option awards is generally recognized on a straight-line basis over the requisite service period for the entire award based on the grant date fair value. All of the stock options granted to employees by the Company are non-qualified stock options under U.S. income tax regulations. Compensation expense for performance units payable in L3 common stock is based on the fair value of the units at the grant date (measurement date), adjusted each reporting period for progress towards the target award, and recognized on a straight-line basis over the requisite service period. Stock-based compensation expense is recognized net of estimated forfeitures.

Income Taxes: The Company provides for income taxes using the liability method. Deferred income tax assets and liabilities reflect tax carryforwards and the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting and income tax purposes, as determined under enacted tax laws and rates. The effect of changes in tax laws or rates is accounted for in the period of enactment. Valuation allowances for deferred tax assets are provided when it is more likely than not that the assets will not be realized, considering, when appropriate, tax planning strategies. Deferred income tax assets and liabilities are classified as noncurrent in the Company's balance sheet.

Income tax accounting standards prescribe: (1) a minimum recognition threshold that an income tax benefit arising from an uncertain income tax position taken, or expected to be taken, on an income tax return is required to meet before being recognized in the financial statements and (2) the measurement of the income tax benefits recognized from such positions. The Company's accounting policy is to classify uncertain income tax positions that are not expected to be resolved in one year as non-current income tax liabilities and to classify potential interest and penalties on uncertain income tax positions as elements of the provision for income taxes in its financial statements.

Cash and Cash Equivalents: Cash equivalents consist of highly liquid investments with an original maturity of three months or less at the time of purchase.

Contract Assets and Contract Liabilities: Contract assets include unbilled contract receivables related to long-term contracts for which sales and profits are recognized primarily using cost-to-cost method of accounting and are classified as current. Unbilled contract receivables are reduced by amounts of unliquidated progress or performance-based payments. Under the terms of certain revenue arrangements (contracts) with the U.S. Government, the Company is entitled to receive progress payments as costs are incurred or performance-based payments upon the achievement of predetermined performance milestones. Unliquidated progress or performance-based payments arise from fixed-price type contracts with the U.S. Government that contain progress or performance-based payment clauses, and represent payments on invoices that have been collected in cash, but have not yet been liquidated. Progress payment invoices are billed to the customer as contract costs are incurred at an amount generally equal to 80% of incurred costs. Performance based payments are billed to the customer upon the achievement of predetermined performance milestones at amounts not to exceed 90% of contract price. Unliquidated progress or performance-based payments are liquidated as deliveries or other contract performance milestones are completed, at an amount equal to a percentage of the contract sales price for the items delivered or work performed, based on a contractual liquidation rate. Contract liabilities include advance payments, billings in excess of the revenue recognized and amounts received in excess of sales recognized on contracts (deferred revenue). Contract assets and liabilities are reported in a net position on a contract-by-contract basis at the end of each reporting period. Advance payments and billings in excess of revenue recognized are classified as current, and deferred revenue as current or noncurrent based on the timing of expected revenue recognition. The noncurrent portion of deferred revenue is included in other liabilities in the Company's consolidated balance sheets.

Contracts in Process: Contracts in Process include unbilled contract receivables and inventoried contract costs for which sales and profits are recognized primarily using a POC method of accounting under ASC 605. Unbilled Contract Receivables represent accumulated incurred costs and earned profits on contracts in process that have been recorded as sales, primarily using the cost-to-cost method, but have not been billed to customers. Inventoried Contract Costs primarily represent incurred costs on contracts using the units-of-delivery method of accounting and include direct costs and indirect costs, including overhead costs, and materials acquired for U.S. Government service contracts. As discussed in Note 5, the Company's inventoried contract costs for U.S. Government contracts, and contracts with prime contractors or subcontractors of the U.S. Government include allocated G&A, IRAD costs and B&P costs. Contracts in Process contain amounts relating to contracts and programs with long performance cycles, a portion of which may not be realized within one year. For contracts in a loss position, the unrecoverable costs expected to be incurred in future periods are recorded in Estimated Costs in Excess of Estimated Contract Value to Complete Contracts in Process in a Loss Position, which is a component of Other Current Liabilities. Under the terms of certain revenue arrangements (contracts) with the U.S. Government, the Company is entitled to receive progress payments as costs are incurred or milestone payments as work is performed. The U.S. Government has a security interest in the Unbilled Contract Receivables and Inventoried Contract Costs to which progress payments have been applied, and such progress payments are reflected as a reduction of the related amounts. Milestone payments that have been received in excess of contract costs incurred and related estimated profits are reported on the Company's balance sheet as Advance Payments and Billings in Excess of Costs Incurred.

The Company values its acquired contracts in process in connection with business acquisitions on the date of acquisition at contract value less the Company's estimated costs to complete the contract and a reasonable profit allowance on the Company's completion effort.

Inventories: Inventories, other than Inventoried Contract Costs, are stated at cost (first-in, first-out or average cost), but not in excess of realizable value. A provision for excess, obsolete or inactive inventory is recorded based upon an analysis that considers current inventory levels, historical usage patterns and future sales expectations.

Property, Plant and Equipment: Property, plant and equipment are stated at cost, less accumulated depreciation. Depreciation is computed by generally applying the straight-line method to the estimated useful lives of the related assets. Useful lives generally range from 10 to 40 years for buildings and improvements and three to 10 years for machinery, equipment, furniture and fixtures. Leasehold improvements are amortized over the shorter of the lease term or the estimated useful life of the improvements. When property, plant or equipment is retired or otherwise disposed of, the net book value of the asset is removed from the Company's balance sheet and the net gain or loss is included in the determination of operating income. Property, plant and equipment acquired as part of a business acquisition is recorded at fair value.

Goodwill and Indefinite-lived Intangible Assets: The carrying value of goodwill and indefinite-lived identifiable intangible assets are not amortized, but are tested for impairment annually as of November 30 and, additionally on an interim basis, whenever events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable. The accounting standards for goodwill allow for the assessment of qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. The Company utilized a qualitative assessment approach for the November 30, 2018 goodwill impairment test for all of its identified reporting units. For each of the reporting units, the Company determined that it was not more likely than not that the fair values were less than their net book values. If the Company does not utilize a qualitative assessment approach, then the quantitative goodwill impairment test is utilized to identify potential impairments. The Company identifies any potential impairment by comparing the carrying value of a reporting unit to its fair value. The Company determines the fair value of its reporting units using a discounted cash flow valuation approach. If a potential impairment is identified, the Company will determine the amount of goodwill impairment by comparing the fair value of a reporting unit with its carrying amount. To the extent the carrying value of a reporting unit exceeds its fair value, a goodwill impairment charge is recognized. The annual impairment tests at November 30, 2018 and 2017 did not result in impairments to goodwill.

Identifiable Intangible Assets: Identifiable intangible assets represent assets acquired as part of the Company's business acquisitions and include customer contractual relationships, technology, in-process research and development (IPR&D), favorable leasehold interests and trade names. The initial measurement of these intangible assets is based on their fair values. Identifiable intangible assets are: (1) tested for impairment whenever events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable and (2) amortized over their estimated useful lives as the economic benefits are consumed. The Company reviews and updates its estimates of the duration of its customer contractual relationships. If the Company's current estimates indicate that the duration of its customer contractual relationships have decreased, then the Company adjusts the remaining amortization period for those customer contractual relationships to their remaining useful economic life.

Derivative Financial Instruments: The Company's derivative financial instruments include foreign currency forward contracts, which are entered into for risk management purposes.

The Company's U.S. and foreign businesses enter into contracts with customers, subcontractors or vendors that are denominated in currencies other than their functional currencies. To protect the functional currency equivalent cash flows associated with certain of these contracts, the Company enters into foreign currency forward contracts. The Company's activities involving foreign currency forward contracts are designed to hedge the changes in the functional currency equivalent cash flows due to movements in foreign exchange rates compared to the functional currency. The foreign currencies hedged are primarily the U.S. dollar, the Canadian dollar, the Euro, the United Arab Emirates dirham and the British pound. The Company manages exposure to counterparty non-performance credit risk by entering into foreign currency forward contracts only with major financial institutions that are expected to fully perform under the terms of such contracts. Foreign currency forward contracts are recorded in the Company's balance sheets at fair value and are generally designated and accounted for as cash flow hedges in accordance with the accounting standards for derivative instruments and hedging activities. Gains and losses on designated foreign currency forward contracts that are highly effective in offsetting the corresponding change in the cash flows of the hedged transactions are recorded net of income taxes in accumulated other comprehensive income (loss) (accumulated OCI) and then recognized in income when the underlying hedged transaction affects income. Gains and losses on foreign currency forward contracts that do not meet hedge accounting criteria are recognized in income immediately.

Treasury Stock: The Company records treasury stock purchases at cost, which includes incremental direct transaction costs.

Translation of Foreign Currency and Foreign Currency Transactions: Transactions in foreign currencies are translated into the local (functional) currency of the respective business at the approximate prevailing rate at the time of the transaction. Foreign exchange transaction gains and losses in the years ended December 31, 2018, 2017 and 2016 were not material to the Company's results of operations. The operations of the Company's foreign subsidiaries are translated from the local (functional) currencies into U.S. dollars using weighted average rates of exchange during each reporting period. The rates of exchange at each balance sheet date are used for translating the assets and liabilities of the Company's foreign subsidiaries. Gains or losses resulting from these translation adjustments are included in the balance sheets as a component of accumulated OCI and are only recognized in income when a foreign subsidiary is divested.

Accounting Standards Issued and Not Yet Implemented: In February 2018, the Financial Accounting Standards Board (FASB) issued ASU 2018-02, *Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*. The amendments in this update allow a reclassification from accumulated other comprehensive income (AOCI) to retained earnings for stranded tax effects resulting from the U.S. Tax Cuts and Jobs Act (U.S. Tax Reform). The new standard is effective for the Company beginning on January 1, 2019, with early adoption permitted. The Company will adopt ASU 2018-02 effective January 1, 2019. The Company does not expect the adoption of this standard will have a material effect on its financial position, results of operations or cash flows.

In August 2017, the FASB issued ASU 2017-12, *Targeted Improvements to Accounting for Hedging Activities*. The amendments in this update intend to better align the Company's risk management activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedge relationships and the presentation of hedge results. The amendments in this update require the Company to present the earnings effect of the hedging instrument in the same income statement line in which the earnings effect of the hedged item is reported. Current U.S. GAAP provides for hedge accounting only for the portion of the hedge deemed to be highly effective and requires the Company to separately reflect the amount by which the hedging instrument does not offset the hedged item, which is referred to as the ineffective amount. The amendments in this update no longer require the Company to separately measure and report hedge ineffectiveness. The new standard is effective for the Company for interim and annual reporting periods beginning on January 1, 2019, with early adoption permitted. For cash flow hedges existing at the date of adoption, the Company is required to apply a cumulative effect adjustment relating to the separate measurement of ineffectiveness to the opening balance of retained earnings. The amended presentation and disclosure guidance is required only prospectively. The Company will adopt ASU 2017-12 effective January 1, 2019. The Company does not expect the adoption of this standard to have a material effect on its financial position, results of operations or cash flows.

In February 2016, the FASB issued ASU 2016-02, *Leases*, which updates the existing guidance on accounting for leases and requires new qualitative and quantitative disclosures about the Company's leasing activities. The new standard requires the Company to recognize lease assets and lease liabilities on the balance sheet for all leases under which the Company is the lessee, including those classified as operating leases under previous accounting guidance. The Company will measure leases commencing after the adoption date based on the present value of the lease payments due over the lease term (as defined in ASU 2016-02). The Company will measure and recognize its existing leases on the date of adoption based on the present value of the remaining minimum lease payments, as defined in existing guidance on accounting for leases. The new standard, as amended, will be effective for the Company for interim and annual reporting periods beginning on January 1, 2019, with early adoption permitted. The Company elected to use a modified retrospective approach for leases that exist or were entered into after the beginning of the earliest comparative period in the financial statements, with certain practical expedients available, and will recognize a cumulative-effect adjustment to the opening balance of retained earnings at January 1, 2019. The Company expects the standard to result in an increase of approximately $650 million to the Company's assets and liabilities for right-of-use assets and lease liabilities, but does not expect ASU 2016-02 to have an impact on its results of operations or cash flows. The Company does not expect the cumulative effect adjustment to the opening balance of retained earnings at January 1, 2019 to be material. See Note 19 for additional information about the Company's leases, including the future minimum lease payments of the Company's operating leases at December 31, 2018.

Other accounting standard updates effective for interim and annual periods beginning after December 31, 2018, are not expected to have a material impact on the Company's financial position, results of operations or cash flows.

New Accounting Standards Implemented: Effective January 1, 2018, the Company adopted FASB ASU 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. Defined benefit pension and postretirement benefit cost (net benefit cost) comprise several components that reflect different aspects of the Company's financial arrangements as well as the cost of benefits provided to employees. Under previous U.S. GAAP, those components were aggregated for reporting in the financial statements and presented within the operating section of the income statement or capitalized into assets (inventories) when appropriate. The amendments in this update require the Company to report the service cost component in the same line item as other compensation costs arising from services rendered by the employees during the period. The other components of net benefit cost are required to be presented separately from the service cost component and below income from operations. Plan administrative expenses, which were previously included in service cost, are presented together with expected return on plan assets, as a component of Interest and other income, net. The amendments in this update also allow only the service cost component to be eligible for capitalization when applicable. The amendments in this update have been applied retrospectively for the presentation of the components of net benefit cost and prospectively for the capitalization of the service cost component of net benefit cost. The adoption of this standard decreased operating income and increased interest and other income, net, by $11 million for the year ended December 31, 2018 and increased operating income and decreased interest and other income, net, each by $11 million and $1 million for the years ended December 31, 2017 and 2016, respectively. The adoption of this standard did not impact pre-tax income for the years ended December 31, 2018, 2017 and 2016.

In January 2017, the FASB issued ASU 2017-01, *Clarifying the Definition of a Business*, which provides additional guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. The amendments in this update provide new guidance to determine when an integrated set of assets and activities (collectively referred to as a “set”) is not a business. The new guidance requires that, when substantially all of the fair value of the gross assets acquired (or disposed of) is concentrated in a single identifiable asset or a group of similar identifiable assets, the set is not a business. The new guidance reduces the number of transactions that need to be evaluated as a business. The Company adopted this amendment as of January 1, 2018. The adoption of ASU 2017-01 did not have a material impact on the Company's financial statements for the year ended December 31, 2018.

In May 2014, the FASB issued ASU 2014-09 (ASC 606), which replaces numerous requirements in U.S. GAAP, including industry-specific requirements, and provides companies with a single revenue recognition model for recognizing revenue from contracts with customers and significantly expanded the disclosure requirements for revenue arrangements. The new standard, as amended, was effective for the Company for interim and annual reporting periods beginning on January 1, 2018.

The Company adopted ASC 606 using the modified retrospective transition method. Results for reporting periods beginning after December 31, 2017 are presented under ASC 606, while prior period comparative information has not been restated and continues to be reported in accordance with ASC 605*,* the accounting standard in effect for periods ending prior to January 1, 2018. Based on contracts in process at December 31, 2017, the Company recorded, upon adoption of ASC 606, a net increase to retained earnings of $13 million, which includes the acceleration of net sales of approximately $380 million and the related cost of sales. The adjustment to retained earnings primarily relates to contracts previously accounted for under the units-of-delivery method, which is recognized under ASC 606 earlier in the performance period as costs are incurred, as opposed to when the units are delivered under ASC 605. In accordance with the modified retrospective transition provisions of ASC 606, the Company will not recognize any of the accelerated net sales and related cost of sales at January 1, 2018 in the Company’s statements of operations for any historical or future period.

The Company made certain presentation changes to its consolidated balance sheet on January 1, 2018 to comply with ASC 606. The components of contracts in process as reported under ASC 605, which included unbilled contract receivables and inventoried contract costs, have been reclassified as contract assets and inventories, respectively, after certain adjustments to comply with ASC 606 presentation requirements. Specifically, the adoption of ASC 606 resulted in an increase in unbilled contract receivables (referred to as contract assets under ASC 606) primarily from converting contracts previously applying the units-of-delivery method to the cost-to-cost method with a corresponding reduction in inventoried contract costs. The remainder of inventoried contract costs, primarily related to work in process not controlled by the Company's customers, were reclassified to inventories. Additionally, under ASC 606, the Company capitalizes costs to fulfill a contract (i.e., non-recurring costs for contract-related activities that do not transfer a good or service to the customer) and costs to obtain a contract (i.e., commissions paid to third-party agents or representatives) to prepaid expense and other current assets or other assets (non-current). The Company amortizes costs to obtain a contract and costs to fulfill a contract in a pattern similar to the recognition of sales on the contracts that the capitalized costs relate to. The Company previously accounted for costs to fulfill a contract either as inventoried contract costs or expensed them as incurred. Costs to obtain a contract were generally expensed as incurred. Advance payments and billings in excess of costs and deferred revenue, previously classified in other current liabilities, have been combined and are presented as contract liabilities.

The table below presents the cumulative effect of the changes made to the consolidated January 1, 2018 balance sheet due to the adoption of ASC 606.

BALANCE SHEET	December 31, 2017 As Reported Under ASC 605	Adjustments Due to ASC 606	January 1, 2018 As Adjusted Under ASC 606
		(in millions)	
Assets			
Current assets:			
Contract assets	$ —	$ 1,349	$ 1,349
Contracts in process	1,933	(1,933)	—
Inventories	389	537	926
Prepaid expenses and other current assets	300	17	317
Assets held for sale	135	3	138
Assets of discontinued operations	306	(21)	285
Total current assets	4,448	(48)	4,400
Other assets	264	49	313
Total assets	$ 12,729	$ 1	$ 12,730
Liabilities			
Current liabilities:			
Accrued expenses	$ 217	$ (13)	$ 204
Contract liabilities	—	565	565
Advance payments and billing in excess of costs incurred	509	(509)	—
Other current liabilities	367	(49)	318
Liabilities held for sale	17	(1)	16
Liabilities of discontinued operations	226	(23)	203
Total current liabilities	2,379	(30)	2,349
Deferred income taxes	158	4	162
Other liabilities	398	14	412
Total liabilities	7,578	(12)	7,566
Shareholders' Equity			
Retained earnings	6,659	13	6,672
Total equity	$ 5,151	$ 13	$ 5,164

The table below presents the impact of the adoption of ASC 606 on the Company's statement of operations.

STATEMENT OF OPERATIONS	Year Ended December 31, 2018 Under ASC 605	Effect of ASC 606	As Reported Under ASC 606
		(in millions)	
Net Sales:			
Products	$ 7,004	$ 161	$ 7,165
Services	3,101	(22)	3,079
Total	10,105	139	10,244
Operating costs and expenses:			
Cost of sales — Products	$ (5,235)	$ (110)	$ (5,345)
Cost of sales — Services	(2,193)	1	(2,192)
General and administrative expenses	(1,598)	(3)	(1,601)
Gain on sale of the Crestview & TCS Businesses	41	1	42
Merger and acquisition related expenses	(28)	—	(28)
Operating income	1,092	28	1,120
Income from continuing operations before income taxes	896	28	924
Provision for income taxes	(96)	(7)	(103)
Income from continuing operations	800	21	821
Income from discontinued operations, net of income taxes	214	(9)	205
Net income	1,014	12	1,026
Net income attributable to L3	$ 993	$ 12	$ 1,005
Basic earnings per share attributable to common shareholders:			
Continuing operations	$ 9.92	$ 0.27	$ 10.19
Discontinued operations	2.73	(0.12)	2.61
Basic earnings per share	$ 12.65	$ 0.15	$ 12.80
Diluted earnings per share attributable to common shareholders:			
Continuing operations	$ 9.79	$ 0.26	$ 10.05
Discontinued operations	2.69	(0.11)	2.58
Diluted earnings per share	$ 12.48	$ 0.15	$ 12.63

The following table quantifies the impact of adopting ASC 606 on segment net sales and segment operating income.

	Effect of ASC 606 Year Ended December 31, 2018 Sales	Operating Income
	(in millions)	
ISRS	$ 21	$ 1
C&NS	68	12
Electronic Systems	50	14
Segment totals	$ 139	$ 27

The table below presents the impact of the adoption of ASC 606 on the Company's balance sheet.

BALANCE SHEET	December 31, 2018 Under ASC 605	Effect of ASC 606	As Reported Under ASC 606
	(in millions)		
Assets			
Current assets:			
Contract assets	$ —	$ 1,590	$ 1,590
Contracts in process	2,127	(2,127)	—
Inventories	393	486	879
Prepaid expenses and other current assets	340	16	356
Total current assets	4,845	(35)	4,810
Other assets	295	46	341
Total assets	$ 13,507	$ 11	$ 13,518
Liabilities			
Current liabilities:			
Accrued expenses	$ 275	$ (24)	$ 251
Contract liabilities	—	669	669
Advance payments and billings in excess of costs incurred	604	(604)	—
Income taxes payable	53	(4)	49
Other current liabilities	364	(76)	288
Total current liabilities	2,486	(39)	2,447
Deferred income taxes	185	11	196
Other liabilities	422	14	436
Total liabilities	7,625	(14)	7,611
Shareholders' Equity			
Retained earnings	7,399	25	7,424
Total equity	$ 5,882	$ 25	$ 5,907

3. Acquisitions, Divestitures and Discontinued Operations

Business Acquisitions

The Company continually evaluates potential acquisitions that either strategically fit within the Company's existing portfolio or expand the Company's portfolio into new product lines or adjacent markets. The Company has completed a number of acquisitions that have been accounted for as business combinations and have resulted in the recognition of goodwill in the Company's financial statements. This goodwill includes the know-how of the assembled workforce, the ability of the workforce to further improve technology and product offerings, and the expected cash flows resulting from these efforts. Goodwill may also include expected synergies resulting from the complementary strategic fit these businesses bring to existing operations. The business acquisitions discussed below are included in the Company's results of operations from their respective dates of acquisition.

2018 Business Acquisitions

ASV Global, L.L.C. (ASV Global). On September 20, 2018, the Company acquired ASV Global, L.L.C., renamed L3 ASV, for a purchase price of $94 million, excluding adjustments for approximately $1 million of cash acquired, which was financed with cash on hand. ASV Global is a leading unmanned surface vessel (USV) and autonomous vessel control systems company. The goodwill recognized for this business was $54 million, of which $16 million is expected to be deductible for income tax purposes and was assigned to the C&NS segment. The Company also recognized a preliminary estimate for technology intangible assets of $30 million. The final purchase price is subject to customary adjustments for final working capital. The final purchase price allocation, which is expected to be completed in the second quarter of 2019, will be based on final appraisals and other analysis of fair values of acquired assets and liabilities. The Company does not expect that differences between the preliminary and final purchase price allocation will have a material impact on its results of operations or financial position.

C.K. Industrial Engineers Limited. (C.K. Industrial Engineers). On September 18, 2018, the Company acquired C.K. Industrial Engineers Limited, for a purchase price of £18 million (approximately $24 million), excluding adjustments for £4 million (approximately $5 million) of cash acquired, which was financed with cash on hand. C.K. Industrial Engineers is a U.K.-based provider of specialized tooling and equipment used primarily in robotic solutions for automotive manufacturing. The goodwill recognized for this business was $13 million, which was assigned to the Electronic Systems segment and is not expected to be deductible for income tax purposes. The final purchase price is subject to customary adjustments for final working capital. The final purchase price allocation, which is expected to be completed in the second quarter of 2019, will be based on final appraisals and other analysis of fair values of acquired assets and liabilities. The Company does not expect that differences between the preliminary and final purchase price allocation will have a material impact on its results of operations or financial position.

Azimuth Security and Linchpin Labs. (Azimuth Security and Linchpin Labs). On August 31, 2018, the Company acquired Azimuth Security and Linchpin Labs, renamed L3 Trenchant, for a combined purchase price of AUD $249 million (approximately $185 million), net of cash acquired of AUD $21 million (approximately $15 million), which was financed with cash on hand. The purchase price is subject to an upward adjustment for contingent consideration of up to AUD $43 million (approximately $31 million), payable in a fixed number of shares of L3 common stock not to exceed 161,087 shares, based on L3 Trenchant's post-acquisition sales for each of the 12-month periods ending June 30, 2019, 2020 and 2021. Azimuth Security and Linchpin Labs are two information security businesses that significantly strengthen the Company's existing C^6ISR (Command, Control, Communications, Computers, Cyber-Defense and Combat Systems, and Intelligence, Surveillance and Reconnaissance) capabilities and create synergies to drive future growth in cyber and international markets. The Company recorded a $6 million increase to equity for the preliminary acquisition date fair value of the contingent consideration. The goodwill recognized for this business was $117 million, of which $20 million is expected to be deductible for income tax purposes and was assigned to the ISRS segment. The Company also recognized a preliminary estimate for intangible assets of $90 million, primarily relating to technology and customer relationships. The technology and customer relationship intangibles are expected to be amortized over 4 years and 20 years, respectively. The final purchase price is subject to customary adjustments for final working capital. The final purchase price allocation, which is expected to be completed in the third quarter of 2019, will be based on final appraisals and other analysis of fair values of acquired assets and liabilities. The Company does not expect that differences between the preliminary and final purchase price allocation will have a material impact on its results of operations or financial position.

Applied Defense Solutions, Inc. (Applied Defense Solutions). On June 29, 2018, the Company acquired Applied Defense Solutions, Inc., renamed L3 ADS, Inc., for a purchase price of $53 million, excluding adjustments for approximately $1 million of cash acquired, which was financed with cash on hand. Applied Defense Solutions is a leading aerospace engineering, software development and space situational awareness company. The goodwill recognized for this business was $40 million, which was assigned to the ISRS segment, and is not expected to be deductible for income tax purposes. The final purchase price and purchase price allocation of L3 ADS was finalized as of December 31, 2018, with no significant changes to preliminary amounts.

Latitude Engineering, LLC (Latitude Engineering). On June 28, 2018, the Company acquired Latitude Engineering, LLC, renamed L3 Latitude Engineering, Inc., for a purchase price of $15 million, which was financed with cash on hand. The purchase price is subject to additional contingent consideration not to exceed $20 million, $15 million of which is based on Latitude Engineering’s post-acquisition financial performance for the four-year period ending December 31, 2021, and the remaining $5 million is based on certain post-acquisition milestone achievements through December 31, 2020. Latitude Engineering is engaged in the design, manufacturing, integration, servicing, operation and support of hybrid quadrotor unmanned aerial systems. The Company recorded a $6 million liability as of the acquisition date for the fair value of the contingent consideration. The goodwill recognized for this business was $15 million, all of which is expected to be deductible for income tax purposes and was assigned to the Electronic Systems segment. The final purchase price and purchase price allocation of Latitude Engineering was finalized as of December 31, 2018, with no significant changes to preliminary amounts.

Net sales and income before income taxes for ASV Global, C.K. Industrial Engineers, Azimuth Security, Linchpin Labs, Applied Defense Solutions and Latitude Engineering, included in L3’s consolidated statement of operations for the year ended December 31, 2018, are presented in the table below.

	Year Ended December 31, 2018 (in millions)
Net sales	$ 46
Loss before income taxes[1]	$ (7)

[1] Includes intangible amortization of $7 million and IRAD expense of $1 million.

2017 Business Acquisitions

Kigre, Inc. (Kigre). On December 18, 2017, the Company acquired Kigre, Inc., renamed L3 Kigre, Inc., for a purchase price of $13 million, which was financed with cash on hand. Kigre designs, manufactures, markets and distributes laser glass, filter glass and laser transmitter solutions involving rare earth elements. The goodwill recognized for this business was $9 million, which was assigned to the ISRS segment, and is not expected to be deductible for income tax purposes. The purchase price and purchase price allocation of Kigre was finalized as of June 29, 2018, with no significant changes to preliminary amounts.

Escola De Aviacao Aerocondor, S.A. (G-Air). On October 27, 2017, the Company acquired Escola De Aviacao Aerocondor, S.A., renamed G-Air, Inc., for a purchase price of $13 million, which was financed with cash on hand. G-Air is a European airplane and helicopter training academy located in Cascais, Portugal. The goodwill recognized for this business was$12 million, which was assigned to the Electronic Systems segment, and is not expected to be deductible for income tax purposes. The purchase price and purchase price allocation of G-Air was finalized as of June 29, 2018, with no significant changes to preliminary amounts.

Doss Aviation, Inc. (Doss Aviation). On September 12, 2017, the Company acquired Doss Aviation, Inc., which has been renamed L3 Doss Aviation, Inc. Doss Aviation is the sole provider of initial flight training for U.S. Air Force (USAF) pilots and offers curriculum coursework and flight training for both fixed-wing and unmanned aircraft pilots and weapons officers from its full-service, turnkey training facility. Doss Aviation also provides instructor pilots for rotary-wing aircraft for the U.S. Army, as well as global airfield service support activities at U.S. government bases, including aircraft and bulk refueling services and aircraft component repair and modification. The strength of Doss Aviation's military training, combined with the Company's existing training solutions, increases the Company's position to support customers' growing demand for trained international military and commercial pilots. The acquisition was financed with cash on hand. The goodwill recognized for this business was $37 million, which was assigned to the Electronic Systems segment, of which $13 million is expected to be deductible for income tax purposes. The purchase price and purchase price allocation of Doss Aviation was finalized as of September 28, 2018, with no significant changes to preliminary amounts.

Adaptive Methods, Inc. (Adaptive Methods). On September 8, 2017, the Company acquired Adaptive Methods, Inc., renamed L3 Adaptive Methods, Inc., for a purchase price of $33 million, which was financed with cash on hand. Adaptive Methods delivers Undersea Warfare (USW) and Anti-Submarine Warfare capabilities for U.S. military customers and develops autonomy and sensor payload solutions for use by Unmanned Undersea Vehicles (UUVs). The acquisition provides the Company with an innovative UUV autonomy technology that will broaden its capabilities in the dynamic and growing undersea market. The acquisition was financed with cash on hand. The goodwill recognized for this business was $28 million, which was assigned to the C&NS segment, all of which is expected to be deductible for income tax purposes. The purchase price and purchase price allocation of Adaptive Methods was finalized as of June 29, 2018, with no significant changes to preliminary amounts.

Open Water Power, Inc. (Open Water Power) . On May 19, 2017, the Company acquired Open Water Power, Inc., which has been renamed L3 Open Water Power, Inc. Open Water Power develops safe and high-energy-density undersea power generation technologies for use by UUVs and other maritime platforms. The acquisition enhances the Company's growing portfolio of innovative undersea capabilities. The acquisition was financed with cash on hand. The purchase price is subject to additional contingent consideration not to exceed $17 million and is based on Open Water Power's post-acquisition milestone achievements for the four-year period ending December 31, 2021. The Company recorded a $14 million liability on the acquisition date for the fair value of the contingent consideration. The goodwill recognized for this business was $25 million, which was assigned to the C&NS segment, and is not expected to be deductible for income tax purposes. The Company also recognized indefinite-lived intangible assets of $65 million for IPR&D costs. The purchase price and purchase price allocation of Open Water Power was finalized as of December 31, 2017, with no significant changes to preliminary amounts.

OceanServer Technology, Inc. (OceanServer) . On March 17, 2017, the Company acquired OceanServer Technology, Inc., which has been renamed L3 OceanServer, Inc. OceanServer develops and manufactures autonomous, lightweight UUVs. OceanServer provides highly capable UUVs to a wide array of military, commercial and international customers. The acquisition was financed with cash on hand. The goodwill recognized for this business was $19 million, which was assigned to the C&NS segment, all of which is expected to be deductible for income tax purposes. The purchase price and purchase price allocation of OceanServer was finalized as of September 29, 2017, with no significant changes to preliminary amounts.

Explosive Trace Detection business of Implant Sciences. On October 10, 2016, the Company entered into an asset purchase agreement (APA) to acquire the explosive trace detection (ETD) business of Implant Sciences Corporation (Implant), at which time Implant entered into Chapter 11 bankruptcy protection of the U.S. Bankruptcy Code. In December 2016, Implant received U.S. Bankruptcy Court approval to consummate the APA. The ETD business bolsters the Company's leadership in efficient, scalable security solutions and greatly enhances its capabilities in the global aviation security and national security markets. On January 5, 2017, the Company completed the acquisition of the ETD business for a purchase price of $118 million, in addition to the assumption of specified liabilities, which was financed with cash on hand. The goodwill recognized for this business was $80 million, which was assigned to the Electronic Systems segment, all of which is expected to be deductible for income tax purposes. The purchase price and purchase price allocation of the ETD business was finalized as of December 31, 2017, with no significant changes to preliminary amounts.

2016 Business Acquisitions

MacDonald Humfrey (Automation) Limited. On November 22, 2016, the Company acquired MacDonald Humfrey (Automation) Limited, which has been renamed L3 MacDonald Humfrey (MacH), for a purchase price of £263 million (approximately $327 million). The purchase price is subject to additional, contingent consideration not to exceed £30 million (approximately $38 million) and is based on MacH's post-acquisition financial performance for the three-year period ending December 31, 2019. The Company recorded a £21 million (approximately $26 million) liability on the acquisition date for the fair value of the contingent consideration. The acquisition was funded from cash on hand and revolving credit borrowings that were repaid before the end of 2016. The purchase price and purchase price allocation of MacH was finalized as of December 31, 2017, with no significant changes to preliminary amounts. MacH is a globally recognized leader in the deployment of operationally effective and efficient aviation checkpoint security solutions, as well as in the development of state-of-the-art process automation and collaborative robotic capabilities supporting aviation and other adjacent markets. The goodwill recognized for this business was £204 million (approximately $255 million), which was assigned to the Electronics Systems reportable segment, and is not expected to be deductible for income tax purposes. The Company also recognized identifiable intangible assets of £45 million (approximately $56 million) in the aggregate, which consisted of £6 million (approximately $8 million) for trade name, £10 million (approximately $12 million) for technology and £29 million (approximately $36 million) for customer relationships. Identifiable intangible assets will be amortized over a weighted average useful life of 10 years.

Micreo Limited and Aerosim. On September 30, 2016, the Company acquired Micreo Limited (Micreo) and Flight Training Acquisitions LLC (Aerosim), in separate transactions, for an aggregate purchase price of approximately $86 million, which was financed with cash on hand. The purchase price and purchase price allocation of Micreo and Aersoim was finalized as of September 29, 2017, with no significant changes to preliminary amounts. Micreo specializes in solutions that utilize high-performance microwave, millimeter wave and photonic technology that complements the Company's wide range of sensor products and is expected to strengthen the development of the Company's future products in the higher Electronic Warfare (EW) radio frequency (RF) bandwidth. Micreo currently supports a variety of airborne, land and security programs in Australia. Aerosim provides innovative, portable and flexible pilot and maintenance technician training products and provides a flight school for prospective airline pilots. Aerosim's commercial training capabilities are complementary to those offered by L3 Commercial Training Solutions. The aggregate goodwill recognized for these businesses was $59 million, which was assigned to the Electronic Systems and ISRS reportable segments, of which $6 million is expected to be deductible for income tax purposes.

Advanced Technical Materials, Inc. (ATM) Acquisition. On January 22, 2016, the Company acquired the assets of ATM for a purchase price of $27 million, which was financed with cash on hand. The purchase price and purchase price allocation of ATM was finalized as of September 23, 2016, with no significant changes to preliminary amounts. ATM develops and manufactures a broad product line of passive microwave waveguides and specialized coaxial components. The goodwill recognized for this business was $20 million, which was assigned to the C&NS reportable segment, all of which is expected to be deductible for income tax purposes.

Unaudited Pro Forma Statements of Operations Data

The following unaudited pro forma Statements of Operations data present the combined results of the Company and its business acquisitions completed during the years ended December 31, 2018 and 2017 assuming that the business acquisitions completed during 2018 and 2017 had occurred on January 1, 2017 and January 1, 2016, respectively. The unaudited pro forma Statements of Operations data below include adjustments for additional amortization expense related to acquired intangible assets and depreciation assuming the 2018 and 2017 acquisitions had occurred on January 1, 2017 and January 1, 2016, respectively.

	Year Ended December 31,	
	2018	2017
	(in millions, except per share data)	
Pro forma net sales	$ 10,324	$ 9,741
Pro forma income from continuing operations attributable to L3	$ 805	$ 756
Pro forma net income attributable to L3	$ 1,010	$ 680
Pro forma diluted earnings per share from continuing operations	$ 10.11	$ 9.50
Pro forma diluted earnings per share	$ 12.69	$ 8.54

The unaudited pro forma results disclosed in the table above are based on various assumptions and are not necessarily indicative of the results of operations that would have occurred had the Company completed these acquisitions on the dates indicated above.

Investments in Nonconsolidated Affiliates

Peak Nano Optics, LLC (Peak Nano). On February 6, 2018, the Company acquired a 25% interest in Peak Nano Optics, LLC, for a purchase price of $20 million. Peak Nano is a nanotechnology company, which allows for the design and manufacturing of polymer lenses for military, sporting and commercial optics applications using its nanolayer gradient refractive index technology.

The Company determined Peak Nano is a VIE as it did not have sufficient equity at risk to finance its activities. The Company, however, is not the primary beneficiary because it does not have the power to direct the activities that are most significant to the economic performance of Peak Nano. Accordingly, Peak Nano is accounted for under the equity method of accounting.

As of the acquisition date, the carrying amount of the investment was greater than the Company's equity in the underlying assets of Peak Nano due primarily to the difference in the carrying amount of the indefinite-lived amortizable intangible assets including goodwill and IPR&D. The basis difference attributable to goodwill and IPR&D is $11 million and $13 million, respectively.

Business Divestitures

2018 Divestitures

As discussed in Note 1, on June 29, 2018, the Company completed the sale of its Crestview & TCS Businesses. The assets and liabilities of the Crestview & TCS Businesses were classified as held for sale in the Company's audited consolidated balance sheet as of December 31, 2017. The Crestview & TCS Businesses, which were within the Company's ISRS segment, primarily provided aircraft fabrication and assembly of fixed and rotary-wing aero structures as well as avionics hardware and software systems to address mission critical needs. The table below presents Crestview & TCS Businesses' results of operations, which is included in continuing operations.

	Year Ended December 31,		
	2018	2017	2016
		(in millions)	
Net sales	$ 64	$ 119	$ 166
Gain on sale of businesses	$ 42	$ —	$ —
Income from continuing operations before income taxes	$ 45	$ (2)	$ 12

Crestview & TCS Businesses. The major classes of assets and liabilities included as held for sale related to the Crestview & TCS Businesses are presented in the table below.

	December 31, 2017 (in millions)
Assets	
Billed receivables	$ 14
Contracts in process	33
Total current assets	47
Property, plant and equipment, net	34
Goodwill	52
Identifiable intangible assets	2
Total assets classified as held for sale	$ 135
Liabilities	
Accounts payable, trade	$ 3
Accrued employment costs	2
Accrued expenses	3
Other current liabilities	5
Total current liabilities	13
Deferred income taxes	4
Total liabilities classified as held for sale	$ 17

Discontinued Operations

Vertex Aerospace. As discussed in Note 1, on June 29, 2018, the Company completed the sale of its Vertex Aerospace businesses for a sales price of $540 million subject to customary closing net working capital adjustments. In connection with the sale, the Company recognized: (1) a pre-tax gain from continuing operations of $42 million ($19 million after income taxes) related to the Crestview & TCS Businesses and (2) a pre-tax gain from discontinued operations of $234 million ($177 million after income taxes) related to the Vertex Aerospace business. The divestiture of the Vertex Aerospace business represents a strategic shift by the Company to exit the logistics solution and maintenance services business for military aircraft where the Company does not provide complex ISR systems integration and modification. The Vertex Aerospace business generated sales of $0.6 billion in 2018, $1.4 billion in 2017 and $1.3 billion in 2016. The assets and liabilities and results of operations of the Vertex Aerospace business are reported as discontinued operations for all periods presented.

NSS. On February 1, 2016, the Company completed the sale of its NSS segment to CACI International Inc. for a sales price of $547 million. The results of operations of NSS are reported as discontinued operations for all periods presented.

The table below presents the statements of operations data for Vertex Aerospace and NSS. The amounts presented in discontinued operations include allocated interest expenses for debt not directly attributable or related to L3's other operations. Interest expense was allocated in accordance with the accounting standards for discontinued operations and were based on the ratio of their net assets to the sum of: (1) total L3 consolidated net assets and (2) L3 consolidated total debt.

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Net sales	$ 597	$ 1,429	$ 1,402
Operating costs and expenses[1]	(561)	(1,531)	(1,357)
Operating income (loss) from discontinued operations	36	(102)	45
Interest expense allocated to discontinued operations	(1)	(2)	(5)
Gain on sale of businesses	234	—	64
Income (loss) from discontinued operations before income taxes	269	(104)	104
Income tax (expense) benefit	(64)	28	(13)
Income (loss) from discontinued operations, net of income taxes	$ 205	$ (76)	$ 91

(1) Due to a decline in estimated fair value, the Company recorded a goodwill impairment charge of $187 million during 2017 related to Vertex Aerospace.

The major classes of assets and liabilities included in discontinued operations related to Vertex Aerospace are presented in the table below. These balances were classified as current at December 31, 2017 as the sale was expected to be completed within one year and the proceeds were not expected to be used to pay down long-term debt. As discussed above, since the sale of NSS was completed on February 1, 2016, the balances below exclude NSS.

	December 31, 2017
	(in millions)
Assets	
Current assets	$ 284
Property, plant and equipment, net	13
Other intangible assets	7
Other assets	2
Total assets of discontinued operations	$ 306
Liabilities	
Accounts payable, trade	$ 63
Other current liabilities	131
Current liabilities	194
Long-term liabilities	32
Total liabilities of discontinued operations	$ 226

2017 Divestitures

During the year ended December 31, 2017, the Company completed the sales of the CTC Aviation Jet Services Limited (Aviation Jet Services) business, the L3 Coleman Aerospace (Coleman) business and the Display Product Line. The table below presents pre-tax (loss) gain recognized, the proceeds received and net sales included in continuing operations from these divestitures.

	Year Ended December 31, 2017		
	Pre-Tax (Loss) gain	Proceeds Received	Net Sales
	(in millions)		
Aviation Jet Services divestiture	$ (5)	$ 1	$ 1
Coleman divestiture	(3)	17	9
Display Product Line divestiture	4	7	—
Total	$ (4)	$ 25	$ 10

Aviation Jet Services Divestiture. On March 1, 2017, the Company divested its Aviation Jet Services business for a sales price of £1 million (approximately $1 million). Aviation Jet Services provided non-core aircraft management and operational services as part of commercial training solutions based in the United Kingdom and was included in the Electronic Systems segment.

Coleman Divestiture. On February 24, 2017, the Company divested its Coleman business for a sales price of $15 million. Coleman provided air-launch ballistic missile targets and was included in the Electronic Systems segment.

Display Product Line Divestiture. On February 23, 2017, the Company divested its Display Product Line for a sales price of $7 million. The Display Product Line provided cockpits to various military aircraft and was included in the Electronic Systems segment.

2016 Divestitures

NSS. On February 1, 2016, the Company completed the sale of its NSS segment to CACI International Inc. for a sales price of $547 million. See *Discontinued Operations* above for additional information.

Net sales and income before income taxes for Aviation Jet Services, Coleman and the Display Product Line, included in L3's consolidated statements of operations, are presented in the table below on an aggregate basis, and are included in income from continuing operations for all periods presented.

	Year Ended December 31,	
	2017	2016
	(in millions)	
Net sales	$ 10	$ 59
Income before income taxes	$ 2	$ 8

4. Contract Assets and Contract Liabilities

The table below presents the components of net contract assets.

	December 31, 2018	January 1, 2018
	(in millions)	
Contract assets	$ 1,590	$ 1,349
Contract liabilities — current	(669)	(565)
Contract liabilities — non-current	(31)	(28)
Net contract assets	$ 890	$ 756

Contract assets increased from January 1, 2018 to December 31, 2018 by $241 million primarily due to sales exceeding billings due to contractual billing terms on U.S. Government contracts across all business areas, with the largest increases from ISR Systems, Commercial Aviation Solutions, and Space & Power Systems. Contract liabilities increased by $107 million primarily due to advances received by ISR Systems, Commercial Aviation Solutions and Warrior Sensor Systems related to U.S. and foreign government contracts and deferred revenue on software licensing and support services for Trenchant, which was acquired on August 31, 2018, partially offset by decreases due to the liquidation of advances received by Link Training & Simulation resulting from performance on customer contracts.

The Company did not recognize any impairment losses on contract assets during the year ended December 31, 2018.

For the year ended December 31, 2018, the Company recognized sales of $457 million related to its contract liabilities at January 1, 2018.

The components of contract assets are presented in the table below.

	December 31, 2018	January 1, 2018
	(in millions)	
Unbilled contract receivables, gross	$ 2,716	$ 2,232
Unliquidated progress payments and advances	(1,126)	(883)
Total contract assets	$ 1,590	$ 1,349

5. Contracts in Process

The components of contracts in process are presented in the table below. The unbilled contract receivables, inventoried contract costs and unliquidated progress payments principally relate to contracts with the U.S. Government and prime contractors or subcontractors of the U.S. Government.

	December 31, 2017
	(in millions)
Unbilled contract receivables, gross	$ 1,874
Unliquidated progress payments	(761)
Unbilled contract receivables, net	1,113
Inventoried contract costs, gross	891
Unliquidated progress payments	(71)
Inventoried contract costs, net	820
Total contracts in process	$ 1,933

Unbilled Contract Receivables. Unbilled contract receivables represent accumulated incurred costs and earned profits on contracts (revenue arrangements), which have been recorded as sales, but have not yet been billed to customers. Unbilled contract receivables arise from the cost-to-cost method of revenue recognition that is used to record sales on certain fixed-price contracts. Unbilled contract receivables from fixed-price type contracts are converted to billed receivables when amounts are invoiced to customers according to contractual billing terms, which generally occur when deliveries or other performance milestones are completed. Unbilled contract receivables also arise from cost-plus type contracts, time-and-material type contracts and fixed-price service type contracts for revenue amounts that have not been billed by the end of the accounting period due to the timing of preparation of invoices to customers.

Unliquidated Progress Payments. Unliquidated progress payments are a contra asset account, and are classified against unbilled contract receivables if revenue for the underlying contract is recorded using the cost-to-cost method, and against inventoried contract costs if revenue is recorded using the units-of-delivery method.

Inventoried Contract Costs. In accordance with contract accounting standards, the Company's U.S. Government contractor businesses account for the portion of their G&A, IRAD and B&P costs that are allowable and reimbursable indirect contract costs under U.S. Government procurement regulations on their U.S. Government contracts (revenue arrangements) as inventoried contract costs. G&A, IRAD and B&P costs are allocated to contracts for which the U.S. Government is the end customer and are charged to costs of sales when sales on the related contracts are recognized. The Company's U.S. Government contractor businesses record the unallowable portion of their G&A, IRAD and B&P costs to expense as incurred, and do not include them in inventoried contract costs.

The table below presents a summary of G&A, IRAD and B&P costs included in inventoried contract costs and the changes to them, including amounts charged to operating costs and expenses by the Company's U.S. Government contractor businesses for the periods presented.

	Year Ended December 31, 2017	Year Ended December 31, 2016
	(in millions)	
Amounts included in inventoried contract costs at beginning of the year	$ 173	$ 137
Contract costs incurred:		
IRAD and B&P	333	304
Other G&A	842	749
Total	1,175	1,053
Amounts charged to operating costs and expenses	(1,179)	(1,017)
Amounts included in inventoried contract costs at end of the year	$ 169	$ 173

6. Inventories

Inventories at Lower of Cost or Realizable Value. The table below presents the components of inventories at the lower of cost (first-in, first-out or average cost) or realizable value. The Company's inventories at December 31, 2017 were comprised primarily of amounts related to standard products. In addition, the Company classified inventories related to contracts for complex aerospace and electronic equipment and engineering and technical services according to the customers' specifications as inventoried contract costs, which was a component of contracts in process on the consolidated balance sheet at December 31, 2017. See Note 5 for additional information. In accordance with ASC 606, all work in process relating to goods that customers do not currently control are classified within inventories on the Company's consolidated balance sheet at December 31, 2018, without regard to whether the goods are standard or customized.

	December 31, 2018	December 31, 2017
	(in millions)	
Raw materials, components and sub-assemblies	$ 351	$ 184
Work in process	330	98
Finished goods	198	107
Total	$ 879	$ 389

Inventories at December 31, 2018 included G&A costs of $31 million. G&A costs incurred and recorded in inventories totaled $1,181 million during the year ended December 31, 2018, and G&A costs charged to expense from inventories totaled $1,221 million during the year ended December 31, 2018. See Note 5 for information on G&A costs included in contracts in process for the years ended December 31, 2017 and 2016.

7. Goodwill and Identifiable Intangible Assets

Goodwill. In accordance with the accounting standards for business combinations, the Company records the assets acquired and liabilities assumed based on their estimated fair values at the date of acquisition (commonly referred to as the purchase price allocation). Goodwill represents the purchase price paid in excess of the fair value of net tangible and intangible assets acquired. As part of the purchase price allocations for the Company's business acquisitions, identifiable intangible assets are recognized as assets apart from goodwill if they arise from contractual or other legal rights, or if they are capable of being separated or divided from the acquired business and sold, transferred, licensed, rented or exchanged. However, the Company does not recognize any intangible assets apart from goodwill for the assembled workforces of its business acquisitions. At December 31, 2018, the Company had approximately 31,000 employees, and the substantial majority of the sales generated by the Company's businesses were from the productive labor efforts of its employees, as compared to selling manufactured products or right-to-use technology.

Generally, the largest intangible assets from the businesses that the Company acquires are the assembled workforces, which includes the human capital of the management, administrative, marketing and business development, scientific, engineering and technical employees of the acquired businesses. The success of the Company's businesses, including their ability to retain existing business (revenue arrangements) and to successfully compete for and win new business (revenue arrangements), is primarily dependent on the management, marketing and business development, contracting, engineering and technical skills and knowledge of its employees, rather than on productive capital (plant and equipment, and technology and intellectual property). Additionally, for a significant portion of its businesses, the Company's ability to attract and retain employees who have U.S. Government security clearances, particularly those of top-secret and above, is critical to its success, and is often a prerequisite for retaining existing revenue arrangements and pursuing new ones. Generally, patents, trademarks and licenses are not material for the Company's acquired businesses. Furthermore, the Company's U.S. Government contracts (revenue arrangements) generally permit other companies to use the Company's patents in most domestic work performed by such other companies for the U.S. Government. Therefore, because intangible assets for assembled workforces are part of goodwill in accordance with the accounting standards for business combinations, the substantial majority of the intangible assets for the Company's business acquisitions is recognized as goodwill. Additionally, the value assigned to goodwill for the Company's business acquisitions also includes the value that the Company expects to realize from cost reduction measures that it implements for its acquired businesses.

The table below presents the changes in goodwill allocated to the Company's reporting units in each reportable segment.

	ISRS	C&NS	Electronic Systems	Consolidated Total
		(in millions)		
December 31, 2016				
Goodwill	$ 2,512	$ 1,883	$ 2,083	$ 6,478
Accumulated impairment losses	(46)	(15)	(43)	(104)
	2,466	1,868	2,040	6,374
Business acquisitions[(1)]	8	73	131	212
Business divestitures[(2)]	—	—	(12)	(12)
Foreign currency translation adjustments	26	21	46	93
Assets held for sale[(3)]	(42)	—	(10)	(52)
December 31, 2017				
Goodwill	2,504	1,977	2,238	6,719
Accumulated impairment losses	(46)	(15)	(43)	(104)
	2,458	1,962	2,195	6,615
Business acquisitions[(1)]	158	56	33	247
Foreign currency translation adjustments	(20)	(11)	(23)	(54)
December 31, 2018				
Goodwill	2,634	2,022	2,248	6,904
Accumulated impairment losses	(46)	(15)	(43)	(104)
	$ 2,596	$ 2,007	$ 2,205	$ 6,808

(1) For the year ended December 31, 2018, business acquisitions for the ISRS segment included the acquisitions of the Azimuth Security and Linchpin Labs and Applied Defense Solutions businesses and the purchase price allocation adjustments for the Kigre business acquisition. Business acquisitions for the C&NS segment included the acquisitions of the ASV Global business and purchase price allocation adjustments for the Adaptive Methods business acquisition. Business acquisitions for the Electronic Systems segment included the acquisitions of the Latitude Engineering and C.K. Industrial Engineers businesses and purchase price allocation adjustments for the G-Air and Doss Aviation business acquisitions. For the year ended December 31, 2017, business acquisitions for the ISRS segment included primarily the Kigre business acquisition. Business acquisitions for the C&NS segment included primarily the Adaptive Methods, Open Water Power, and OceanServer business acquisitions. Business acquisitions for the Electronic Systems segment included the acquisitions of the ETD, Doss Aviation and G-Air businesses and purchase price allocation adjustments for the MacH and Aerosim business acquisitions.

(2) The decrease for the Electronic Systems segment was due to the divestitures of Coleman and Aviation Jet Services during the quarterly period ended March 31, 2017.

(3) The Crestview & TCS businesses from the Company's ISRS segment were classified as held for sale as of December 31, 2017.

Identifiable Intangible Assets. The most significant identifiable intangible asset that is separately recognized for the Company's business acquisitions is customer contractual relationships. All of the Company's customer relationships are established through written customer contracts (revenue arrangements). The fair value for customer contractual relationships is determined, as of the date of acquisition, based on estimates and judgments regarding expectations for the estimated future after-tax earnings and cash flows (including cash flows for working capital) arising from the follow-on sales expected from the customer contractual relationships over their estimated lives, including the probability of expected future contract renewals and sales, less a contributory assets charge, all of which is discounted to present value. The Company's indefinite-lived intangible assets include IPR&D.

The table below presents information for the Company's identifiable intangible assets that are subject to amortization and indefinite-lived intangible assets.

		December 31, 2018			December 31, 2017		
	Weighted Average Amortization Period	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
	(in years)	(in millions)					
Customer contractual relationships	16	$ 468	$ 288	$ 180	$ 393	$ 257	$ 136
Technology	9	245	132	113	189	114	75
Other	9	49	18	31	29	14	15
Total subject to amortization		762	438	324	611	385	226
IPR&D	indefinite	66	—	66	66	—	66
Total		$ 828	$ 438	$ 390	$ 677	$ 385	$ 292

The table below presents amortization expense recorded by the Company for its identifiable intangible assets.

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Amortization expense	$ 49	$ 43	$ 33

Based on gross carrying amounts at December 31, 2018, the Company's estimate of amortization expense for identifiable intangible assets for the years ending December 31, 2019 through 2023 is presented in the table below.

	Year Ending December 31,				
	2019	2020	2021	2022	2023
	(in millions)				
Estimated amortization expense	$ 51	$ 47	$ 42	$ 37	$ 28

8. Other Current Liabilities and Other Liabilities

The table below presents the components of other current liabilities.

	December 31, 2018	December 31, 2017
	(in millions)	
Other Current Liabilities:		
Accrued product warranty costs	$ 66	$ 69
Estimated costs in excess of estimated contract value to complete contracts in process in a loss position	40	63
Accrued interest	18	43
Estimated contingent purchase price payable for acquired businesses (see Note 13)	10	11
Deferred revenues	—	38
Other	154	143
Total other current liabilities	$ 288	$ 367

The table below presents the components of other liabilities.

	December 31, 2018	December 31, 2017
	(in millions)	
Other Liabilities:		
Non-current income taxes payable (see Note 17)	$ 161	$ 164
Deferred compensation	53	49
Notes payable and capital lease obligations	40	16
Contract liabilities (see Note 4)	31	—
Accrued product warranty costs	22	30
Accrued workers' compensation	20	23
Estimated contingent purchase price payable for acquired businesses (see Note 13)	10	20
Deferred revenues	—	19
Other	99	77
Total other liabilities	$ 436	$ 398

9. Property, Plant and Equipment

The table below presents the components of property, plant and equipment.

	December 31, 2018	December 31, 2017
	(in millions)	
Land	$ 34	$ 34
Buildings and improvements	428	404
Machinery, equipment, furniture and fixtures	2,081	1,959
Leasehold improvements	407	376
Gross property, plant and equipment	2,950	2,773
Accumulated depreciation and amortization	(1,781)	(1,663)
Property, plant and equipment, net	$ 1,169	$ 1,110

10. Debt

The components of debt and a reconciliation to the carrying amount of long-term debt is presented in the table below.

	December 31, 2018	December 31, 2017
	(in millions)	
Borrowings under Revolving Credit Facility[1]	$ —	$ —
5.20% Senior Notes due 2019	—	1,000
4.75% Senior Notes due 2020	—	800
4.95% Senior Notes due 2021	650	650
3.85% Senior Notes due 2023	800	—
3.95% Senior Notes due 2024	350	350
3.85% Senior Notes due 2026	550	550
4.40% Senior Notes due 2028	1,000	—
Principal amount of long-term debt	3,350	3,350
Unamortized discounts	(7)	(7)
Deferred debt issue costs	(22)	(13)
Carrying amount of long-term debt	$ 3,321	$ 3,330

(1) During 2018, L3's aggregate borrowings and repayments under the Credit Facility were $501 million. L3 had the full availability of its $1 billion Credit Facility at December 31, 2018 and December 31, 2017.

L3 Revolving Credit Facility

On October 31, 2016, L3 entered into a new five-year unsecured revolving credit facility (Credit Facility), which replaced its amended and restated revolving credit agreement dated February 3, 2012. The Credit Facility provides for total aggregate borrowings of $1 billion and any outstanding borrowings under the Credit Facility are due and payable on October 31, 2021. Borrowings under the Credit Facility may consist of: (1) base rate loans, which shall bear interest at a rate equal to the sum of the applicable rate (as defined in the Credit Facility), and the "base rate" (as defined in the Credit Facility) and/or (2) eurodollar loans, which shall bear interest at a rate equal to the sum of the applicable rate plus the "Eurodollar rate" (as defined in the Credit Facility). The applicable rate for base rate loans under the Credit Facility ranges from 0.125% to 1.000%, and the applicable rate for eurodollar loans ranges from 1.125% to 2.000%, in each case based on the long-term debt rating of L3. In addition, the Credit Facility provides for uncommitted incremental revolving facilities and additional term loan facilities in an aggregate principal amount of up to $600 million.

L3 Senior Notes

The senior notes are unsecured senior obligations of L3. The terms of each outstanding senior note are presented in the table below.

Note	Date of Issuance	Amount Issued	Discount[1]	Net Cash Proceeds	Effective Interest Rate	Redemption at Treasury Rate[2][3]
				(dollars in millions)		
4.95% Senior Notes due February 15, 2021	February 7, 2011	$ 650	$ 4	$ 639	5.02%	25 bps
3.85% Senior Notes due June 15, 2023 [4]	June 6, 2018	$ 800	$ 2	$ 792	3.89%	20 bps
3.95% Senior Notes due May 28, 2024 [5]	May 28, 2014	$ 650	$ 3	$ 641	4.02%	20 bps
3.85% Senior Notes due December 15, 2026	December 5, 2016	$ 550	$ 3	$ 542	3.91%	25 bps
4.40% Senior Notes due June 15, 2028 [4]	June 6, 2018	$ 1,000	$ 1	$ 990	4.41%	25 bps

(1) Bond discounts are recorded as a reduction to the principal amount of the notes and are amortized as interest expense over the term of the notes.

(2) The senior notes maturing in 2023 may be redeemed at any time prior to May 15, 2023 (one month prior to maturity) and the senior notes maturing in 2021, 2024, 2026 and 2028 may be redeemed at any time prior to November 15, 2020, February 28, 2024, September 15, 2026 and March 15, 2028, respectively, (three months prior to their maturity) at the option of L3, in whole or in part, at a redemption price equal to the greater of: (i) 100% of the principal amount, or (ii) the present value of the remaining principal and interest payments discounted to the date of redemption, on a semi-annual basis, at the Treasury Rate (as defined in the indentures governing the senior notes), plus the spread indicated in the table above. In addition, if the senior notes maturing in 2021, 2023, 2024, 2026 and 2028 are redeemed at any time on or after November 15, 2020, May 15, 2023, February 28, 2024, September 15, 2026 and March 15, 2028, respectively, the redemption price would be equal to 100% of the principal amount.

(3) Upon the occurrence of a change in control (as defined in the indentures governing the senior notes) along with a "change of control triggering event" (generally described as the applicable series of senior notes ceasing to be rated investment grade, as defined in the indentures governing the senior notes), each holder of the notes will have the right to require L3 to repurchase all or any part of such holder's notes at an offer price in cash equal to 101% of the aggregate principal amount plus accrued and unpaid interest, if any, to the date of purchase.

(4) The net cash proceeds of $1,782 million (after deduction of the discount, underwriting expenses and commissions and other related expenses) plus cash on hand were used to fund the concurrent cash tender offers (the Tender Offers) for any and all of $1 billion aggregate principal amount of 5.20% Senior Notes due October 15, 2019 (the 2019 Notes) and $800 million aggregate principal amount of 4.75% Senior Notes due July 15, 2020 (the 2020 Notes) and any related redemption of notes not tendered in the Tender Offers.

(5) On December 22, 2015, the Company repurchased $300 million of the 3.95% Senior Notes due May 28, 2024.

Repurchases, Redemptions and Maturities of Senior Notes

The repurchases, redemptions and maturities of senior notes are presented in the table below.

Note	Settlement Type	Date Settled	Aggregate Amount	Premium	Cash Payments	Interest	Total Cash Payments	Debt Retirement Charge
					(dollars in millions)			
5.20% Senior Notes due 2019 (1)	Redemption	July 6, 2018	$ 317	103.048%	$ 327	$ 4	$ 331	$ 10
4.75% Senior Notes due 2020 (1)	Redemption	July 6, 2018	$ 265	103.818%	$ 275	$ 6	$ 281	$ 11
5.20% Senior Notes due 2019 (2)	Tender Offer	June 6, 2018	$ 683	103.282%	$ 705	$ 5	$ 710	$ 24
4.75% Senior Notes due 2020 (2)	Tender Offer	June 6, 2018	$ 535	104.092%	$ 557	$ 10	$ 567	$ 24
1.50% Senior Notes due 2017	Redemption	December 30, 2016	$ 350	100.323%	$ 351	$ 1	$ 352	$ 2
3.95% Senior Notes due 2016	Maturity	November 15, 2016	$ 200	100.000%	$ 200	$ —	$ 200	$ —
3.95% Senior Notes due 2016	Redemption	May 20, 2016	$ 300	101.475%	$ 305	$ —	$ 305	$ 5

(1) The debt retirement charge includes $1 million which represents the non-cash retirement of associated unamortized debt issue costs and discounts.

(2) Cash payments exclude $1 million of tender offer fees. The debt retirement charge includes $1 million of tender offer fees and $3 million which represents the non-cash retirement of associated unamortized debt issue costs and discounts.

Guarantees

The borrowings under the Credit Facility are fully and unconditionally guaranteed by L3 and by substantially all of the material 100% owned domestic subsidiaries of L3 on an unsecured senior basis. The payment of principal and premium, if any, and interest on the senior notes is fully and unconditionally guaranteed, jointly and severally, by L3's material 100% owned domestic subsidiaries that guarantee any of its other indebtedness. See Note 25.

Subordination

The guarantees of the Credit Facility and the senior notes rank pari passu with each other.

Covenants

Financial and other restrictive covenants. The Credit Facility contains financial and other restrictive covenants that limit, among other things, the ability of the subsidiaries of L3 to borrow additional funds, and the ability of L3 and its subsidiaries to incur liens, make investments, merge or consolidate or dispose of assets. The Company's Credit Facility contains covenants that require that: (1) the Company's consolidated interest coverage ratio be greater than or equal to 3.0 to 1.0, (2) the Company's consolidated leverage ratio be less than or equal to 3.75 to 1.0, provided that the foregoing consolidated leverage ratio shall be increased to 4.0 to 1.0 as of the end of each of the four fiscal quarters immediately following a material acquisition (as defined in the Credit Facility). Calculations of the financial covenants are to exclude, among other things, certain items such as impairment losses on goodwill or other intangible assets, non-cash gains or losses from discontinued operations, gains or losses in connection with asset dispositions, and gains or losses with respect to judgments or settlements in connection with litigation matters. At December 31, 2018, the Company was in compliance with its financial and other restrictive covenants.

The indentures governing the senior notes (Senior Indentures) contain covenants customary for investment grade notes, including covenants that restrict the ability of L3 and its 100% owned domestic subsidiaries to create, incur, assume or permit to exist any lien, except permitted liens (as defined in the Senior Indentures) and restrict the ability of L3 and its subsidiaries to enter into certain sale and leaseback transactions (as defined in the Senior Indentures).

Cross default provisions. The Credit Facility contains cross default provisions that are triggered when a payment default occurs or certain other defaults occur that would allow the acceleration of indebtedness, swap contracts or guarantees of L3 or its subsidiaries, so long as the aggregate amount of such indebtedness, swap contracts or guarantees is at least $75 million and such defaults (other than payment defaults and defaults that have resulted in acceleration) have not been cured within 10 days. The senior notes indenture contains a cross acceleration provision that is triggered when a default or acceleration occurs under any indenture or instrument of L3 or its subsidiaries or the payment of which is guaranteed by L3 or its subsidiaries in an aggregate amount of at least $100 million.

11. Accumulated Other Comprehensive (Loss) Income (AOCI)

The changes in the AOCI balances, including amounts reclassified from AOCI into net income, are presented in the table below.

	Foreign currency translation	Unrealized (losses) gains on hedging instruments	Unrecognized (losses) gains and prior service cost, net	Total accumulated other comprehensive loss
		(in millions)		
Balance at December 31, 2015	$ (101)	$ (8)	$ (465)	$ (574)
Other comprehensive (loss) income before reclassifications, net of tax	(77)	3	(119)	(193)
Amounts reclassified from AOCI, net of tax	—	11	30	41
Net current period other comprehensive (loss) income	(77)	14	(89)	(152)
Balance at December 31, 2016	$ (178)	$ 6	$ (554)	$ (726)
Other comprehensive income (loss) before reclassifications, net of tax	124	7	(137)	(6)
Amounts reclassified from AOCI, net of tax	—	(4)	45	41
Net current period other comprehensive income (loss)	124	3	(92)	35
Balance at December 31, 2017	$ (54)	$ 9	$ (646)	$ (691)
Other comprehensive loss before reclassifications, net of tax	(82)	(17)	14	(85)
Amounts reclassified from AOCI, net of tax	—	(2)	53	51
Net current period other comprehensive (loss) income	(82)	(19)	67	(34)
Balance at December 31, 2018	$ (136)	$ (10)	$ (579)	$ (725)

Further details regarding the amounts reclassified from AOCI into net income are presented in the table below.

Details About AOCI Components	Amount Reclassified from AOCI[a] Year Ended December 31, 2018	2017	2016	Affected Line Item in the Audited Consolidated Statements of Operations
	(in millions)			
Gain (loss) on hedging instruments	$ 3	$ 5	$ (13)	Cost of sales-products
	3	5	(13)	Income from continuing operations before income taxes
	(1)	(1)	2	Provision for income taxes
	$ 2	$ 4	$ (11)	Income from continuing operations
Amortization of defined benefit pension and postretirement items:				
Net loss[b]	$ (68)	$ (59)	$ (48)	Income from continuing operations before income taxes
	15	14	18	Provision for income taxes
	$ (53)	$ (45)	$ (30)	Income from continuing operations
Total reclassification for the period	$ (51)	$ (41)	$ (41)	Income from continuing operations

(a) Amounts in parentheses indicate charges to the consolidated statements of operations.

(b) Amounts related to pension and postretirement benefit plans were reclassified from AOCI and recorded as a component of net periodic benefit cost (see Note 20 for additional information).

12. Equity

On May 8, 2017, L3's Board of Directors approved a share repurchase program that authorizes L3 to repurchase up to an additional $1.5 billion of its common stock. The program became effective on July 1, 2017 and has no set expiration date. Repurchases of L3's common stock are made from time to time at management's discretion in accordance with applicable U.S. Federal securities laws. The timing and actual number of shares to be repurchased in the future will depend on a variety of factors, including, but not limited to, the Company's financial position, earnings, legal requirements, other investment opportunities (including acquisitions) and market conditions. L3 repurchased 1.6 million shares of its common stock at an average price of $196.64 per share for an aggregate amount of $322 million from January 1, 2018 through September 28, 2018. All share repurchases of L3's common stock have been recorded as treasury shares.

The Company did not repurchase any shares of common stock from September 29, 2018 through February 14, 2019. The last repurchase of shares was in July 2018. In connection with the planned merger with Harris Corporation (see Note 1), the Company suspended the share repurchase program.

On February 12, 2019, L3's Board of Directors declared a quarterly cash dividend of $0.85 per share, payable on March 15, 2019 to shareholders of record at the close of business on March 1, 2019. During the year ended December 31, 2018, the Company paid $254 million of cash dividends, offset by a $1 million net reduction of previously accrued dividends for employee-held stock awards.

13. Fair Value Measurements

Fair value is defined as the price that would be received for an asset or the exit price that would be paid to transfer a liability in the principal or most advantageous market in an orderly transaction between market participants. The standards establish a fair value hierarchy that gives the highest priority to observable inputs and the lowest priority to unobservable inputs.

The following table presents the fair value hierarchy level for each of the Company's assets and liabilities that are measured and recorded at fair value on a recurring basis.

Description	December 31, 2018 Level 1[(1)]	December 31, 2018 Level 2[(2)]	December 31, 2018 Level 3[(3)]	December 31, 2017 Level 1[(1)]	December 31, 2017 Level 2[(2)]	December 31, 2017 Level 3[(3)]
	(in millions)					
Assets						
Cash equivalents	$ 660	$ —	$ —	$ 310	$ —	$ —
Derivatives (foreign currency forward contracts)	—	1	—	—	11	—
Total assets	$ 660	$ 1	$ —	$ 310	$ 11	$ —
Liabilities						
Derivatives (foreign currency forward contracts)	$ —	$ 17	$ —	$ —	$ 1	$ —
Contingent consideration	—	—	20	—	—	31
Total liabilities	$ —	$ 17	$ 20	$ —	$ 1	$ 31

(1) Level 1 is based on quoted market prices available in active markets for identical assets or liabilities as of the reporting date. Cash equivalents are primarily held in registered money market funds, which are valued using quoted market prices.

(2) Level 2 is based on pricing inputs other than quoted prices in active markets, which are either directly or indirectly observable. The fair value is determined using a valuation model based on observable market inputs, including quoted foreign currency forward exchange rates and consideration of non-performance risk.

(3) Level 3 is based on pricing inputs that are not observable and not corroborated by market data.

The contingent consideration liabilities represent the future potential earn-out payments relating to the acquisitions of MacH on November 22, 2016, Open Water Power on May 19, 2017 and Latitude Engineering on June 28, 2018. The fair value of the MacH contingent consideration liability, and a portion of the Latitude Engineering contingent consideration liability is based on a Monte Carlo Simulation of the aggregate revenue of MacH for the three-year period ending December 31, 2019, and the aggregate revenue of Latitude Engineering as of each year within the four-year period ended December 31, 2021. The significant unobservable inputs used in calculating the fair value of the MacH contingent consideration and a portion of the Latitude Engineering contingent consideration include: (i) projected revenues of the acquired businesses, (ii) company specific risk premium, which is a component of the discount rate applied to the revenue projections and (iii) volatility. The fair value of the Open Water Power contingent consideration liability and a portion of the Latitude Engineering contingent consideration liability is based on the Scenario-Based Method of the income approach using post-acquisition milestone achievements of Open Water Power and Latitude Engineering through December 31, 2020. The significant unobservable inputs used in calculating the fair value of the Open Water Power contingent consideration and a portion of the Latitude Engineering contingent consideration include: (i) timing of achieving the milestones associated with the contingent consideration arrangement, (ii) probabilities of achieving each milestone and (iii) the discount rate. The fair value of the contingent consideration for potential earn-out payments is reassessed quarterly, including an analysis of the significant inputs used in the evaluation, as well as the accretion of the present value discount. Changes are reflected within cost of sales in the consolidated statements of operations.

The fair value of the contingent consideration liability has been reassessed quarterly. The table below presents the changes to contingent consideration obligations during the year ended December 31, 2018.

	December 31, 2018
	(in millions)
Balance at beginning of period	$ 31
Acquisitions and investments	11
Cash payments	(7)
Changes in fair value of contingent consideration, net	(15)
Balance at end of period	$ 20

14. Financial Instruments

At December 31, 2018 and 2017, the Company's financial instruments consisted primarily of cash and cash equivalents, billed receivables, trade accounts payable, senior notes and foreign currency forward contracts. The carrying amounts of cash and cash equivalents, billed receivables and trade accounts payable are representative of their respective fair values because of the short-term maturities or expected settlement dates of these instruments. The carrying amounts and estimated fair values of the Company's other financial instruments are presented in the table below.

	December 31, 2018		December 31, 2017	
	Carrying Amount	Estimated Fair Value	Carrying Amount	Estimated Fair Value
	(in millions)			
Senior notes[1]	$ 3,321	$ 3,355	$ 3,330	$ 3,502
Foreign currency forward contracts[2]	$ (16)	$ (16)	$ 10	$ 10

(1) The Company measures the fair value of its senior notes using Level 2 inputs based primarily on current market yields for its existing debt traded in the secondary market.

(2) The Company measures the fair values of foreign currency forward contracts based on forward exchange rates. See Note 15 for additional disclosures regarding the notional amounts and fair values of foreign currency forward contracts.

15. Derivative Financial Instruments

Notional amounts are used to measure the volume of foreign currency forward contracts and do not represent exposure to foreign currency losses. The table below presents the notional amounts of the Company's outstanding foreign currency forward contracts by currency at December 31, 2018.

Currency	Notional Amounts
	(in millions)
U.S. dollar	$ 204
Canadian dollar	123
Euro	67
United Arab Emirates dirham	12
British pound	9
Total	$ 415

At December 31, 2018, the Company's foreign currency forward contracts had maturities through 2023.

The table below presents the location of the Company's derivative instruments recorded at fair value on the consolidated balance sheets.

	December 31, 2018				December 31, 2017			
	Other Current Assets	Other Assets	Other Current Liabilities	Other Liabilities	Other Current Assets	Other Assets	Other Current Liabilities	Other Liabilities
	(in millions)							
Derivatives designated as hedging instruments:								
Foreign currency forward contracts[1]	$ 1	$ —	$ 13	$ 4	$ 11	$ —	$ 1	$ —
Total derivative instruments	$ 1	$ —	$ 13	$ 4	$ 11	$ —	$ 1	$ —

(1) See Note 13 for a description of the fair value hierarchy related to the Company's foreign currency forward contracts.

The effects from foreign currency forward contracts on the consolidated statements of operations were a pre-tax gain of $3 million for the year ended December 31, 2018, a pre-tax gain of $5 million for the year ended December 31, 2017, and a pre-tax loss of $13 million for the year ended December 31, 2016. At December 31, 2018, the estimated net amount of existing losses that are expected to be reclassified into income within the next 12 months is $10 million.

16. L3's Earnings Per Share

A reconciliation of basic and diluted Earnings Per Share (EPS) is presented in the table below.

	Year Ended December 31,		
	2018	2017	2016
	(in millions, except per share data)		
Reconciliation of net income:			
Net income	$ 1,026	$ 693	$ 724
Net income from continuing operations attributable to noncontrolling interests	(21)	(16)	(14)
Net income attributable to L3's common shareholders	$ 1,005	$ 677	$ 710
Earnings (loss) attributable to L3's common shareholders:			
Continuing operations	$ 800	$ 753	$ 619
Discontinued operations, net of income tax	205	(76)	91
Net income attributable to L3's common shareholders	$ 1,005	$ 677	$ 710
Earnings per share attributable to L3's common shareholders:			
Basic:			
Weighted average common shares outstanding	78.5	78.0	77.4
Basic earnings (loss) per share:			
Continuing operations	$ 10.19	$ 9.65	$ 7.99
Discontinued operations, net of income tax	2.61	(0.97)	1.18
Net income	$ 12.80	$ 8.68	$ 9.17
Diluted:			
Common and potential common shares:			
Weighted average common shares outstanding	78.5	78.0	77.4
Effect of dilutive securities	1.1	1.6	1.4
Common and potential common shares	79.6	79.6	78.8
Diluted earnings (loss) per share:			
Continuing operations	$ 10.05	$ 9.46	$ 7.86
Discontinued operations, net of income tax	2.58	(0.95)	1.15
Net income	$ 12.63	$ 8.51	$ 9.01

The computation of diluted EPS excludes 0.3 million, 0.3 million and 0.4 million shares for the years ended December 31, 2018, 2017 and 2016, respectively, for share-based payment awards as they were anti-dilutive.

17. Income Taxes

The U.S. Government enacted U.S. Tax Reform on December 22, 2017, which made significant changes to the U.S. tax system. Significant changes under U.S. Tax Reform included, among other things, the reduction of the U.S. corporate income tax rate from 35% to 21%, the implementation of a modified territorial tax system and the imposition of a one-time repatriation tax on deemed repatriated earnings and profits of U.S. owned foreign subsidiaries (Toll Charge). The Securities and Exchange Commission issued Staff Accounting Bulletin No. 118, *Income Tax Accounting Implications of the Tax Cuts and Job Act* (SAB 118), which allowed companies to record provisional impacts of U.S. Tax Reform during a measurement period not extending beyond one year from the enactment date. As a result, the Company recorded an estimated tax benefit (Preliminary Net Tax Benefit) of $79 million from U.S. Tax Reform in its consolidated financial statements for the year ended December 31, 2017. For the year ended December 31, 2018, the SAB 118 measurement period closed and the Company recorded an additional $1 million net tax benefit related to U.S. Tax Reform. The final cumulative benefit of $80 million includes a $98 million estimated tax benefit related to the remeasurement of deferred taxes partially offset by an estimated tax provision of $18 million related to the Toll Charge. The implementation of a modified territorial tax system under U.S. Tax Reform subjects the Company to tax on its Global Intangible Low-Taxed Income (GILTI) starting with the year ended December 31, 2018. The FASB has permitted companies to make an accounting policy decision to either: (1) treat taxes due on future GILTI inclusions in U.S. taxable income as a current-period expense when incurred ("period cost method") or (2) factor such amounts into the measurement of its deferred taxes ("deferred method"). The Company has elected to use the period cost method. As of December 31, 2018, the Company has completed the accounting for all impacts of U.S. Tax Reform.

Income from continuing operations before income taxes is summarized in the table below.

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Domestic	$ 630	$ 649	$ 608
Foreign	294	222	196
Income from continuing operations before income taxes	$ 924	$ 871	$ 804

The components of the Company's current and deferred portions of the provision for income taxes on continuing operations are presented in the table below.

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Current income tax provision:			
Federal	$ 30	$ 44	$ 88
State and local	18	10	8
Foreign	62	56	48
Subtotal	110	110	144
Deferred income tax provision/(benefit):			
Federal	(7)	(16)	25
State and local	—	6	2
Foreign	—	2	—
Subtotal	(7)	(8)	27
Total provision for income taxes	$ 103	$ 102	$ 171

A reconciliation of the statutory federal income tax rate to the effective income tax rate on continuing operations of the Company is presented in the table below.

	Year Ended December 31,		
	2018	2017	2016
Statutory federal income tax rate	21.0 %	35.0 %	35.0 %
State and local income taxes, net of federal income tax benefit	2.6	2.0	2.0
Foreign income taxes	(0.9)	(6.7)	(3.0)
Manufacturing benefits	—	(1.4)	(2.2)
Research and experimentation and other tax credits	(5.2)	(4.1)	(4.6)
Resolution of tax contingencies	(3.8)	(0.4)	(3.1)
Tax deductible dividends	(0.5)	(0.9)	(1.0)
Equity compensation - excess income tax benefits	(4.0)	(2.3)	(2.1)
Mergers, acquisitions and divestitures	1.3	—	—
Tax reform	(0.1)	(9.1)	—
Other, net	0.7	(0.4)	0.3
Effective income tax rate on continuing operations	11.1 %	11.7 %	21.3 %

The significant components of the Company’s net deferred tax assets and liabilities are presented in the table below.

	December 31, 2018	December 31, 2017
	(in millions)	
Deferred tax assets:		
Inventoried costs	$ 47	$ 44
Compensation and benefits	90	94
Pension and postretirement benefits	271	281
Loss carryforwards	13	12
Tax credit carryforwards	4	5
Other	67	57
Deferred tax assets	492	493
Less: valuation allowance	(14)	(10)
Deferred tax assets, net of valuation allowance	478	483
Deferred tax liabilities:		
Goodwill and other intangible assets	$ (549)	$ (514)
Income recognition on contracts in process	(18)	(24)
Property, plant and equipment	(66)	(59)
Other	(36)	(41)
Deferred tax liabilities	(669)	(638)
Total deferred tax liabilities, net of valuation allowance	$ (191)	$ (155)

The classification of the Company’s deferred tax assets and liabilities are presented in the table below.

	December 31, 2018	December 31, 2017
	(in millions)	
Non-current deferred tax assets	$ 5	$ 3
Non-current deferred tax liabilities	(196)	(158)
Total net deferred tax liabilities	$ (191)	$ (155)

Non-current deferred tax assets are presented in other assets on the consolidated balance sheets.

The following table presents the Company's loss and tax credit carryforwards at December 31, 2018 on a tax-return basis. The Company has established a valuation allowance as indicated in those instances in which it does not believe that it is more likely than not it will generate sufficient taxable income, of the appropriate character and in the applicable subsidiary, to utilize the carryforwards.

	Year Ended December 31, 2018				
	Carryforwards		Valuation Allowances		
	Gross	Tax Effected	Gross	Tax Effected	Expiration Periods
	(in millions)				
Federal net operating loss carryforwards	$ 23	$ 5	$ (5)	$ (1)	2026-2034
Foreign net operating loss carryforwards	18	4	(10)	(3)	Indefinite
State net operating loss carryforwards	291	4	(131)	(3)	2019-2038
Total loss carryforwards		$ 13		$ (7)	
State tax credit carryforwards	5	4	(4)	(3)	2019-2033
Total tax credit carryforwards		$ 4		$ (3)	

At December 31, 2018, the total amount of unrecognized tax benefits was $183 million, $150 million of which would reduce the effective income tax rate, if recognized. A reconciliation of the change in unrecognized income tax benefits, excluding potential interest and penalties, is presented in the table below.

	2018	2017	2016
	(in millions)		
Balance at January 1	$ 178	$ 110	$ 124
Additions for tax positions related to the current year	13	14	16
Additions for tax positions related to prior years	37	66	2
Reductions for tax positions related to prior years	(20)	(4)	(24)
Reductions for tax positions related to settlements with taxing authorities	(7)	—	(1)
Reduction for tax positions related to prior years as a result of a lapse of statute of limitations	(18)	(8)	(7)
Balance at December 31	$ 183	$ 178	$ 110

At December 31, 2018, the Company anticipates that unrecognized tax benefits will decrease by approximately $27 million over the next 12 months due to the potential resolution of unrecognized tax benefits involving several jurisdictions and tax periods. The actual amount of the decrease over the next 12 months could vary significantly depending on the ultimate timing and nature of any settlements.

The Company and its subsidiaries file income tax returns in the U.S. Federal jurisdiction, which is the Company's primary tax jurisdiction, and various state and foreign jurisdictions. At December 31, 2018, the statutes of limitations for the Company's U.S. Federal income tax returns for the years ended December 31, 2012, 2013, 2015, 2016 and 2017 were open.

During the year ended December 31, 2018, the Company reached an agreement with the U.S. Internal Revenue Service (IRS) relating to the audit of the Company's 2012 and 2013 U.S. Federal income tax returns and extended the statute of limitations to September 2019. The Company also reached agreement on several state and foreign audits. In addition, the statute of limitations expired for several of the Company's tax returns, including the Company's 2014 U.S. Federal income tax return as well as certain state and foreign tax returns. As a result, the Company reduced its income tax provision by $35 million, including interest and penalties.

During the years ended 2017 and 2016, the Company effectively settled various Federal, state and local and foreign audits. As a result of these settlements, the Company reversed previously accrued income tax expense of $4 million and $25 million, including interest and penalties.

At December 31, 2018 and 2017, current and non-current income taxes payable include accrued potential interest of $15 million ($11 million after income taxes) for each of the years, and potential penalties of $9 million and $8 million, respectively. With respect to the interest related items, the Company's income tax expense included expenses of $2 million and $5 million for the years ended December 31, 2018 and 2017, respectively.

At December 31, 2018, the Company had not provided deferred income taxes and foreign withholding taxes for approximately $1 billion of undistributed earnings by its non-U.S. subsidiaries as such earnings are intended to be reinvested indefinitely. Although U.S. Tax Reform imposed the Toll Charge on accumulated earnings through December 31, 2017 and introduced a GILTI tax on foreign earnings beginning in 2018, undistributed earnings may still be subject to additional taxes upon repatriation, including foreign withholding taxes. Quantification of additional taxes that may be payable on distribution is not practicable.

18. Stock-Based Compensation

Stock-Based Compensation Plans. The Company has adopted stock-based compensation plans in order to provide incentives to directors, officers, employees and other individuals providing services to or on behalf of the Company and its subsidiaries. The Company believes that its stock-based compensation awards encourage high levels of performance by individuals who contribute to the success of the Company and enable the Company to attract, retain and reward talented and experienced individuals. This is accomplished by providing eligible individuals with an opportunity to obtain or increase a proprietary interest in the Company and/or by providing eligible individuals with additional incentives to join or remain with the Company. The stock-based compensation plans serve to better align the interests of management and its employees with those of the Company's shareholders. During the year ended December 31, 2018, the Company awarded stock-based compensation under its Amended and Restated 2008 Long Term Performance Plan (2008 LTPP). Awards under the 2008 LTPP may be granted to any officer or employee of the Company or any of its subsidiaries, non-employee directors, or to any other individual who provides services to or on behalf of the Company or any of its subsidiaries. To date, awards under the 2008 LTPP have been in the form of L3's restricted stock, restricted stock units, performance units and options to purchase L3's common stock. The Company's share-based compensation awards typically accelerate vesting upon a change in control.

On May 3, 2016, the stockholders of L3 approved an amendment to the 2008 LTPP to increase the number of shares authorized for issuance by 6.8 million shares to approximately 26.0 million shares. Each share of L3's common stock issued under a full value award (that is, awards other than stock options and stock appreciation rights) granted on or after February 23, 2016 is counted as 4.26 shares for purposes of this share limit. Each share issued under full value awards granted between February 26, 2013 and February 22, 2016 is counted as 3.69 shares for purposes of the share limit. At December 31, 2018, 7.0 million shares of L3's common stock remained available for future awards under the 2008 LTPP.

The Company's stock-based compensation expense by form of award, including stock-based compensation recorded in discontinued operations related to Vertex Aerospace and NSS, is presented in the table below.

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Stock options	$ 7	$ 7	$ 10
Restricted stock units	43	43	35
Performance units	10	7	4
Total before income taxes	60	57	49
Income taxes	(13)	(12)	(18)
Total after income taxes	47	45	31
Less: Stock-based compensation recorded in discontinued operations, net of income taxes	—	1	1
Stock-based compensation recorded in continuing operations, net of income taxes	$ 47	$ 44	$ 30

Stock Options. The exercise price of stock options granted under the 2008 LTPP may not be less than the fair market value of L3's common stock on the date of grant. Options expire 10 years after the date of grant and vest ratably over a three-year period on the annual anniversary of the date of grant. The options granted to the Company's Chairman, Chief Executive Officer and President are also subject to performance-based vesting conditions. All unvested options are subject to forfeiture upon termination of employment (subject to customary exceptions for death or disability). All of the stock option awards issued under the 2008 LTPP are non-qualified stock options for U.S. income tax regulations. The table below presents a summary of the Company's stock option activity at December 31, 2018 and changes during the year then ended.

	Number of Options (in thousands)	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in millions)
Number of shares under option:				
Outstanding at January 1, 2018	2,698.9	$ 113.67	5.7	$ 227
Options granted	221.9	208.92		
Options exercised	(1,533.4)	97.49		
Options forfeited	(175.7)	147.37		
Outstanding at December 31, 2018	1,211.7	$ 146.70	6.4	$ 42
Vested and expected to vest at December 31, 2018[1]	1,205.6	$ 146.48	6.4	$ 42
Exercisable at December 31, 2018	666.1	$ 119.03	4.7	$ 37

(1) Represents outstanding options reduced by expected forfeitures for options not fully vested.

The weighted average grant date fair value of the stock options awarded during 2018, 2017 and 2016 was $37.72, $28.35 and $15.90, respectively. The aggregate intrinsic value, disclosed in the table above, represents the difference between L3's closing stock price on the last trading day for the period, and the exercise price, multiplied by the number of in-the-money stock options.

The total intrinsic value of stock options exercised, based on the difference between the L3's stock price at the time of exercise and the related exercise price, was $165 million, $44 million and $34 million for the years ended December 31, 2018, 2017 and 2016, respectively. At December 31, 2018, unrecognized compensation cost related to stock options was $8 million ($7 million after income taxes), which is expected to be recognized over a weighted average remaining period of 1.5 years.

The actual income tax benefit realized related to compensation deductions arising from the exercise of stock options by the Company's employees totaled $40 million, $16 million and $12 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Stock Option Fair Value Estimation Assumptions. The Company estimates the fair value of its stock options at the date of grant using the Black-Scholes option-pricing valuation model. The Company's valuation model is affected by L3's stock price as well as weighted average assumptions for a number of subjective variables described below.

- *Expected Holding Period.* The expected holding period represents the period of time that granted stock options are expected to be outstanding until they are exercised. The Company uses historical stock option exercise data to estimate the expected holding period.
- *Expected Volatility.* Expected volatility is based on L3's historical share price volatility matching the expected holding period.
- *Expected Dividend Yield.* Expected dividend yield is based on L3's anticipated dividend payments and historical pattern of dividend increases over the expected holding period.
- *Risk-Free Interest Rates.* The risk-free interest rates for stock options are based on U.S. Treasuries for a maturity period matching the expected holding period.

Changes in assumptions can materially impact the estimated fair value of stock options. The weighted average assumptions used in the valuation model are presented in the table below.

	2018 Grants	2017 Grants	2016 Grants
Expected holding period (in years)	5.2	5.2	5.0
Expected volatility	19.8%	19.9%	21.3%
Expected dividend yield	1.8%	2.0%	2.8%
Risk-free interest rate	2.7%	2.0%	1.1%

Restricted Stock Units. The Company awards restricted stock units that automatically convert into shares of L3's common stock upon vesting (in the case of awards granted to employees) or upon the date on which the recipient ceases to be a director (in the case of awards granted to directors). Restricted stock units typically vest three years after the grant date for employees and one year after the grant date for non-employee directors, or if earlier, on the date of the first annual stockholders meeting held after the grant date. The restricted stock units automatically convert into shares of L3's common stock upon vesting. The weighted average grant date fair value of the restricted stock units awarded during 2018, 2017 and 2016 was $205.73, $169.23 and $116.72, respectively. The grant date fair value of the restricted stock unit awards is based on L3's closing stock price at the date of grant and is generally recognized as compensation expense on a straight-line basis over the vesting period. However, for employees who attain retirement eligibility status prior to the end of the three-year cliff vesting period and who have provided at least one year of service after the date of grant, compensation expense is recognized over the shorter period from the date of grant to the retirement eligibility date. For grants of restricted stock units made during the year ended December 31, 2018, retirement eligible employees are those employees that either: (1) have attained the age of 60 and completed at least five years of service (which service must be continuous through the date of termination except for a single break in service that does not exceed one year in length) or (2) have attained the age of 65 (without regard to their length of service at L3).

The table below presents a summary of the Company's nonvested restricted stock unit awards at December 31, 2018 and changes during the year then ended.

	Number of Shares	Weighted Average Grant Date Fair Value
	(in thousands)	
Nonvested balance at January 1, 2018	902.7	$ 137.12
Granted	317.9	205.73
Vested	(320.7)	137.00
Forfeited	(86.2)	142.21
Nonvested balance at December 31, 2018	813.7	$ 163.44

At December 31, 2018, total unrecognized compensation costs related to nonvested restricted stock unit and restricted stock awards were $46 million ($36 million after income taxes) and are expected to be recognized over a weighted average remaining period of 1.4 years. The total fair value of restricted stock unit and restricted stock awards vested during the years ended December 31, 2018, 2017 and 2016 as of their vesting dates was $67 million, $53 million and $57 million, respectively.

Restricted Stock. The Company also awarded shares of restricted stock to certain employees having general vesting terms (including with respect to retirement eligibility) similar to the vesting terms described above for restricted stock units. Shares of restricted stock are issued to employees immediately upon grant, but remain subject to potential forfeiture in the event of the employee's termination of employment prior to the scheduled vesting date (other than in the case of retirement or certain other qualifying terminations of employment). The employees who received restricted stock grants during 2018 made elections under Section 83(b) of the Internal Revenue Code to be taxed on the value of such awards at the time of grant and, accordingly, a portion of the shares initially awarded to them was withheld by the Company to satisfy tax withholding obligations (and therefore such withheld shares of restricted stock were no longer outstanding as of December 31, 2018).

Performance Units. The Company grants performance unit awards, with each unit having a value at the time of grant equal to a share of L3's common stock. The number of units ultimately earned can range from zero to 200% of the original award based upon the level of performance achieved by the Company over the associated performance period in relation to pre-determined performance goals. Units earned under the program are converted into shares of L3's common stock, or are paid in cash based on the closing price of L3's common stock at the end of the performance period, as determined at the time of grant by the Compensation Committee of the Board of Directors.

During the years ended December 31, 2018, 2017, and 2016, the Company granted performance unit awards with a weighted average grant date fair value per unit of $209.91, $168.80 and $116.20, respectively. All the awards granted in 2018, 2017, and 2016 have performance conditions based on L3's diluted EPS. The performance periods for the awards began on January 1 of the applicable grant year and end on December 31 of the year corresponding to a three-year performance period. Units earned under the awards are convertible into shares of L3's common stock. At December 31, 2018, total unrecognized compensation costs related to the awards were $10 million ($10 million after income taxes) and are expected to be recognized over a weighted average remaining period of 1.5 years.

The table below presents a summary of the Company's performance unit awards based on expected performance at December 31, 2018 and changes during the year then ended.

	Payable in Shares (EPS)	
	Number of Units	Weighted Average Grant Date Fair Value
	(in thousands)	
Outstanding at January 1, 2018	132.1	$ 135.99
Granted	22.1	209.91
Increase due to expected performance	25.3	38.96
Vested	(57.5)	116.20
Forfeited	(27.0)	133.41
Outstanding at December 31, 2018	95.0	$ 140.14

The performance period for awards granted in 2016 ended on December 31, 2018. Based on L3's cumulative diluted EPS during the performance period, a total of 57,508 performance units having a fair market value of $11 million as of their vesting date were earned by the participants on December 31, 2018.

Employee Stock Purchase Plan. Effective July 1, 2009, the Company adopted the 2009 Employee Stock Purchase Plan (2009 ESPP). Under the 2009 ESPP, eligible employees are offered options to purchase shares of L3's common stock at the end of each six-month offering period at 95% of fair market value based on the average of the highest and lowest sales prices for the stock on the purchase date. Eligible employees generally include all employees of the Company and each subsidiary or affiliate of the Company that has been designated to participate in the 2009 ESPP. Offering periods begin on the first trading day in January and July of each calendar year and end on the last trading day in June and December of each calendar year. Share purchases are funded through payroll deductions of up to 10% of an employee's eligible compensation for each payroll period, or $21,250 each calendar year.

At December 31, 2018, 3.3 million shares were available for future issuance under the 2009 ESPP (i.e., excluding the effect of shares issued in January 2019 as described below). In July 2018, the Company issued 0.1 million shares under the 2009 ESPP at an average price of $192.96 per share, which covered employee contributions for the six months ended June 29, 2018. In January 2019, the Company issued 0.1 million shares under the 2009 ESPP at an average price of $162.91 per share, which covered employee contributions for the six months ended December 31, 2018. The 5% discount is not recognized as compensation expense in accordance with the accounting standard for share-based compensation expense.

In anticipation of the merger with Harris, the Company has amended the 2009 ESPP to provide that the offering period that ended December 31, 2018 will be the final offering period for the plan. At the effective time of the merger, the 2009 ESPP will terminate in its entirety.

19. Commitments and Contingencies

Non-Cancelable Operating Leases

The Company leases certain facilities and equipment under agreements expiring at various dates through 2046. Certain leases contain renewal options or escalation clauses providing for increased rental payments based upon maintenance, utility and tax increases. No lease agreement imposes a restriction on the Company's ability to pay dividends, engage in debt or equity financing transactions, or enter into further lease agreements.

The following table presents future minimum payments under non-cancelable operating leases with initial or remaining terms in excess of one year at December 31, 2018.

	Real Estate	Equipment	Total
		(in millions)	
2019	$ 111	$ 4	$ 115
2020	132	2	134
2021	81	1	82
2022	73	—	73
2023	65	—	65
Thereafter	506	—	506
Total minimum payments required	968	7	975
Sublease rentals under non-cancelable leases	(7)	—	(7)
Net minimum payments required	$ 961	$ 7	$ 968

Rent expense was $105 million for 2018, $103 million for 2017 and $97 million for 2016. Sublease rental income was $2 million for 2018, $1 million for 2017 and $2 million for 2016.

Letters of Credit

The Company enters into standby letters of credit with financial institutions covering performance and financial guarantees pursuant to contractual arrangements with certain customers. The Company had total outstanding letters of credit aggregating to $410 million and $416 million at December 31, 2018 and 2017, respectively. The Company had the full availability of its $1 billion Credit Facility at December 31, 2018. These letters of credit may be drawn upon in the event of the Company's nonperformance.

Guarantees

The Company, from time to time, enters into contractual guarantees that arise in connection with its business acquisitions, dispositions, and other contractual arrangements in the normal course of business.

In connection with the spin-off of Engility in 2012, L3 entered into a Distribution Agreement and several other agreements that govern certain aspects of L3's relationship with Engility, including employee matters, tax matters, transition services, and the future supplier/customer relationship between L3 and Engility. These agreements generally provide cross-indemnities that, except as otherwise provided, are principally designed to place the financial responsibility for the obligations and liabilities of each entity with that respective entity. Engility has joint and several liability with L3 to the U.S. IRS for the consolidated U.S. Federal income taxes of L3's consolidated group for taxable periods in which Engility was a part of that group. However, the Tax Matters Agreement specifies the portion of this tax liability for which L3 and Engility will each bear responsibility, and L3 and Engility have agreed to indemnify each other against any amounts for which the other is not responsible. The Tax Matters Agreement also allocates responsibility between L3 and Engility for other taxes, including special rules for allocating tax liabilities in the event that the spin-off is determined not to be tax-free. Though valid as between the parties, the Tax Matters Agreement is not binding on the IRS.

The Company has three existing real estate lease agreements, which include residual guarantee amounts, expiring on August 31, 2020 and are accounted for as operating leases. On or before the lease expiration date, the Company can exercise options under the lease agreements to renew the leases, purchase the properties for $45 million, or sell the properties on behalf of the lessor (the "Sale Option"). If the Company elects the Sale Option, the Company must pay the lessor a residual guarantee amount of $39 million for the properties, on or before the lease expiration date. In addition, at the time the properties are sold, the Company must pay the lessor a supplemental rent payment equal to the gross sales proceeds in excess of the residual guarantee, provided that such amount shall not exceed $6 million. For these real estate lease agreements, if the gross sales proceeds are less than the sum of the residual guarantee amount and the supplemental rent payment, the Company is required to pay a supplemental rent payment to the extent the reduction in the fair value of the properties is demonstrated by an independent appraisal to have been caused by the Company's failure to properly maintain the properties. The aggregate residual guarantee amounts equal $39 million and are included in the future minimum payments under non-cancelable real estate operating lease payments relating to the expiration dates of such leases.

Environmental Matters

Management continually assesses the Company's obligations with respect to applicable environmental protection laws, including those obligations assumed in connection with certain business acquisitions. While it is difficult to determine the timing and ultimate cost to be incurred by the Company in order to comply with these laws, based upon available internal and external assessments, with respect to those environmental loss contingencies of which management is aware, the Company believes that there are no environmental loss contingencies that, individually or in the aggregate, would be material to the Company's consolidated results of operations. The Company accrues for these contingencies when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated.

Procurement Regulations

A substantial majority of the Company's revenues are generated from providing products and services under legally binding agreements or contracts with the U.S. Government, foreign government customers and state and local governments. U.S. Government contracts are subject to extensive legal and regulatory requirements, and, from time to time, agencies of the U.S. Government investigate whether such contracts were and are being conducted in accordance with these requirements. The Company is currently cooperating with the U.S. Government on several investigations from which civil, criminal or administrative proceedings have or could result and give rise to fines, penalties, compensatory and treble damages, restitution and/or forfeitures, including investigations into the pricing of certain contracts entered into by the C&NS segment. The Company does not currently anticipate that any of these investigations will have a material adverse effect, individually or in the aggregate, on its consolidated financial position, results of operations or cash flows. However, under U.S. Government regulations, an indictment of the Company by a federal grand jury, or an administrative finding against the Company as to its present responsibility to be a U.S. Government contractor or subcontractor, could result in the Company being suspended for a period of time from eligibility for awards of new government contracts or task orders or in a loss of export privileges. A conviction, or an administrative finding against the Company that satisfies the requisite level of seriousness, could result in debarment from contracting with the federal government for a specified term. In addition, all of the Company's U.S. Government contracts: (1) are subject to audit and various pricing and cost controls, (2) include standard provisions for termination for the convenience of the U.S. Government or for default and (3) are subject to cancellation if funds for contracts become unavailable. Foreign government contracts generally include comparable provisions relating to terminations for convenience or default, as well as other procurement clauses relevant to the foreign government.

Litigation Matters

The Company is also subject to litigation, proceedings, claims or assessments and various contingent liabilities incidental to its businesses, including the matter specified below. Furthermore, in connection with certain business acquisitions, the Company has assumed some or all claims against, and liabilities of, such acquired businesses, including both asserted and unasserted claims and liabilities.

In accordance with the accounting standard for contingencies, the Company records a liability when management believes that it is both probable that a liability has been incurred and the Company can reasonably estimate the amount of the loss. Generally, the loss is recorded at the amount the Company expects to resolve the liability. Amounts recoverable from insurance contracts or third parties are recorded as assets when deemed probable. At December 31, 2018, the Company did not record any amounts for recoveries from insurance contracts or third parties in connection with the amount of liabilities recorded for pending and threatened litigation. Legal defense costs are expensed as incurred. The Company believes it has recorded adequate provisions for its litigation matters. The Company reviews these provisions to reflect the impact of negotiations, settlements, rulings, advice of legal counsel and other information and events pertaining to a particular matter. While it is reasonably possible that an unfavorable outcome may occur in the matter set forth below, unless otherwise stated, the Company believes that it is not probable that a loss has been incurred in such matter. With respect to any litigation matter below for which it is reasonably possible that an unfavorable outcome may occur, an estimate of loss or range of loss is disclosed when such amount or amounts can be reasonably estimated. Although the Company believes that it has valid defenses with respect to legal matters and investigations pending against it, the results of litigation can be difficult to predict, particularly those involving jury trials. Therefore, it is possible that any of the following or other contingencies could have a material impact on the financial position, results of operations or cash flows of the Company in future periods.

HVC Alkmaar. On July 23, 2014, a notice of claim was received by the Company's former JovyAtlas business unit. The notice relates to losses resulting from a fire that occurred at an HVC Alkmaar bio-energy plant on July 21, 2013. The notice states that the fire resulted from the failure of an uninterruptible power supply (UPS) to provide sufficient power to act as a back-up energy supply, alleges that JovyAtlas was the manufacturer and service provider for the UPS and claims €11 million in estimated property damages and €35 million in estimated business interruption damages. The Company has tendered the notice of claim to its insurance carriers.

To date, four lawsuits challenging the merger of L3 Technologies, Inc, and the Harris Corporation have been filed by purported L3 stockholders: (1) an individual action captioned *Stein v. L3 Technologies, Inc., et al.*, in the Southern District of New York, naming L3 and the members of L3's board of directors; (2) a putative class action captioned *Raul v. L3 Technologies, Inc., et al.*, in the Southern District of New York, naming L3 and the members of L3's board of directors; (3) a putative class action captioned *Gross v. L3 Technologies, Inc., et al.*, in the Southern District of New York, naming L3 and the members of L3's board of directors; and (4) a putative class action captioned *Kent v. L3 Technologies, Inc., et al.*, in the District of Delaware, naming L3, the members of L3's board of directors, Harris and Merger Sub. The lawsuits allege violations of Sections 14 and 20 of the Exchange Act in connection with disclosure related to the merger in this joint proxy statement/prospectus. Among other remedies, the lawsuits seek injunctive relief enjoining the merger, damages and costs. L3, Harris, Merger Sub and the L3 board of directors believe these lawsuits are without merit and intend to defend against them vigorously.

20. Pension and Other Postretirement Benefits

The following table summarizes changes in the benefit obligations, the plan assets and funded status for all of the Company’s pension and postretirement benefit plans, as well as the aggregate balance sheet impact.

	Pension Plans		Postretirement Benefit Plans	
	2018	2017	2018	2017
	(in millions)			
Change in benefit obligation:				
Benefit obligation at the beginning of the year	$ 4,228	$ 3,758	$ 165	$ 177
Service cost	103	97	2	2
Interest cost	143	142	5	5
Plan participants’ contributions	2	2	5	5
Amendments	(13)	—	—	—
Actuarial (gain) loss	(340)	391	(11)	(13)
Foreign currency exchange rate changes	(27)	22	(2)	2
Curtailments and special termination benefits	—	2	—	—
Benefits paid	(159)	(186)	(14)	(13)
Benefit obligation at the end of the year	$ 3,937	$ 4,228	$ 150	$ 165
Change in plan assets:				
Fair value of plan assets at the beginning of the year	$ 3,047	$ 2,721	$ 67	$ 60
Actual return on plan assets	(119)	391	(3)	8
Employer contributions	96	97	6	7
Plan participants’ contributions	2	2	5	5
Foreign currency exchange rate changes	(27)	22	—	—
Benefits paid	(159)	(186)	(14)	(13)
Fair value of plan assets at the end of the year	$ 2,840	$ 3,047	$ 61	$ 67
Unfunded status at the end of the year	$ (1,097)	$ (1,181)	$ (89)	$ (98)
Assets and (liabilities) recognized on the consolidated balance sheets consist of:				
Non-current assets	$ 40	$ 48	$ —	$ —
Current liabilities	(8)	(6)	(7)	(8)
Non-current liabilities	(1,129)	(1,223)	(82)	(90)
	$ (1,097)	$ (1,181)	$ (89)	$ (98)

The table below summarizes the net loss and prior service cost balances at December 31, in the accumulated other comprehensive loss account, before related tax effects, for all of the Company’s pension and postretirement benefit plans.

	Pension Plans		Postretirement Benefit Plans	
	2018	2017	2018	2017
	(in millions)			
Net loss (gain)	$ 958	$ 1,035	$ (3)	$ (3)
Prior service (credit) cost	(1)	10	(25)	(27)
Total amount recognized	$ 957	$ 1,045	$ (28)	$ (30)

The aggregate accumulated benefit obligation (ABO) for all of the Company's pension plans was $3,614 million at December 31, 2018 and $3,831 million at December 31, 2017. The table below presents information for the pension plans with an ABO in excess of the fair value of plan assets at December 31, 2018 and 2017.

	Pension Plans	
	2018	2017
	(in millions)	
Projected benefit obligation	$ 3,681	$ 3,875
Accumulated benefit obligation	$ 3,367	$ 3,490
Fair value of plan assets	$ 2,547	$ 2,651

The table below summarizes the weighted average assumptions used to determine the benefit obligations for the Company's pension and postretirement plans disclosed at December 31, 2018 and 2017.

	Pension Plans		Postretirement Benefit Plans	
	2018	2017	2018	2017
Benefit obligations:				
Discount rate	4.43% (1)	3.78% (1)	4.28% (2)	3.59% (2)
Rate of compensation increase	3.50% (3)	3.50% (3)		

(1) The weighted average discount rate assumptions used at December 31, 2018 and 2017 were comprised of separate assumptions determined by country of 4.48% and 3.81% for the U.S. based plans, respectively, and 3.88% and 3.39% for the Canadian based plans, respectively.

(2) The weighted average discount rate assumptions used at December 31, 2018 and 2017 were comprised of separate assumptions determined by country of 4.34% and 3.63% for the U.S. based plans, respectively, and 3.81% and 3.33% for the Canadian based plans, respectively.

(3) The weighted average rate of compensation increase assumptions were comprised of separate assumptions determined by country of 3.5% for both the U.S. based plans and Canadian based plans at December 31, 2018 and 2017.

The following table summarizes the components of net periodic benefit cost for the Company's pension and postretirement benefit plans for the years ended December 31, 2018, 2017 and 2016.

	Pension Plans			Postretirement Benefit Plans		
	2018	2017	2016	2018	2017	2016
	(in millions)					
Components of net periodic benefit cost:						
Service cost (1)	$ 103	$ 97	$ 94	$ 2	$ 2	$ 2
Interest cost	143	142	135	5	5	6
Expected return on plan assets (1)	(223)	(197)	(186)	(5)	(4)	(4)
Amortization of prior service (credits) cost	(2)	1	—	(1)	(1)	(2)
Amortization of net loss (gains)	74	61	52	(3)	(2)	(2)
Curtailment loss and special termination benefits (2)	1	6	2	—	—	—
Net periodic benefit cost	$ 96	$ 110	$ 97	$ (2)	$ —	$ —

(1) In connection with the adoption of ASU 2017-07, the Company reclassified pension plan administrative expenses amounting to $15 million and $14 million for the years ended December 31, 2017 and 2016, respectively, from the service cost component to the expected return on plan assets component of net periodic benefit cost. Including the aforementioned policy change in connection with the adoption of this standard, operating income increased by $11 million and $1 million for the years ended December 31, 2017 and 2016, respectively, with a corresponding decrease of Interest and other income, net. The Company's percentage assumptions for expected long-term return on plan assets, which are disclosed further below, exclude expected plan administrative expenses.

(2) During the year ended December 31, 2017, the curtailment loss and special termination benefits charge is primarily due to a pension curtailment charge in connection with the decision to discontinue future service accruals for substantially all salaried employee defined benefit plans effective January 1, 2019.

The Company uses a spot rate approach in the measurement of the service and interest cost components of benefit cost for all of the Company's pension and postretirement benefit plans by applying specific spot rates along that yield curve to the relevant projected cash flows.

The following table summarizes the other changes in plan assets and benefit obligations recognized in other comprehensive income for the Company's pension and postretirement benefit plans for the years ended December 31, 2018, 2017 and 2016.

	Pension Plans			Postretirement Benefit Plans		
	2018	2017	2016	2018	2017	2016
	(in millions)					
Other changes in plan assets and benefit obligations recognized in other comprehensive income (loss):						
Net (gain) loss	$ (3)	$ 200	$ 179	$ (2)	$ (17)	$ (4)
Prior service (cost) credit	(13)	(4)	15	—	—	(2)
Amortization of net (loss) gain	(74)	(61)	(52)	3	2	2
Amortization of prior service credit (cost)	2	(1)	—	1	1	2
Total recognized in other comprehensive (loss) income	(88)	134	142	2	(14)	(2)
Total recognized in net periodic benefit cost and other comprehensive income (loss)	$ 8	$ 244	$ 239	$ —	$ (14)	$ (2)

The following table summarizes the amounts expected to be amortized from accumulated OCI and recognized as components of net periodic benefit costs during 2019.

	Pension Plans	Postretirement Benefit Plans	Total
	(in millions)		
Net loss (gain)	$ 44	$ (3)	$ 41
Prior service credit	(2)	—	(2)
	$ 42	$ (3)	$ 39

The table below summarizes the weighted average assumptions used to determine the net periodic benefit cost for the years ended December 31, 2018, 2017 and 2016.

	Pension Plans			Postretirement Benefit Plans		
	2018	2017	2016	2018	2017	2016
Discount rates:						
Benefit obligation	3.78% (1)	4.40% (1)	4.67% (1)	3.59% (4)	4.05% (4)	4.22% (4)
Service cost	3.84%	4.55%	4.83%	3.64%	4.21%	4.37%
Interest cost	3.45%	3.84%	3.95%	3.07%	3.26%	3.26%
Expected long-term return on plan assets	7.92% (2)	7.92% (2)	7.92% (2)	8.00%	7.43%	7.42%
Rate of compensation increase	3.50% (3)	3.50% (3)	3.50% (3)			

(1) The weighted average discount rate assumptions used for the years ended December 31, 2018, 2017, and 2016 were comprised of separate assumptions determined by country of 3.81%, 4.45% and 4.73% for the U.S. based plans and 3.39%, 3.79% and 3.93% for the Canadian based plans, respectively.

(2) The weighted average expected long-term return on plan assets assumptions used were comprised of separate assumptions determined by country of 8.00% for the years ended December 31, 2018, 2017 and 2016 for the U.S. based plans and 7.25% for the Canadian based plans for the years ended December 31, 2018, 2017 and 2016.

(3) The weighted average rate of compensation increase assumptions used for the years ended December 31, 2018, 2017 and 2016 were comprised of separate assumptions determined by country of 3.50% for both the U.S and Canadian based plans.

(4) The weighted average discount rate assumptions used for the years ended December 31, 2018, 2017 and 2016 were comprised of separate assumptions determined by country of 3.63%, 4.11% and 4.28% for the U.S. based plans and 3.33%, 3.64% and 3.74% for the Canadian based plans, respectively.

The expected long-term return on plan assets assumption represents the average rate that the Company expects to earn over the long-term on the assets of the Company's benefit plans, including those from dividends, interest income and capital appreciation, net of investment management expenses. The Company utilizes a third-party consultant to assist in the development of the expected long-term return on plan assets, which is based on expectations regarding future long-term rates of return for the plans' investment portfolio, with consideration given to the allocation of investments by asset class and historical rates of return for each individual asset class. The Company utilizes a building block methodology that utilizes historical and forward looking rates of return for each asset class and takes into account expected returns above inflation and risk premium. These long-term rates of return are then applied to the target portfolio allocations that are generally aligned with the actual asset allocations of the Company's plans to develop the expected long-term rate of return.

The annual increase in cost of benefits (health care cost trend rate) for the Company's U.S. based plans covering retirees under 65 years of age is assumed to be an average of 6.75% in 2019 and is assumed to gradually decrease to a rate of 4.5% in 2028 and thereafter. The health care cost trend rate for the Company's U.S. based plans covering retirees over 65 years of age is assumed to be an average of 7.75% in 2019 and is assumed to gradually decrease to a rate of 4.5% in 2032 and thereafter. The health care cost trend rate for the Company's Canadian based plans is assumed to be an average of 7.0% in 2019 and is assumed to stay flat for four years and reduce to 5.0% for ten years thereafter. Health care cost trend assumptions are based on (1) observed or expected short term rates of increase for different types of health models based on actual claims experience and benchmarking, and (2) a reasonable estimate of an appropriate, sustainable level of health care cost trend in the future, weighting the factors that primarily influence trends, which are price inflation and cost leveraging benefit plan features. Assumed health care cost trend rates can have a significant effect on amounts reported for postretirement medical benefit plans. A one percentage point change in the assumed health care cost trend rates would have the following effects:

	1 percentage point	
	Increase	Decrease
	(in millions)	
Effect on total service and interest cost	$ —	$ —
Effect on postretirement benefit obligations	$ 4	$ (4)

Plan Assets. The Company's Benefit Plan Committee (Committee) has the responsibility to formulate the investment policies and strategies for the plans' assets. The Committee structures the investment of plan assets to achieve the following goals: (1) maximize the plans' long-term rate of return on assets for an acceptable level of risk; and (2) limit the volatility of investment returns and consequent impact on the plans' assets. In the pursuit of these goals, the Committee has formulated the following investment policies and objectives: (1) invest assets of the plans in a manner consistent with the fiduciary standards of the Employee Retirement Income Security Act of 1974 (ERISA); (2) preserve the plans' assets; (3) maintain sufficient liquidity to fund benefit payments and pay plan expenses; (4) evaluate the performance of investment managers; and (5) achieve, on average, a minimum total rate of return equal to the established benchmarks for each asset category.

The Committee retains a professional investment consultant to advise the Committee and help ensure that the above policies and strategies are met. The Committee does not actively manage the day to day operations and selection process of individual securities and investments, as it retains the professional services of qualified investment management organizations to fulfill those tasks. Qualified investment management organizations are evaluated on several criteria for selection, with a focus on the investment management organizations' demonstrated capability to achieve results that will meet or exceed the investment objectives they have been assigned and conform to the policies established by the Committee. While the investment management organizations have investment discretion over the assets placed under their management, the Committee provides each investment manager with specific investment guidelines relevant to its asset class.

The Committee has established the allowable range that the plans' assets may be invested in for each major asset category. In addition, the Committee has established guidelines regarding diversification within asset categories to limit risk and exposure to a single or limited number of securities. The investments of the plans' include a diversified portfolio of both equity and fixed income investments. Equity investments are further diversified across U.S. and non-U.S. stocks, small to large capitalization stocks, and growth and value stocks. Fixed income assets are diversified across U.S. and non-U.S. issuers, corporate and governmental issuers, and credit quality. The plan also invests in real estate through publicly traded real estate securities. Derivatives may be used only for hedging purposes or to create synthetic long positions. The plans are prohibited from directly owning commodities, unregistered securities, restricted stock, private placements, or interests in oil, gas, mineral exploration, or other development programs. Further, short selling or utilizing margin buying for investment purposes is prohibited.

The table below presents the allowable range for each major category of the plans' assets at December 31, 2018 and the Company's pension plan and postretirement benefit plan weighted-average asset allocations at December 31, 2018 and 2017, by asset category.

	U.S.			Canada		
Asset Category	**Range**	**2018**	**2017**	**Range**	**2018**	**2017**
Domestic equity[1]	30%-60%	47%	47%	—%	13%	15%
International equity[2]	10%-20%	10	11	—	52	47
Total equities	45%-75%	57	58	40%-80%	65	62
Fixed income securities	20%-40%	30	28	—	28	25
Other, primarily cash and cash equivalents	0%-15%	6	7	—	7	13
Total fixed income securities and cash and cash equivalents	NA	NA	NA	20%-60%	35	38
Real estate securities	0%-15%	7	7	—	—	—
Total		100%	100%		100%	100%

(1) Domestic equities for Canadian plans refers to equities of Canadian companies.

(2) International equities for Canadian plans includes equities of U.S. companies.

NA - Not applicable. The Company's Master Pension Trust Investment Policy does not provide an allocation percentage range to fixed income securities and cash and cash equivalents.

The Committee regularly monitors the investment of the plans' assets to ensure that the actual investment allocation remains within the established range. The Committee also regularly measures and monitors investment risk through ongoing performance reporting and investment manager reviews. Investment manager reviews include assessing the managers' performance versus the appropriate benchmark index both in the short and long-term period, performance versus peers, and an examination of the risk the managers assumed in order to achieve rates of return.

The table below presents the fair value of the Company's pension plans' assets by asset category segregated by level within the fair value hierarchy, as described below.

	U.S. Pension Plans' Assets Fair Value Measured At December 31, 2018				Canadian Pension Plans' Assets Fair Value Measured At December 31, 2018			
Asset Category	**Level 1**	**Level 2**	**Level 3**	**Total**	**Level 1**	**Level 2**	**Level 3**	**Total**
				(in millions)				
Equity securities[1]:								
U.S. Equity	$ 1,205	$ —	$ —	$ 1,205	$ 64	$ —	$ —	$ 64
International Equity	90	—	—	90	95	—	—	95
Fixed Income — Investment Grade[2]	313	160	—	473	—	—	—	—
Fixed Income — High Yield[3]	—	271	—	271	—	—	—	—
Real Estate Investment Trusts[4]	185	—	—	185	—	—	—	—
Other[5]	—	146	—	146	4	16	—	20
Total assets at fair value	$ 1,793	$ 577	$ —	$ 2,370	$ 163	$ 16	$ —	$ 179
Liabilities for unsettled trades, net				(9)				—
Other investments measured at net asset value[6][7]				176				124
Total				$ 2,537				$ 303

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	U.S. Pension Plans' Assets				Canadian Pension Plans' Assets			
	Fair Value Measured At December 31, 2017				Fair Value Measured At December 31, 2017			
Asset Category	**Level 1**	**Level 2**	**Level 3**	**Total**	**Level 1**	**Level 2**	**Level 3**	**Total**
				(in millions)				
Equity securities(1):								
U.S. Equity	$ 1,297	$ —	$ —	$ 1,297	$ 71	$ —	$ —	$ 71
International Equity	87	—	—	87	105	—	—	105
Fixed Income — Investment Grade(2)	329	205	—	534	—	—	—	—
Fixed Income — High Yield(3)	—	219	—	219	—	—	—	—
Real Estate Investment Trusts(4)	196	—	—	196	—	—	—	—
Other(5)	—	198	—	198	8	37	—	45
Total assets at fair value	$ 1,909	$ 622	$ —	$ 2,531	$ 184	$ 37	$ —	$ 221
Liabilities for unsettled trades, net				(30)				—
Other investments measured at net asset value(6)(7)				203				122
Total				$ 2,704				$ 343

(1) Equity securities consist of investments in common stock of U.S. and international companies. The fair value of equity securities is based on quoted market prices available in active markets at the close of a trading day, primarily the New York Stock Exchange (NYSE), National Association of Securities Dealers Automated Quotations (NASDAQ), and various international exchanges.

(2) Approximately 66% and 62% at December 31, 2018 and 2017, respectively, of U.S. plan assets that are invested in the Fixed Income — Investment Grade asset category consist of a mutual fund offered by a registered investment company (the Fund) and fixed income securities. The Fund invests in investment grade fixed income securities, mortgaged-backed securities, U.S. treasury and agency bonds and corporate bonds. These investments are classified by the Company as a Level 1 measurement within the fair value hierarchy, as the mutual fund trades on an active market and daily, quoted prices are available. The remaining 34% and 38% at December 31, 2018 and 2017, respectively, of U.S. plan assets are fixed income securities, primarily investment grade corporate bonds from various industries held directly by the plan. The fair values of these investments are based on yields currently available on comparable bonds of issuers with similar credit ratings, quoted prices of similar bonds in an active market, or cash flows based on observable inputs and are classified as Level 2.

(3) Fixed Income — High Yield consists of investments in corporate high-yield bonds from various industries. The fair values of these investments are based on yields currently available on comparable bonds of issuers with similar credit ratings, quoted prices of similar bonds in an active market, or cash flows based on observable inputs.

(4) Real Estate Investment Trusts (REITs) consist of securities that trade on the major exchanges and invest directly in real estate, either through properties or mortgages.

(5) Other consists primarily of: (1) money market accounts, which invest primarily in short-term, high quality money market securities such as government obligations, commercial paper, time deposits and certificates of deposit, and are classified as Level 2, and (2) cash, which is classified as Level 1.

(6) In accordance with ASU 2015-07, certain investments that are measured at fair value using the net asset value (NAV) per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the statements of financial position.

(7) All of the U.S. plans other investments measured using NAV at December 31, 2018 and 2017 and approximately 30% and 31% at December 31, 2018 and 2017, respectively, of the Canadian plans other investments measured using NAV consist of a regulated commingled equity trust fund, for which fair value is based on the NAV at the end of each month. The NAV is calculated by the fund manager based on the fair value of the fund's holdings, primarily equity securities traded in active markets, determined as of the end of each month as a practical expedient to estimating fair value. This practical expedient is not used when it is determined to be probable that the fund will sell the investment for an amount different than the reported NAV. Withdrawals are permitted, with notice by the 20th day of each month, based on NAV. Approximately 70% and 69% at December 31, 2018 and 2017, respectively, of the Canadian plans other investments measured using NAV are invested in regulated commingled bond funds (the "Bond Funds"). As these Bond Funds do not trade in an active market, the fair value is based on NAVs calculated by fund managers based on yields currently available on comparable bonds of issuers with similar credit ratings, quoted prices of similar bonds in an active market, or cash flows based on observable inputs as a practical expedient to estimating fair value and classified as Level 2. Withdrawals are permitted monthly, with notice between 0 and 3 days of the transaction date, based on NAV.

The table below presents the fair value of the Company's postretirement benefit plans' assets by asset category segregated by level within the fair value hierarchy, as described below.

	Postretirement Benefit Plans' Assets							
	Fair Value Measured At December 31, 2018				Fair Value Measured At December 31, 2017			
Asset Category	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
	(in millions)							
Equity securities(1):								
U.S. Equity	$ 35	$ —	$ —	$ 35	$ 38	$ —	$ —	$ 38
International Equity	1	—	—	1	2	—	—	2
Fixed Income — Investment Grade(2)	9	2	—	11	10	3	—	13
Fixed Income — High Yield(3)	—	4	—	4	—	3	—	3
Real Estate Investment Trusts(4)	3	—	—	3	3	—	—	3
Other(5)	—	4	—	4	—	5	—	5
Total assets at fair value	$ 48	$ 10	$ —	$ 58	$ 53	$ 11	$ —	$ 64
Other investments measured at net asset value(6)(7)				3				3
Total				$ 61				$ 67

(1) Equity securities consist of investments in common stock of U.S. and international companies. The fair value of equity securities is based on quoted market prices available in active markets at the close of a trading day, primarily the NYSE, NASDAQ, and various international exchanges.

(2) Approximately 82% and 77% at December 31, 2018 and 2017, respectively, of the postretirement benefit plan assets that are invested in the Fixed Income — Investment Grade asset category consist of the Fund and fixed income securities. The Fund invests in investment grade fixed income securities, mortgaged-backed securities, U.S. treasury and agency bonds and corporate bonds. These investments are classified by the Company as a Level 1 measurement within the fair value hierarchy as the mutual fund trades on an active market and daily, quoted prices are available. The remaining 18% and 23% at December 31, 2018 and 2017, respectively, of the postretirement benefit plan assets are fixed income securities, primarily investment grade corporate bonds from various industries held directly by the plan. The fair values of these investments are based on yields currently available on comparable bonds of issuers with similar credit ratings, quoted prices of similar bonds in an active market, or cash flows based on observable inputs and are classified as Level 2.

(3) Fixed Income — High Yield consists of investments in corporate high-yield bonds from various industries. The fair values of these investments are based on yields currently available on comparable bonds of issuers with similar credit ratings, quoted prices of similar bonds in an active market, or cash flows based on observable inputs.

(4) REITs consist of securities that trade on the major exchanges and invest directly, either through properties or mortgages.

(5) Other consists primarily of money market accounts, which invest primarily in short-term, high quality money market securities such as government obligations, commercial paper, time deposits and certificates of deposit.

(6) In accordance with ASU 2015-07, certain investments that are measured at fair value using the NAV per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the statements of financial position.

(7) All of the postretirement benefit plans other investments measured using NAV at December 31, 2018 and 2017 consist of a regulated commingled equity trust fund, which fair value is based on NAV at the end of each month. The NAV is calculated by the fund manager based on the fair value of the fund's holdings, primarily equity securities traded in active markets, determined as of the end of each month as a practical expedient to estimating fair value. This practical expedient is not used when it is determined to be probable that the fund will sell the investment for an amount different than the reported NAV. Withdrawals are permitted, with notice by the 20th day of each month, based on NAV.

Contributions. The funding policy for the Company's pension and postretirement benefit plans is to contribute at least the minimum required by applicable laws and regulations or to directly make benefit payments where appropriate. The Company makes voluntary, additional contributions to the pension plans depending on a number of factors, including operating cash flow levels, alternative uses for excess cash and the plans' funded status. At December 31, 2018, all legal funding requirements had been met. For the year ending December 31, 2019, the Company currently expects to contribute approximately $80 million to its pension plans, and approximately $8 million to its postretirement benefit plans.

Estimated Future Benefit Payments. The following table presents expected pension and postretirement benefit payments and expected postretirement subsidies due to the Medicare Prescription Drug Improvement and Modernization Act of 2003, which reflect expected future service, as appropriate.

	Pension Benefits	Postretirement Benefits: Benefit Payments	Postretirement Benefits: Subsidy Receipts
	(in millions)		
2019	$ 168	$ 12	$ —
2020	176	12	—
2021	184	12	—
2022	194	12	—
2023	201	12	—
Years 2024 - 2028	1,150	53	1

Employee Savings Plans. Under its various employee savings plans, the Company matches the contributions of participating employees up to a designated level. The extent of the match, vesting terms and the form of the matching contributions vary among the plans. Under these plans, the Company's matching contributions in L3's common stock and cash were $118 million for 2018, $115 million for 2017 and $118 million for 2016. These matching contributions include amounts attributable to discontinued operations of $2 million for 2018, $8 million for 2017 and $12 million for 2016.

Multiemployer Benefit Plans. Certain of the Company's businesses participate in multiemployer defined benefit pension plans. The Company makes cash contributions to these plans under the terms of collective-bargaining agreements that cover its union employees based on a fixed rate per hour of service worked by the covered employees. The risks of participating in these multiemployer plans are different from single-employer plans in the following aspects: (1) assets contributed to the multiemployer plan by one employer may be used to provide benefits to employees of other participating employers, (2) if a participating employer stops contributing to the plan, the unfunded obligations of the plan may be borne by the remaining participating employers and (3) if the Company chooses to stop participating in some of its multiemployer plans, the Company may be required to pay those plans an amount based on the underfunded status of the plan, referred to as a withdrawal liability. In connection with the sale of the Vertex Aerospace business, the Company no longer participates in the majority of its multiemployer plans. Under the Company's remaining multiemployer plans, cash contributed and expenses recorded for the year ended December 31, 2018 were less than $1 million.

21. Supplemental Cash Flow Information

	Year Ended December 31, 2018	2017	2016
	(in millions)		
Interest paid	$ 183	$ 165	$ 162
Income tax payments	$ 108	$ 163	$ 120
Income tax refunds	$ 7	$ 16	$ 8

22. Segment Information and Disaggregation of Net Sales

In the third quarter of 2018, the Company completed a realignment of its business segments to maximize growth and improve its integration and collaboration across the enterprise. As a result of the realignment, L3 has the following three reportable segments: (1) ISRS, (2) C&NS and (3) Electronic Systems.

The Company evaluates the performance of its operating segments and reportable segments based on their sales, operating income and operating margin. Corporate expenses are allocated to the Company's operating segments using an allocation methodology prescribed by U.S. Government regulations for government contractors. Accordingly, segment results include all costs and expenses, except for goodwill impairment charges, gains or losses related to business divestitures, and certain other items that are excluded by management for purposes of evaluating the operating performance of the Company's business segments. Certain Corporate and segment expenses of $15 million the year ended December 31, 2018, $32 million for the year ended

December 31, 2017 and $29 million for the year ended December 31, 2016, that had previously been allocated to the Vertex Aerospace and NSS businesses were retained by the Company and were allocated to L3's three reportable segments.

The tables below present net sales, operating income, depreciation and amortization, capital expenditures and total assets by reportable segment.

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Net Sales			
Products			
ISRS	$ 2,907	$ 2,540	$ 2,662
C&NS	2,307	2,424	2,238
Electronic Systems	2,007	1,814	1,617
Elimination of intercompany sales	(56)	(45)	(64)
Total products sales	7,165	6,733	6,453
Services			
ISRS	$ 1,549	$ 1,463	$ 1,450
C&NS	787	717	678
Electronic Systems	789	695	653
Elimination of intercompany sales	(46)	(35)	(24)
Total services sales	3,079	2,840	2,757
Consolidated total	$ 10,244	$ 9,573	$ 9,210
Operating income			
ISRS	$ 448	$ 348	$ 362
C&NS	282	362	298
Electronic Systems	376	321	298
Segment total	1,106	1,031	958
Gain on sale of the Crestview & TCS businesses	42	—	—
Merger and acquisition related expenses	(28)	—	—
Consolidated total	$ 1,120	$ 1,031	$ 958
Depreciation and amortization			
ISRS	$ 92	$ 87	$ 80
C&NS	69	66	63
Electronic Systems	80	72	55
Consolidated total	$ 241	$ 225	$ 198
Capital Expenditures			
ISRS	$ 57	$ 74	$ 83
C&NS	50	76	51
Electronic Systems	108	52	66
Corporate	17	22	10
Consolidated total	$ 232	$ 224	$ 210

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Total Assets			
ISRS	$ 4,720	$ 4,135	$ 4,117
C&NS	3,670	3,505	3,258
Electronic Systems	4,128	3,939	3,542
Corporate	1,000	709	467
Assets held for sale	—	135	—
Assets of discontinued operations	—	306	481
Consolidated total	$ 13,518	$ 12,729	$ 11,865

The table below presents property, plant and equipment, net by geographic area.

	Year Ended December 31,	
	2018	2017
	(in millions)	
United States	$ 973	$ 936
All other	196	174
Total	$ 1,169	$ 1,110

The Company’s sales attributable to U.S. and international customers, based on location of the customer, are summarized in the table below.

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
U.S.	$ 7,843	$ 7,344	$ 6,947
International:			
Canada	312	280	297
United Kingdom	309	335	331
Australia	219	268	254
China	156	167	67
Japan	145	125	81
Saudi Arabia	128	58	159
Turkey	113	61	61
Other	1,019	935	1,013
Total international	2,401	2,229	2,263
Consolidated	$ 10,244	$ 9,573	$ 9,210

Net sales to principal customers are summarized in the table below.

	Year Ended December 31,		
	2018	2017	2016
	(in millions)		
U.S. Government agencies[(1)]	$ 7,144	6,697	$ 6,399
Commercial	1,572	1,456	1,280
Foreign governments[(1)]	1,528	1,420	1,531
Consolidated	$ 10,244	9,573	$ 9,210

(1) Includes sales for which the Company is the prime contractor as well as sales based on the ultimate end customer for which the Company is a subcontractor.

Corporate assets not allocated to the reportable segments primarily include cash and cash equivalents, corporate office fixed assets, and deferred income tax assets.

Disaggregation of Total Net Sales**.** The Company disaggregates its sales from contracts with customers by: (1) end customer, (2) contract type, (3) deliverable type and (4) revenue recognition method for each of its segments. The Company believes these factors affect the nature, amount, timing and uncertainty of the Company's revenue and cash flows.

Sales by End Customer. Direct sales to the end customer represented approximately 64% of the Company's consolidated sales for the year ended December 31, 2018 and indirect sales as a subcontractor or supplier represented the remaining 36%. The table below present total net sales disaggregated by end customer.

End Customer	Year Ended December 31, 2018 ISRS	C&NS	Electronic Systems	Consolidated L3
	(in millions)			
Total DoD	$ 3,081	$ 2,291	$ 1,349	$ 6,721
Other U.S. Government	150	95	178	423
Total U.S. Government	3,231	2,386	1,527	7,144
Foreign governments [1]	1,006	327	195	1,528
Commercial — foreign	75	123	675	873
Commercial — domestic	129	223	347	699
Total	$ 4,441	$ 3,059	$ 2,744	$ 10,244

(1) Includes sales under foreign military sales agreements, which are made directly between the U.S. Government and foreign governments.

Sales by Contract Type. Generally, the sales price arrangements for the Company's contracts are either fixed-price, cost-plus or time-and-material type. Fixed-price type contracts generally offer higher profit margin potential than cost-plus type or time-and-material type contracts due to the greater levels of risk assumed on a fixed-price type contract.

On a fixed-price type contract, the Company agrees to perform the contractual statement of work for a predetermined sales price. On a cost-plus type contract, the Company is paid its allowable incurred costs plus a profit which can be fixed or variable depending on the contract's fee arrangement up to predetermined funding levels determined by the customer. Cost-plus type contracts with award and incentive fee provisions are the Company's primary variable contract fee arrangement. On a time-and-material type contract, the Company is paid on the basis of direct labor hours expended at specified fixed-price hourly rates (that include wages, overhead, allowable general and administrative expenses and profit) and materials at cost.

Substantially all of the Company's cost-plus type contracts and time-and-material type contracts are with U.S. Government customers, while sales to foreign government and commercial customers are generally transacted under fixed-price sales arrangements and are included in the Company's fixed-price contract type sales. The table below present total net sales disaggregated by contract type.

Contract Type	Year Ended December 31, 2018 ISRS	C&NS	Electronic Systems	Consolidated L3
	(in millions)			
Fixed-price[1]	$ 2,839	$ 2,202	$ 2,317	$ 7,358
Cost-plus[2]	1,393	768	410	2,571
Time-and-material	209	89	17	315
Total sales	$ 4,441	$ 3,059	$ 2,744	$ 10,244

(1) Includes fixed-price incentive fee type contracts, which contributed approximately 1% to the Company's total net sales for the year ended December 31, 2018.

(2) Includes cost-plus award and incentive fee type contracts, which contributed approximately 4% to the Company's total net sales for the year ended December 31, 2018.

Sales by Deliverable Type: The table below present total net sales disaggregated by the type of deliverable, which is determined by the Company at the performance obligation level.

	Year Ended December 31, 2018			
Sales by Deliverable Type	**ISRS**	**C&NS**	**Electronic Systems**	**Consolidated L3**
	(in millions)			
Products	$ 2,907	$ 2,299	$ 1,959	$ 7,165
Services	1,534	760	785	3,079
Total sales	$ 4,441	$ 3,059	$ 2,744	$ 10,244

Revenue Recognition Method: The table below present total net sales disaggregated based on the revenue recognition method applied.

	Year Ended December 31, 2018			
Revenue Recognition Method	**ISRS**	**C&NS**	**Electronic Systems**	**Consolidated L3**
	(in millions)			
Over time (cost-to-cost method)	$ 3,352	$ 2,603	$ 1,649	$ 7,604
Point in time	866	359	705	1,930
Output method	74	23	343	440
Billing method	149	74	47	270
Total sales	$ 4,441	$ 3,059	$ 2,744	$ 10,244

23. Severance and Restructuring Related Costs

Consistent with the Company's strategy to continuously improve its cost structure and right-size its businesses, L3 is completing employment reduction actions across several of its businesses to reduce both direct and indirect costs, including overhead and general and administrative costs. As a result of these initiatives, the Company recorded severance and restructuring related costs of $26 million with respect to approximately 800 employees during the year ended December 31, 2018, $101 million with respect to approximately 1,500 employees during the year ended December 31, 2017 and $17 million with respect to approximately 700 employees during the year ended December 31, 2016. Severance and restructuring related costs are reported within operating costs and expenses on the consolidated statements of operations. Severance and restructuring related costs incurred by reportable segment are presented in the table below.

	Year Ended December 31,		
	2018	**2017**	**2016**
	(in millions)		
ISRS[1][2]	$ 7	$ 38	$ 5
C&NS[3]	11	52	8
Electronic Systems[2]	8	11	4
Consolidated	$ 26	$ 101	$ 17

(1) The severance and restructuring related costs incurred during the year ended December 31, 2017 include a $12 million loss on the sale of a building in Garland, Texas in the fourth quarter of 2017.

(2) The severance and restructuring related costs incurred during the year ended December 31, 2017 include $1 million and $5 million of salaried employee pension plan curtailment losses for Electronic Systems and ISRS segments, respectively. See Note 20 for additional information.

(3) The severance and restructuring related costs incurred during the year ended December 31, 2017 exclude a pre-tax gain of $42 million on the sale of the Company's property in San Carlos, California in the second quarter of 2017.

The Company had severance and restructuring related liabilities of $14 million and $23 million included in other current liabilities on the Company's balance sheets at December 31, 2018 and 2017, respectively. The remaining liability balance at December 31, 2018 is expected to be paid in 2019. The table below presents the change to the Company's severance and restructuring related liability during the year ended December 31, 2018.

	December 31, 2018
	(in millions)
Balance at beginning of period	$ 23
Additional provisions	26
Cash payments	(35)
Balance at end of period	$ 14

24. Unaudited Quarterly Financial Data

Unaudited summarized financial data by quarter for the years ended December 31, 2018 and 2017 is presented in the tables below. The Company's unaudited quarterly results of operations are affected, significantly in some periods, by the Company's business acquisitions and divestitures. See Note 3 for additional information.

	First Quarter	Second Quarter[(1)]	Third Quarter[(2)]	Fourth Quarter[(3)]
	(in millions, except per share data)			
2018				
Sales	$ 2,371	$ 2,583	$ 2,519	$ 2,771
Operating income	251	321	272	276
Income from continuing operations	192	189	208	232
Net income	208	379	208	231
Net income attributable to L3	203	375	202	225
Basic EPS from continuing operations[(4)]	2.40	2.36	2.57	2.87
Basic EPS[(4)]	2.60	4.78	2.57	2.86
Diluted EPS from continuing operations[(4)]	2.34	2.33	2.54	2.83
Diluted EPS[(4)]	2.54	4.72	2.54	2.82

———————————

(1) Income from continuing operations includes debt retirement charges of $48 million ($36 million after income taxes), or $0.45 per diluted share and a pre-tax gain of $48 million ($25 million after income taxes), or $0.31 per diluted share, related to the divestiture of the Crestview Aerospace and TCS businesses. The Company recorded a pre-tax gain of $237 million ($180 million after income taxes, or $2.27 per diluted share) related to the divestiture of the Vertex Aerospace business, which is reported in discontinued operations.

(2) Income from continuing operations includes debt retirement charges of $21 million ($16 million after income taxes), or $0.21 per diluted share, merger and acquisition related expenses of $5 million ($4 million after income taxes), or $0.06 per diluted share and adjustments to divestiture gains of $4 million ($4 million after income taxes), or $0.04 per diluted share, related to the sale of the Crestview Aerospace and TCS businesses.

(3) Income from continuing operations includes merger and acquisition related expenses of $23 million ($19 million after income taxes), or $0.24 per diluted share and adjustments to divestiture gains of $2 million ($2 million after income taxes), or $0.03 per diluted share, related to the sale of the Crestview Aerospace and TCS businesses.

(4) EPS in each quarter is computed using the weighted-average number of shares outstanding during that quarter, while EPS for the full year is computed using the weighted-average number of shares outstanding during the year. Therefore, the sum of the four quarters' EPS may not equal the full year computed EPS.

	First Quarter	Second Quarter	Third Quarter[(1)]	Fourth Quarter[(2)]
	(in millions, except per share data)			
2017				
Sales	$ 2,321	$ 2,385	$ 2,293	$ 2,574
Operating income	237	294	232	268
Income from continuing operations	157	195	146	271
Net income	168	207	25	293
Net income attributable to L3	164	202	22	289
Basic EPS from continuing operations[(3)]	1.97	2.44	1.83	3.42
Basic EPS[(3)]	2.11	2.59	0.28	3.70
Diluted EPS from continuing operations[(3)]	1.93	2.39	1.79	3.34
Diluted EPS[(3)]	2.07	2.54	0.28	3.62

(1) The Company recorded a goodwill impairment charge of $187 million or $1.67 per diluted share for the Vertex Aerospace reporting unit in 2017, which is reported in discontinued operations.

(2) Provision for income taxes for the fourth quarter of 2017, includes estimated tax benefits of $79 million or $0.99 per diluted share, related to the enactment of the U.S. Tax Reform in December 2017.

(3) EPS in each quarter is computed using the weighted-average number of shares outstanding during that quarter, while EPS for the full year is computed using the weighted-average number of shares outstanding during the year. Therefore, the sum of the four quarters' EPS may not equal the full year computed EPS.

25. Financial Information of L3 and Its Subsidiaries

The debt of L3, including the senior notes and borrowings under amounts drawn against the Credit Facility, is guaranteed, on a joint and several, full and unconditional basis, by certain of its 100% owned domestic subsidiaries (the Guarantor Subsidiaries). See Note 10 for additional information. The foreign subsidiaries and certain domestic subsidiaries of L3 (the Non-Guarantor Subsidiaries) do not guarantee the debt of L3. None of the debt of L3 has been issued by its subsidiaries.

Under the terms of the indentures governing the senior notes, the guarantees of the senior notes will automatically and unconditionally be released and discharged: (1) upon the release of all guarantees of all other outstanding indebtedness of L3, or (2) upon the determination that such guarantor is no longer a "domestic subsidiary." In addition, the guarantees of the senior notes will be automatically and unconditionally released and discharged in the event of a sale or other disposition of all of the assets of any guarantor, by way of merger, consolidation or otherwise, or a sale of all of the capital stock of such guarantor. There are no restrictions on the payment of dividends from the Guarantor Subsidiaries to L3.

In lieu of providing separate audited financial statements for the Guarantor Subsidiaries, the Company has included the accompanying condensed combining financial statements based on Rule 3-10 of SEC Regulation S-X. The Company does not believe that separate financial statements of the Guarantor Subsidiaries are material to users of the financial statements.

The following condensed combining financial information presents the results of operations, financial position and cash flows of: (1) L3 excluding its consolidated subsidiaries (the Parent), (2) the Guarantor Subsidiaries, (3) the Non-Guarantor Subsidiaries and (4) the eliminations to arrive at the information for L3 on a consolidated basis.

	L3	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Eliminations	Consolidated L3
			(in millions)		
Condensed Combining Balance Sheets:					
At December 31, 2018:					
Current assets:					
Cash and cash equivalents	$ 756	$ 21	$ 306	$ (17)	$ 1,066
Billed receivables, net	291	341	287	—	919
Contract assets	562	833	195	—	1,590
Inventories	378	258	243	—	879
Prepaid expenses and other current assets	127	166	63	—	356
Total current assets	2,114	1,619	1,094	(17)	4,810
Goodwill	2,124	3,009	1,675	—	6,808
Other assets	690	765	445	—	1,900
Investment in and amounts due from consolidated subsidiaries	5,931	6,912	—	(12,843)	—
Total assets	$ 10,859	$ 12,305	$ 3,214	$ (12,860)	$ 13,518
Current liabilities	$ 821	$ 955	$ 688	$ (17)	$ 2,447
Amounts due to consolidated subsidiaries	—	—	417	(417)	—
Other long-term liabilities	878	804	161	—	1,843
Long-term debt	3,321	—	—	—	3,321
Total liabilities	5,020	1,759	1,266	(434)	7,611
L3 shareholders' equity	5,839	10,546	1,948	(12,494)	5,839
Noncontrolling interests	—	—	—	68	68
Total equity	5,839	10,546	1,948	(12,426)	5,907
Total liabilities and equity	$ 10,859	$ 12,305	$ 3,214	$ (12,860)	$ 13,518

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	L3	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Eliminations	Consolidated L3
			(in millions)		
At December 31, 2017:					
Current assets:					
Cash and cash equivalents	$ 432	$ 16	$ 285	$ (71)	$ 662
Billed receivables, net	266	244	213	—	723
Contracts in process	706	912	315	—	1,933
Prepaid expenses and other current assets	330	235	124	—	689
Assets held for sale	—	135	—	—	135
Assets of discontinued operations	306	—	—	—	306
Total current assets	2,040	1,542	937	(71)	4,448
Goodwill	2,099	2,932	1,584	—	6,615
Other assets	658	687	321	—	1,666
Investment in and amounts due from consolidated subsidiaries	5,662	6,310	—	(11,972)	—
Total assets	$ 10,459	$ 11,471	$ 2,842	$ (12,043)	$ 12,729
Current liabilities	$ 811	$ 832	$ 564	$ (71)	$ 2,136
Liabilities held for sale	—	17	—	—	17
Liabilities of discontinued operations	226	—	—	—	226
Amounts due to consolidated subsidiaries	—	—	391	(391)	—
Other long-term liabilities	1,009	729	131	—	1,869
Long-term debt	3,330	—	—	—	3,330
Total liabilities	5,376	1,578	1,086	(462)	7,578
L3 shareholders’ equity	5,083	9,893	1,756	(11,649)	5,083
Noncontrolling interests	—	—	—	68	68
Total equity	5,083	9,893	1,756	(11,581)	5,151
Total liabilities and equity	$ 10,459	$ 11,471	$ 2,842	$ (12,043)	$ 12,729

	L3	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Eliminations	Consolidated L3
			(in millions)		
Condensed Combining Statements of Operations:					
For the year ended December 31, 2018:					
Total net sales	$ 3,626	$ 5,259	$ 1,806	$ (447)	$ 10,244
Total operating costs and expenses	(3,180)	(4,943)	(1,462)	447	(9,138)
Gain on sale of Crestview & TCS Businesses	—	42	—	—	42
Merger and acquisition related expenses	(28)	—	—	—	(28)
Operating income	418	358	344	—	1,120
Interest expense	(163)	—	(1)	—	(164)
Interest and other income, net	31	3	3	—	37
Debt retirement charges	(69)	—	—	—	(69)
Income from continuing operations before income taxes	217	361	346	—	924
Provision for income taxes	(24)	(40)	(39)	—	(103)
Equity in net income of consolidated subsidiaries	607	184	—	(791)	—
Income from continuing operations	800	505	307	(791)	821
Income from discontinued operations, net of income tax	205	—	—	—	205
Net income	1,005	505	307	(791)	1,026
Net income attributable to noncontrolling interests	—	—	—	(21)	(21)
Net income attributable to L3	$ 1,005	$ 505	$ 307	$ (812)	$ 1,005
Comprehensive income attributable to L3	$ 971	$ 427	$ 226	$ (653)	$ 971
For the year ended December 31, 2017:					
Total net sales	$ 3,520	$ 4,852	$ 1,581	$ (380)	$ 9,573
Total operating costs and expenses	(3,169)	(4,446)	(1,307)	380	(8,542)
Operating income	351	406	274	—	1,031
Interest expense	(168)	—	(1)	—	(169)
Interest and other income (loss), net	6	(8)	11	—	9
Income from continuing operations before income taxes	189	398	284	—	871
Provision for income taxes	(22)	(47)	(33)	—	(102)
Equity in net income of consolidated subsidiaries	586	144	—	(730)	—
Income from continuing operations	753	495	251	(730)	769
Loss from discontinued operations, net of income tax	(76)	—	—	—	(76)
Net income	677	495	251	(730)	693
Net income attributable to noncontrolling interests	—	—	—	(16)	(16)
Net income attributable to L3	$ 677	$ 495	$ 251	$ (746)	$ 677
Comprehensive income attributable to L3	$ 712	$ 604	$ 378	$ (982)	$ 712
For the year ended December 31, 2016:					
Total net sales	$ 3,351	$ 4,842	$ 1,348	$ (331)	$ 9,210
Total operating costs and expenses	(3,064)	(4,406)	(1,113)	331	(8,252)
Operating income	287	436	235	—	958
Interest expense	(164)	—	—	—	(164)
Interest and other income (loss), net	9	(3)	11	—	17
Debt retirement charges	(7)	—	—	—	(7)
Income from continuing operations before income taxes	125	433	246	—	804
Provision for income taxes	(26)	(92)	(53)	—	(171)
Equity in net income of consolidated subsidiaries	520	130	—	(650)	—
Income from continuing operations	619	471	193	(650)	633
Income from discontinued operations, net of income tax	91	—	—	—	91
Net income	710	471	193	(650)	724
Net income attributable to noncontrolling interests	—	—	—	(14)	(14)
Net income attributable to L3	$ 710	$ 471	$ 193	$ (664)	$ 710
Comprehensive income attributable to L3	$ 558	$ 409	$ 116	$ (525)	$ 558

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	L3	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Eliminations	Consolidated L3
			(in millions)		
Condensed Combining Statements of Cash Flows:					
For the year ended December 31, 2018:					
Operating activities:					
Net cash from operating activities from continuing operations	$ 555	$ 238	$ 256	$ (7)	$ 1,042
Investing activities:					
Business acquisitions, net of cash acquired	(193)	—	(176)	—	(369)
Proceeds from sale of businesses, net of closing date cash balances	360	175	—	—	535
Other investing activities	(119)	(90)	(48)	—	(257)
Net cash from (used in) investing activities from continuing operations	48	85	(224)	—	(91)
Financing activities:					
Proceeds from sale of senior notes	1,798	—	—	—	1,798
Repurchases and redemptions of senior notes	(1,865)	—	—	—	(1,865)
Common stock repurchased	(322)	—	—	—	(322)
Dividends paid	(254)	—	—	—	(254)
Other financing activities	376	(318)	4	61	123
Net cash (used in) from financing activities from continuing operations	(267)	(318)	4	61	(520)
Effect of foreign currency exchange rate changes on cash	—	—	(15)	—	(15)
Net decrease in cash and cash equivalents of discontinued operations	(12)	—	—	—	(12)
Net increase in cash	324	5	21	54	404
Cash and cash equivalents, beginning of the year	432	16	285	(71)	662
Cash and cash equivalents, end of the year	$ 756	$ 21	$ 306	$ (17)	$ 1,066
For the year ended December 31, 2017:					
Operating activities:					
Net cash from operating activities from continuing operations	$ 374	$ 426	$ 263	$ (78)	$ 985
Investing activities:					
Business acquisitions, net of cash acquired	(316)	—	—	—	(316)
Proceeds from sale of businesses, net of closing date cash balances	17	—	1	—	18
Other investing activities	(92)	(38)	(25)	—	(155)
Net cash used in investing activities from continuing operations	(391)	(38)	(24)	—	(453)
Financing activities:					
Common stock repurchased	(180)	—	—	—	(180)
Dividends paid	(236)	—	—	—	(236)
Other financing activities	490	(377)	(177)	114	50
Net cash from (used in) financing activities from continuing operations	74	(377)	(177)	114	(366)
Effect of foreign currency exchange rate changes on cash	—	—	20	—	20
Net increase in cash and cash equivalents of discontinued operations	113	—	—	—	113
Net increase in cash	170	11	82	36	299
Cash and cash equivalents, beginning of the year	262	5	203	(107)	363
Cash and cash equivalents, end of the year	$ 432	$ 16	$ 285	$ (71)	$ 662

L3 TECHNOLOGIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS − CONTINUED

	L3	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Eliminations	Consolidated L3
			(in millions)		
For the year ended December 31, 2016:					
Operating activities:					
Net cash from operating activities from continuing operations	$ 440	$ 509	$ 259	$ (186)	$ 1,022
Investing activities:					
Business acquisitions, net of cash acquired	(388)	—	—	—	(388)
Proceeds from sale of businesses, net of closing date cash balances	563	—	(2)	—	561
Other investing activities	(63)	(77)	(43)	—	(183)
Net cash from (used in) investing activities from continuing operations	112	(77)	(45)	—	(10)
Financing activities:					
Proceeds from sale of senior notes	547	—	—	—	547
Redemption of senior notes	(856)	—	—	—	(856)
Common stock repurchased	(373)	—	—	—	(373)
Dividends paid	(220)	—	—	—	(220)
Other financing activities	490	(427)	(163)	146	46
Net cash used in financing activities from continuing operations	(412)	(427)	(163)	146	(856)
Effect of foreign currency exchange rate changes on cash	—	—	(13)	—	(13)
Net increase in cash and cash equivalents of discontinued operations	13	—	—	—	13
Net increase in cash	153	5	38	(40)	156
Cash and cash equivalents, beginning of the year	109	—	165	(67)	207
Cash and cash equivalents, end of the year	$ 262	$ 5	$ 203	$ (107)	$ 363

November 5, 2018

Mr. Christopher E. Kubasik
c/o L3 Technologies, Inc.
600 Third Ave.
New York, NY 10016

Dear Chris:

This letter memorializes our recent discussions regarding the terms of your employment with L3 Technologies, Inc. ("L3") following the completion of the merger (the "Merger") contemplated by the Agreement and Plan of Merger among L3, Harris Corporation ("Harris") and Leopard Merger Sub Inc., dated as of October 12, 2018 (the "Merger Agreement"). References in this letter to the "Company" will be deemed to refer to L3 before the Closing and to the Combined Company (as defined in the Merger Agreement) after the Closing. Except as modified herein, the terms of the L3 Technologies, Inc. Amended and Restated Change in Control Severance Plan, as amended and restated through July 25, 2018 (the "CIC Plan"), will remain in full force and effect. Capitalized terms not defined herein have the meanings ascribed to them in the Merger Agreement. In the event that (i) your employment with the Company terminates for any reason prior to the Closing Date or (ii) the Merger Agreement is terminated prior to the closing of the Merger, this letter will automatically terminate and be of no further force or effect and neither of the parties will have any obligations hereunder. This agreement supersedes in its entirety the letter agreement and the Term Sheet attached thereto, dated October 12, 2018, between you and L3.

1. Position.

For the period commencing on the Closing Date and ending on the second anniversary of the Closing Date, or if earlier, the date when William Brown ceases to serve as the Chief Executive Officer of the Company for any reason (the "Initial Period"), you will serve as the President and Chief Operating Officer of the Company and report directly to the Chief Executive Officer of the Company; *provided* that your performance evaluation shall be conducted by the independent members of the Company's Board of Directors (the "Board"). Commencing on the Closing Date, you will also serve as the Vice Chairman of the Board. During the Initial Period, (i) you will be responsible for oversight of operational functions and the presidents of each operating segment, business development, supply chain, manufacturing and other operating functions will report directly to you and (ii) you and the Chief Executive Officer will (x) establish and co-chair an integration steering committee to be composed of executives and other employees to be mutually selected by you and the Chief Executive Officer of the Company and (y) have joint responsibility for overseeing the officer of the Company that is responsible for leading the integration process of the businesses of Harris and L3 following the Closing Date.

Commencing immediately after the Initial Period, you will become the Chief Executive Officer of the Company and you will continue to serve as President of the Company and Vice Chairman of the Board and report directly to the Board. As President and Chief Executive Officer, your duties and responsibilities will be determined by the Board in good faith in consultation with you and will be consistent with your position.

On the third anniversary of the Closing Date, you will also assume the position of Chairman of the Board.

2. Compensation.

During the Protection Period (as defined below), your annual base salary will be $1,450,000, your target annual cash bonus award will be $2,500,000, the target value of your annual long-term incentive awards will be $10,250,000 and in no case will your annual base salary, annual bonus target, annual bonus payment, target value of your annual long-term incentive award or annual long-term incentive award be less than that paid or granted by the Company to William Brown (assuming you remain employed for the full fiscal year in respect of which such bonus or award is earned). To the extent that normal annual compensation review cycles occur prior to Closing, the Company may (but is not required to) adjust your compensation elements to amounts not exceeding the contemplated levels in the preceding sentence.

Notwithstanding the foregoing, the Compensation Committee of the Board (the "Compensation Committee") will retain discretion to increase, but not decrease, the amount of your annual base salary, annual bonus target, annual bonus payment, target value of your annual long-term incentive award and your annual long-term incentive award at any time during the Protection Period, *provided* that any adjustment applied to such amounts will be equally applied to William Brown's annual base salary, annual bonus target, annual bonus payment, target value of his annual long-term incentive award and his annual long-term incentive award, as applicable. Commencing January 1, 2020, you will be eligible for benefits and perquisites at levels no less favorable than those provided to William Brown.

No later than 30 days following the Closing Date (or, if that date occurs within a "quiet period" under the Company's equity grant policy, the first trading date following the end of such "quiet period"), you will receive a one-time integration award comprised of (i) performance stock units with a target value of $2,500,000 (the "Integration PSUs") and (ii) performance-based non-qualified stock options with a grant date value of $5,000,000 and a 10-year term (the "Integration Options" and collectively, with the Integration PSUs, the "Integration Award"). Both components of the Integration Award will be subject to three-year cliff-vesting, *provided*, that if the continued service condition applicable to William Brown's Integration Award is deemed satisfied upon his retirement on the third anniversary of the Closing Date, the continued service condition applicable to your Integration Award will also be deemed satisfied at that time. The Integration PSUs will be subject to a 0 to 2 times target payout for the achievement of cost synergy goals from the Closing Date through December 31, 2021 and a separate 0.5 to 2 times modifier of any such earned payouts for achievement of a cumulative earnings per share goal over the same period, in each case as established by the Compensation Committee in good faith in consultation with you and communicated to you at the time of grant. The actual earned value of the Integration PSUs will be determined by the Compensation Committee based on its assessment of the achievement of the applicable performance objectives. The Integration PSUs will accrue dividends in an amount equal to the cash dividends or other distributions, if any, which are paid during the performance period and will be paid upon settlement of the earned Integration PSUs. The Integration Options will be subject to a performance-vesting condition such that the award will vest and become exercisable only if 80% of the cost synergy goal is achieved. The Integration Award will be in addition to the long-term incentive award opportunity in the preceding paragraphs and the Integration Award will be on terms and conditions determined by the Compensation Committee that are the same as the equity-based integration awards granted to other senior executives of the Company generally.

You will receive a cash payment of up to $1,250,000 to be utilized for any relocation-related expenses incurred by you within three years following the Closing Date as determined by you, with gross-up of any amounts taxed as ordinary income (the "Relocation Payments"). To the extent permitted under the Merger Agreement and the Disclosure Letter thereunder, the Company may accelerate the Relocation Payments into December 2018, subject to your obligation to repay the after-tax value of such amounts to the Company in the event the Closing does not occur, or to the extent that you fail to incur such expenses within three years following the Closing Date.

3. **Termination of Employment.**

You will continue to be covered by the CIC Plan with a "Severance Multiple" (as defined under the CIC Plan) of three and with other benefit levels as provided under the CIC Plan, with the protection period during which you will be considered an "Eligible Employee" as defined in the CIC Plan (in the event your employment is terminated by the Company other than for "Cause" or you terminate employment for "Good Reason," as these terms are defined under the CIC Plan and modified by this letter) extended until the fourth anniversary of the Closing Date (the "Protection Period").

If, during the first two years following the Closing Date, your employment is terminated by the Company other than for Cause or you terminate employment for Good Reason, a portion of the Integration Award (one-third of the Integration Award if the date of termination occurs during the first year following the Closing Date and two-thirds of the Integration Award if the date of termination occurs during the second year following the Closing Date) will remain outstanding and eligible to vest (with the remaining portion forfeited) for the remainder of the applicable performance period based on the attainment of the applicable performance goals and option exercisability for the life of the award for any Integration Options that satisfy the performance-vesting condition.

If, during the third year following the Closing Date, your employment is terminated by the Company other than for Cause or you terminate employment for Good Reason, the Integration

Award will remain outstanding and eligible to vest for the remainder of the applicable performance period based on the greater of target performance and actual attainment of the applicable performance goals, with the Integration Options being exercisable for the life of the award.

If, during the Protection Period, your employment is terminated by the Company other than for Cause or you terminate employment for Good Reason, you will be entitled to the following treatment of your outstanding equity-based awards other than the Integration Award:

A. each stock option will become fully vested and exercisable immediately prior to the termination of your employment, and each option (whether it became vested immediately prior to termination or was previously vested) will remain exercisable for the life of the award;

B. each restricted stock unit shall become fully vested and promptly issuable for one share of the Company's common stock pursuant to its terms; and

C. each performance share unit or performance restricted stock unit will remain outstanding and (A) if your termination occurs prior to the end of the applicable performance period, the units will remain outstanding and eligible to vest for the remainder of the applicable performance period based on the attainment of the applicable performance goals (and any requirement for you to remain employed will be waived); and (B) if your termination occurs after the end of the applicable performance period and there is a requirement for you to remain employed for a subsequent vesting period, such requirement shall be waived and the number of shares earned with respect to such performance period shall become fully vested.

Release Requirement

All separation payments and benefits in this Paragraph 3 will be subject to your execution and non-revocation of a release of claims in favor of the Company and its affiliates, consistent in substance with the releases of claims used at the time by the Company in connection with separations of senior corporate executives. The Company shall deliver to you the form of release of claims within five business days of the date of your termination. For avoidance of doubt, such release of claims shall be limited to a release of claims arising in connection with your employment or service (or the termination thereof) and such release of claims shall not include any restrictive covenants or otherwise impose any additional obligations on you following your termination (other than as set forth in the CIC Plan, as modified by this letter).

4. Acknowledgments.

You acknowledge and agree that you will not have "Good Reason" under the CIC Plan solely as a result of (i) your contemplated relocation to Florida, (ii) any across the board changes in employee benefits (as long as your benefits are the same as those provided to William Brown) or (iii) the Closing of the Merger, the assignment to the Chief Executive Officer of the duties and responsibilities specified in Section 4.1(f) of the Merger Agreement or your transition to the role of Vice-Chairman of the Board, President and Chief Operating Officer of the Company at Closing, and subsequently to the roles of President and Chief Executive Officer of the Company and Chairman of the Board at times contemplated as described above. Such waiver of your “Good Reason” rights will be negated if your transition to the various positions described in this letter does not occur as and when agreed.

For the avoidance of doubt, you shall retain the right to terminate your employment with the Company for “Good Reason” under the CIC Plan for the duration of the Protection Period other than as specified above. Additionally, the following shall also constitute “Good Reason” triggers under the CIC Plan: (a) the Company’s failure to promote you to your contemplated new roles upon and following Closing as described in this letter and in the Merger Agreement; (b) the failure of William Brown to permanently cease serving as an officer, employee and member of the Board on or prior to the third anniversary of the Closing Date or (c) the Company’s material breach of this letter (which remains uncured within 15 days following your notice to the Company thereof).

In addition, the definition of “Cause” contained in the CIC Plan will include as a clause thereof, “an independent third-party investigator mutually agreed to by you and the Company determines that you have engaged in an act of personal misconduct that (1) is a willful and substantial violation of the Company’s Corporate Policy on Equal Employment Opportunity, Anti-Harassment and Non-Retaliation (or any successors thereto) and there is a material risk that such action could cause meaningful harm to the Company (reputationally or otherwise) or (2) gives rise to a material risk of meaningful harm to the Company (reputationally or otherwise) under federal or applicable state law for discrimination or sexual harassment to subordinate employees”. The Company will not be able to terminate you for “Cause” based on the new provision described in this paragraph unless and until the Company has delivered to you a copy of a resolution duly adopted by three-quarters of the entire Board at a meeting of the Board called and held for such purpose (after 30 days’ notice to you and an opportunity for you, together with counsel, to be heard before the Board), finding that in the good faith opinion of the Board an event set forth in this new provision has occurred and specifying the particulars thereof in detail. The Company must notify you of the event constituting Cause under this provision within 90 days following the Company’s knowledge of its existence or such event shall not constitute Cause hereunder.

Further, you agree that if the Board reasonably believes that facts exist that may justify a termination of your employment for “Cause” under the CIC Plan, the Board retains the right to place you on a paid leave of absence for up to 10 calendar days pending its investigation of your conduct and the Board’s decision to place you on paid leave will not constitute grounds for you to terminate your employment for “Good Reason” under the CIC Plan; *provided*, that nothing shall alter the Company’s obligations under this letter or the CIC Plan, as applicable, and you shall continue to vest in any outstanding equity awards and other benefits during such period of paid leave.

You acknowledge and agree that Exhibit A of the CIC Plan (*Confidentiality and Non-Competition Restrictive Covenants*) is hereby modified with respect to you to provide that the period of time after termination of your employment set forth in Section II of such Exhibit A as to which the non-competition and non-solicitation covenants will apply as a condition of your right to receive severance benefits under the CIC Plan will be extended to 24 months following your termination of employment with the Company. All other provisions of such Exhibit A will remain in full force and effect with respect to you.

5. **Miscellaneous.**

This letter will be governed and construed in accordance with the laws of the State of New York, without regard to conflicts of laws principles thereof; *provided* that all matters relating to your non-competition and non-solicitation covenants under Exhibit A of the CIC Plan (as modified in this letter) will be governed and construed in accordance with the laws of the State of Florida. This letter may not be amended or modified otherwise than by a written agreement executed by the parties hereto or their respective successors and legal representatives. The invalidity or unenforceability of any provision of this letter will not affect the validity or enforceability of any other provision hereof, and this letter will be construed as if such invalid or unenforceable provision were omitted (but only to the extent that such provision cannot be appropriately reformed or modified). Upon the expiration or other termination of this letter, the respective rights and obligations of the parties hereto will survive such expiration or other termination to the extent necessary to carry out the intentions of the parties under this letter. This letter may be executed in separate counterparts, each of which is deemed to be an original and all of which taken together constitute one and the same agreement. Prior to the Closing Date the parties agree not to amend this letter without the consent of Harris. Following the Closing Date, the parties agree that this letter may be assigned to and assumed by the Combined Company.

[*Signature Page Follows*]

We thank you for your past service and are looking forward to your continued leadership.

Sincerely,

L3 TECHNOLOGIES, INC.

By: /s/ Thomas A. Corcoran
Name: Thomas A. Corcoran
Title: Director and Compensation Committee Member

I agree with and accept the terms and conditions of this letter:

/s/ Christopher E. Kubasik
Name: Christopher E. Kubasik
Date: 5 November 2018

L3 TECHNOLOGIES, INC.
AMENDED AND RESTATED
2008 LONG TERM PERFORMANCE PLAN
RESTRICTED STOCK AGREEMENT
(Version 0001)

This Restricted Stock Agreement (this "Agreement"), effective as of the Grant Date (as defined below), is between L3 Technologies, Inc., a Delaware corporation (the "Corporation"), and the Participant (as defined below).

1. Definitions. The following terms shall have the following meanings for purposes of this Agreement:

(a) "Award Letter" shall mean the letter to the Participant attached hereto as Exhibit A.

(b) "CIC Plan" shall mean the Corporation's Amended and Restated Change in Control Severance Plan.

(c) "Code" shall mean the Internal Revenue Code of 1986, as amended from time to time.

(d) "Fair Market Value" shall have the meaning assigned to such term under the Plan.

(e) "Good Reason" shall have the meaning assigned to such term under the CIC Plan.

(f) "Grant Date" shall mean the "Grant Date" listed in the Award Letter.

(g) "Participant" shall mean the "Participant" listed in the Award Letter.

(h) "Restricted Shares" shall mean that number of Restricted Shares listed in the Award Letter as "Awards Granted."

(i) "Section 409A Change in Control Event" shall mean a change in ownership or effective control of the Corporation, or in the ownership of a substantial portion of the assets of the Corporation, within the meaning of Section 409A(a)(2)(A)(v) of the Code.

(j) "Shares" shall mean a number of shares of the Corporation's Common Stock, par value $0.01 per share, equal to the number of Restricted Shares.

2. *Grant of Restricted Shares*. The Corporation hereby grants the Restricted Shares to the Participant, each of which remains subject to vesting and transfer restrictions until the expiration or termination of the Restricted Period (as defined below), subject to the terms, conditions and restrictions set forth in the L3 Technologies, Inc. Amended and Restated 2008 Long Term Performance Plan (the "Plan") and this Agreement.

3. *Legend for Restrictions*. The Restricted Shares shall be registered on the Corporation's books and records in the Participant's name as of the Grant Date. The Corporation may issue stock certificates or evidence the Participant's interest by using a book entry account in accordance with Section 27. Physical possession or custody of any stock certificates that are issued may be retained by the Corporation until such time as the Restricted Shares are vested in accordance with this Agreement. The Corporation reserves the right to place a legend on such stock certificate(s) restricting the transferability of such certificates and referring to the terms and conditions (including forfeiture) of this Agreement and the Plan.

4. *Restricted Period*. Except as otherwise provided in Sections 6 and 7 hereof, the "Restricted Period" shall mean the period beginning on the Grant Date and expiring on the third anniversary of the Grant Date. Upon the expiration or termination of the Restricted Period, the restrictions applicable to the Shares shall be released in accordance with Section 13.

5. *Nonalienation of Benefits*. No Participant or beneficiary shall have the power or right to transfer, anticipate, or otherwise encumber the Participant's interest under this Agreement. The provisions of this Agreement shall inure to the benefit of the Participant and the Participant's beneficiaries, heirs, executors, administrators or successors in interest.

6. *Termination of Employment Following Change in Control During Restricted Period*. Upon the occurrence of the Participant's termination of employment without Cause or termination for Good Reason occurring within two years following a "change in control" that constitutes a Section 409A Change in Control Event, the Restricted Period shall automatically terminate and the restrictions applicable to the Shares shall be released in accordance with Section 13. In the event of the Participant's termination of employment without Cause or termination for Good Reason occurring within two years following a "change in control" that does not constitute a Section 409 Change in Control Event, the Restricted Period shall not be immediately affected, but shall subsequently terminate (and the restrictions applicable to the Shares shall thereafter be released in accordance with Section 13) upon the earliest to occur of: (a) a Section 409A Change in Control Event, (b) the Participant's death, (c) the Participant's "disability" (as defined in Section 7(c) hereof) or (d) the third anniversary of the Grant Date. For purposes of this Agreement, a "change in control" means:

(a) The acquisition by any person or group (including a group within the meaning of Section 13(d)(3) or 14(d)(2) of the Exchange Act), other than the Corporation or any of its subsidiaries, of beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of a majority of the combined voting power of the Corporation's then outstanding voting securities, other than by any employee benefit plan maintained by the Corporation;

(b) The sale of all or substantially all the assets of the Corporation and its subsidiaries taken as a whole;

(c) The consummation of a merger, combination, consolidation, recapitalization or other reorganization of the Corporation with one or more other entities that are not subsidiaries if, as a result of the consummation of the merger, combination, consolidation, recapitalization or other reorganization, less than 50 percent of the outstanding voting securities of the surviving or resulting corporation shall immediately after the event be beneficially owned in the aggregate by the stockholders of the Corporation immediately prior to the event; or

(d) The election, including the filling of vacancies, during any period of 24 months or less, of 50% or more of the members of the Board of Directors, without the approval of Continuing Directors, as constituted at the beginning of such period. "Continuing Directors" shall mean any director of the Corporation who either (i) is a member of the Board of Directors on the Grant Date, or (ii) is nominated for election to the Board of Directors by a majority of the Board which is comprised of directors who were, at the time of such nomination, Continuing Directors.

7. *Termination of Employment or Disability During Restricted Period*.

(a) In the event that the Participant's employment with the Corporation and its subsidiaries is terminated (other than by reason of death, "retirement" or "disability," as defined below) prior to the expiration or termination of the Restricted Period and other than as described in Section 6, the Participant shall forfeit the Restricted Shares and all of the Participant's rights hereunder shall cease (unless otherwise provided for by the Committee in accordance with the Plan). The Participant's rights to the Restricted Shares shall not be affected by any change in the nature of the Participant's employment so long as the Participant continues to be an employee of the Corporation or any of its subsidiaries.

(b) In the event the Participant terminates employment with the Corporation and its subsidiaries because of "retirement" prior to the expiration or termination of the Restricted Period (as defined in Section 4), the Restricted Period shall not be affected and shall expire with the passage of time in accordance with Section 4, except that (i) in the event that the Participant dies following retirement but prior to the expiration of the Restricted Period or (ii) in the event that such retirement occurs within two years following a Section 409A Change in Control Event, the Restricted Period shall automatically terminate and the Shares shall thereafter be released from restrictions in accordance with Section 13. For purposes of this Agreement, retirement means the Participant (A) terminates employment with the Corporation and its subsidiaries other than for Cause (and is not subject to termination for Cause at the time of such termination) more than one year after the Grant Date, (B) is available for consultation with the Corporation or its subsidiaries at the reasonable request of the Corporation or its subsidiaries and (C) terminates employment either (i) on or after attaining age 60 and completing at least five years of service in the aggregate with the Corporation and its subsidiaries (which service must be continuous through the date of termination except for a single break in service that does not exceed one year in length), or (ii) on or after attaining age 65. For purposes of this Agreement, "Cause" means the Participant's (1) intentional failure to perform reasonably assigned duties, (2) dishonesty or willful misconduct in the performance of duties, (3) engaging in a transaction in connection with the performance of duties to the Corporation or its subsidiaries which transaction is adverse to the interests of the Corporation and is engaged in for personal profit or (4) willful violation of any law, rule or regulation in connection with the performance of duties (other than traffic violations or similar offenses). For purposes of the "Cause" definition, an act, or failure to act, on the Participant's part shall be deemed "willful" if done, or omitted to be done, by the Participant in bad faith and without reasonable belief that the Participant's action or omission was in the best interest of the Corporation.

(c) Upon Participant's death or "disability" (as defined below), the Restricted Period shall automatically terminate and the Shares shall thereafter be released from restrictions in accordance with Section 13. For purposes of this Agreement, disability means the Participant, (i) is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than 12 months; or (ii) is, by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than 12 months, receiving income replacement benefits for a period of not less than 3 months under an accident and health plan covering employees of the Participant's employer.

(d) Whether (and the circumstances under which) employment has been terminated and the determination of the termination date for the purposes of this Agreement (or whether, and the date upon which, the Participant has suffered a disability under Section 7(c)) shall be determined by the Committee or (with respect to any employee other than an “Executive Officer” as defined under the Plan) its designee (who, at the date of this Agreement, shall be the Corporation’s Vice President of Human Resources), whose good faith determination shall be final, binding and conclusive; provided, that such designee may not make any such determination with respect to his or her own employment.

8. *Dividends*. If the Corporation pays a cash dividend on its common stock, the dividends that would otherwise be payable in respect of the Restricted Shares shall be held back and credited to a Dividend Account (as defined below) as of the record date for the dividend. The Corporation shall cause an account (the “Dividend Account”) to be established and maintained as part of the records of the Corporation to evidence the aggregate cash dividends accrued by the Participant from time to time under this Section. No interest shall accrue on any amounts reflected in the Dividend Account. The Participant’s interest in the amounts reflected in the Dividend Account shall be that of a general, unsecured creditor of the Corporation. Subject to, and as promptly as practicable following, the release of restrictions applicable to the Shares pursuant to Section 13 hereunder, the Corporation shall pay an amount in cash (without interest and subject to applicable withholding taxes) to the Participant (or his or her beneficiaries, heirs, executors, administrators or successors in interest) equal to the aggregate cash dividends accrued in the Participant’s Dividend Account and the Participant’s Dividend Account shall be eliminated at that time. In the event that the Participant forfeits his or her rights to the Restricted Shares, the Participant also shall be deemed to have forfeited his or her rights to any cash dividends accrued in the Participant’s Dividend Account and the Participant’s Dividend Account shall be eliminated at that time.

9. *No Right to Continued Employment*. Nothing in this Agreement or the Plan shall be interpreted or construed to confer upon the Participant any right to continue employment by the Corporation or any of its subsidiaries, nor shall this Agreement or the Plan interfere in any way with the right of the Corporation or any of its subsidiaries to terminate the Participant’s employment at any time for any reason whatsoever, whether or not with cause.

10. *Rights as a Stockholder*. The Participant shall have the rights of a stockholder of the Corporation with respect to the Restricted Shares from and after the Grant Date, subject to restrictions set forth herein during the Restricted Period with respect to transfer and forfeiture restrictions and the restrictions applicable to dividends pursuant to Section 8.

11. *Adjustments Upon Change in Capitalization*. In the event of any reorganization, merger, consolidation, recapitalization, reclassification, stock split, stock dividend or similar capital adjustment, as a result of which shares of any class shall be issued in respect of outstanding shares of the Corporation’s Common Stock or shares of Corporation’s Common Stock shall be changed into a different number of shares or into another class or classes or into other property or cash, the Restricted Shares shall be adjusted to reflect such event so as to preserve (without enlarging) the value of the award hereunder, with the manner of such adjustment to be determined by the Committee in its sole discretion. This paragraph shall also apply with respect to any extraordinary dividend or other extraordinary distribution in respect of the Corporation’s Common Stock (whether in the form of cash or other property).

12. *General Restrictions*. Notwithstanding anything in this Agreement to the contrary, the Corporation shall have no obligation to release the transfer restrictions applicable to the Shares as contemplated by this Agreement unless and until such release shall comply with all relevant provisions of law and the requirements of any stock exchange on which the Corporation's shares are listed for trading.

13. *Release of Restrictions*. Upon the expiration or termination of the Restricted Period and payment by the Participant of any applicable taxes pursuant to Section 14 of this Agreement, the Corporation shall, as soon as reasonably practicable (and in any event within 75 days of the termination or expiration of the Restricted Period), but subject to any delay necessary to comply with Section 12 hereof, release the Shares from all transfer and forfeiture restrictions. The Corporation shall not be required to release any fractional Shares, but shall pay, in lieu thereof, the Fair Market Value of such fractional Shares as of the date the remaining Shares are deemed released from restriction. The Corporation shall pay any costs incurred in connection with releasing the Shares. Notwithstanding the provisions of this Section, in the event of the death of the Participant prior to the release of the restrictions applicable to the Shares under this Section 13, the release of restrictions and any payment in lieu of fractional Shares shall be made to the Participant's beneficiaries, heirs, executors, administrators or successors in interest as the case may be. Upon release of restrictions in accordance with this Section 13, any legend previously affixed to the Shares reflecting the restrictions applicable under this Agreement shall be removed.

14. *Section 83(b) Election; Tax Withholding*. The Participant hereby commits to file a timely election under Section 83(b) of the Code with respect to the grant of Restricted Shares under this Agreement. Accordingly, the Corporation will satisfy the applicable Federal, state, local or foreign withholding tax requirements, if any ("Withholding Taxes") resulting from such Code Section 83(b) election with respect to the Restricted Shares by reduction in the number of Shares otherwise issuable to the Participant pursuant to this Agreement. The value of any Shares delivered or withheld as payment in respect of withholding tax requirements shall be determined by reference to the Fair Market Value of such Shares as of the date of such deemed withholding or delivery. In the event that Withholding Taxes are satisfied by withholding a portion of the Shares otherwise issuable or deliverable to the Participant pursuant to this Agreement, the Corporation shall withhold Shares based on the Participant's actual estimated marginal applicable tax rate as determined by the Corporation (but in no event at a rate in excess of the maximum statutory withholding rate(s) in such Participant's relevant tax jurisdictions).

15. *Subsidiary*. As used herein, the term "subsidiary" shall mean, as to any person, any corporation, association, partnership, joint venture or other business entity of which 50% or more of the voting stock or other equity interests (in the case of entities other than corporations), is owned or controlled (directly or indirectly) by that entity, or by one or more of the Subsidiaries of that entity, or by a combination thereof.

16. *Plan Governs*. The Participant hereby acknowledges receipt of a copy of the Plan and agrees to be bound by its terms, all of which are incorporated herein by reference. The Plan shall govern in the event of any conflict between this Agreement and the Plan.

17. *Modification of Agreement*. This Agreement may be not be modified, amended, suspended or terminated, and any terms or conditions may not be waived, without the approval of the Committee. The Committee reserves the right to amend or modify this Agreement at any time without prior notice to any Participant or other interested party; provided, that except as expressly provided hereunder, any such amendment or modification may not adversely affect in any material respect the Participant's rights or benefits hereunder except for such amendments or modifications as are required by law.

18. *Severability*. Should any provision of this Agreement be held by a court of competent jurisdiction to be unenforceable or invalid for any reason, the remaining provisions of this Agreement shall not be affected by such holding and shall continue in full force in accordance with their terms.

19. *Governing Law*. The validity, interpretation, construction and performance of this Agreement shall be governed by the laws of the State of New York without giving effect to the conflicts of laws principles thereof. If the Participant has received a copy of this Agreement (or the Plan or any other document related hereto or thereto) translated into a language other than English, such translated copy is qualified in its entirety by reference to the English version thereof, and in the event of any conflict the English version will govern.

20. *Successors in Interest*. This Agreement shall inure to the benefit of and be binding upon any successor to the Corporation. This Agreement shall inure to the benefit of the Participant or the Participant's legal representatives. All obligations imposed upon the Participant and all rights granted to the Corporation under this Agreement shall be final, binding and conclusive upon the Participant's heirs, executors, administrators and successors.

21. *Administration*. The Committee shall have the power to interpret the Plan and this Agreement and to adopt such rules for the administration, interpretation and application of the Plan as are consistent therewith and to interpret or revoke any such rules. All actions taken and all interpretations and determinations made by the Committee shall be final and binding upon the Participant, the Corporation and all other interested persons. No member of the Committee shall be personally liable for any action determination or interpretation made in good faith with respect to the Plan or the Restricted Shares. In its absolute discretion, the Board of Directors may at any time and from time to time exercise any and all rights and duties of the Committee under the Plan and this Agreement.

22. *Resolution of Disputes*. Any dispute or disagreement which may arise under, or as a result of, or in any way related to, the interpretation, construction or application of this Agreement shall be determined by the Committee. Any determination made hereunder shall be final, binding and conclusive on the Participant and Corporation for all purposes.

23. *Data Privacy Consent*. As a condition of the grant of the Restricted Shares, the Participant hereby consents to the collection, use and transfer of personal data as described in this paragraph. The Participant understands that the Corporation and its subsidiaries hold certain personal information about the Participant, including name, home address and telephone number, date of birth, social security number, salary, nationality, job title, ownership interests or directorships held in the Corporation or its subsidiaries, and details of all Restricted Shares or other equity awards or other entitlements to shares of common stock awarded, cancelled, exercised, vested or unvested ("Data"). The Participant further understands that the Corporation and its subsidiaries will transfer Data among themselves as necessary for the purposes of implementation, administration and management of the Participant's participation in the Plan, and that the Corporation and any of its subsidiaries may each further transfer Data to any third parties assisting the Corporation in the implementation, administration and management of the Plan. The Participant understands that these recipients may be located in the European Economic Area or elsewhere, such as the United States. The Participant hereby authorizes them to receive, possess, use, retain and transfer such Data as may be required for the administration of the Plan or the subsequent holding of shares of common stock on the Participant's behalf, in electronic or other form, for the purposes of implementing, administering and managing the Participant's participation in the Plan, including any requisite transfer to a broker or other third party with whom the Participant may

elect to deposit any shares of common stock acquired under the Plan. The Participant may, at any time, view such Data or require any necessary amendments to it.

24. *Limitation on Rights; No Right to Future Grants; Extraordinary Item of Compensation*. By accepting this Agreement and the grant of the Restricted Shares contemplated hereunder, the Participant expressly acknowledges that (a) the Plan is discretionary in nature and may be suspended or terminated by the Corporation at any time; (b) the grant of Restricted Shares is a one-time benefit that does not create any contractual or other right to receive future grants of Restricted Shares, or benefits in lieu of Restricted Shares; (c) all determinations with respect to future grants of Restricted Shares, if any, including the grant date, the number of Shares granted and the restricted period, will be at the sole discretion of the Corporation; (d) the Participant's participation in the Plan is voluntary; (e) the value of the Restricted Shares is an extraordinary item of compensation that is outside the scope of the Participant's employment contract, if any, and nothing can or must automatically be inferred from such employment contract or its consequences; (f) grants of Restricted Shares are not part of normal or expected compensation for any purpose and are not to be used for calculating any severance, resignation, redundancy, end of service payments, bonuses, long-service awards, pension or retirement benefits or similar payments, and the Participant waives any claim on such basis; and (g) the future value of the underlying Shares is unknown and cannot be predicted with certainty. In addition, the Participant understands, acknowledges and agrees that the Participant will have no rights to compensation or damages related to Restricted Share proceeds in consequence of the termination of the Participant's employment for any reason whatsoever and whether or not in breach of contract.

25. *Award Administrator*. The Corporation may from time to time to designate a third party (an "Award Administrator") to assist the Corporation in the implementation, administration and management of the Plan and any Restricted Shares granted thereunder, including by sending Award Letters on behalf of the Corporation to Participants, and by facilitating through electronic means acceptance of Restricted Stock Agreements by Participants.

26. *Section 409A*. This Agreement is intended to comply with the provisions of Section 409A of the Code and the regulations promulgated thereunder. Without limiting the foregoing, the Committee shall have the right to amend the terms and conditions of this Agreement in any respect as may be necessary or appropriate to comply with Section 409A of the Code or any regulations promulgated thereunder, including without limitation by delaying the issuance of the Shares contemplated hereunder.

27. *Book Entry Delivery of Shares*. Whenever reference in this Agreement is made to the issuance or delivery of certificates representing one or more Shares, the Corporation may elect to issue or deliver such Shares in book entry form in lieu of certificates.

28. *Acceptance*. This Agreement shall not be enforceable until it has been executed by the Participant. In the event the Corporation has designated an Award Administrator, the acceptance (including through electronic means) of the Restricted Shares contemplated by this Agreement in accordance with the procedures established from time to time by the Award Administrator shall be deemed to constitute the Participant's acknowledgment and agreement to the terms and conditions of this Agreement and shall have the same legal effect in all respects of the Participant having executed this Agreement by hand.

By: L3 TECHNOLOGIES, INC.

Ann D. Davidson

Senior Vice President, General Counsel and
Corporate Secretary

Acknowledged and Agreed
as of the date first written above:

Participant ES

____

Participant Signature

Exhibit A

L3 Technologies, Inc.
Restricted Stock Award Notification Letter

Participant: **Participant Name**

Grant Date: **Grant Date**

Awards Granted: **# Shares** Restricted Shares

L3 Technologies, Inc. and Subsidiaries
As of December 31, 2018

Name	Jurisdiction
AeroElite Limited	United Kingdom
Aerosim Academy, Inc.	Florida
Aerosim Bangkok Company Limited	Thailand
Aerosim Technologies, Inc.	Minnesota
Aerosim Thai Company Limited	Thailand
Airline Placement Limited	United Kingdom
Airline Recruitment Limited	United Kingdom
Applied Defense Solutions, Inc.	Delaware
Asian Aviation Training Centre Ltd.	Thailand
ASV Global, L.L.C.	Louisiana
Autonomous Surface Vehicles Limited	United Kingdom
Autonomous Surface Vehicles, LLC	Louisiana
Aviation Communication & Surveillance Systems, LLC	Delaware
Azimuth Security Pty Ltd.	Australia
Azimuth Security Trust	Australia
Azimuth Security, LLC	Florida
Beijing MAPPS-SERI Technology Company Ltd.*	China
Calzoni S.r.l.	Italy
C.K. Industrial Engineers Limited	United Kingdom
Combat Advanced Propulsion, LLC*	Delaware
CTC Aviation Group Limited	United Kingdom
CTC Aviation Holdings Limited	United Kingdom
CTC Aviation International Limited	United Kingdom
CTC Aviation Services Limited	United Kingdom
CTC Aviation Training (UK) Limited.	United Kingdom
DMRAC - Aviation Corporation-SGPS, Unipessoal Lda	Portugal
EAA - Escola de Aviação Aerocondor, S.A.	Portugal
Electrodynamics, Inc.	Arizona
ESSCO Collins Limited	Ireland
Exmac Automation Limited	United Kingdom
FAST Holdings Limited*	United Kingdom
FAST Training Services Limited*	United Kingdom
Flight Training Acquisitions LLC	Delaware
ForceX, Inc.	Tennessee
G4U - Gestão de Activos Aeronáuticos, Sociedade, Lda	Portugal
G Air Advanced Training, Lda	Portugal
G Air II Maintenance, Lda	Portugal
Honeywell TCAS Inc.*	Delaware
Interstate Electronics Corporation	California
L3 Adaptive Methods, Inc.	Delaware
L-3 Afghanistan, LLC	Delaware
L3 Applied Technologies, Inc.	Delaware
L3 Australia Group Pty Ltd	Australia
L3 Aviation Products, Inc.	Delaware
L-3 Brasil Importação, Exportação e Comércio Ltda.	Brazil
L-3 Centaur, LLC	Delaware

Name	Jurisdiction
L3 Chesapeake Sciences Corporation	Maryland
L3 Cincinnati Electronics Corporation	Ohio
L3 Commercial Training Solutions Limited	United Kingdom
L-3 Communications AIS GP Corporation	Delaware
L-3 Communications ASA Limited	United Kingdom
L-3 Communications Australia Pty Ltd	Australia
L-3 Communications Flight Capital LLC	Delaware
L-3 Communications Holding GmbH	Germany
L-3 Communications Hong Kong Limited	Hong Kong
L-3 Communications India Private Limited	India
L-3 Communications Integrated Systems L.P.	Delaware
L-3 Communications Investments Inc.	Delaware
L-3 Communications Korea Co., Ltd.	South Korea
L-3 Communications Limited	United Kingdom
L-3 Communications Link Simulation and Training UK (Overseas) Limited	United Kingdom
L-3 Communications Singapore Pte. Ltd.	Singapore
L-3 Communications U.K. Ltd.	United Kingdom
L3 CTS Airline Academy (NZ) Limited	New Zealand
L3 CTS Airline and Academy Training Limited	United Kingdom
L-3 Domestic Holdings, Inc.	Delaware
L3 Doss Aviation, Inc.	Texas
L3 Electron Devices, Inc.	Delaware
L3 ESSCO, Inc.	Delaware
L3 Foreign Holdings, Inc.	Delaware
L3 Fuzing and Ordnance Systems, Inc.	Delaware
L-3 Global Holding UK Ltd.	United Kingdom
L3 International Australia Pty Ltd.	United Kingdom
L-3 International UK Ltd	United Kingdom
L3 Investments UK Holdings Ltd.	United Kingdom
L3 Investments, LLC	Delaware
L3 Kenya Ltd	Kenya
L3 Kigre, Inc.	Ohio
L3 Latitude, LLC	Arizona
L3 Magnet-Motor GmbH	Germany
L3 MAPPS Inc.	Canada
L3 MAPPS Limited	United Kingdom
L3 MAPPS Sdn. Bhd.	Malaysia
L3 MariPro, Inc.	California
L3 Mobile-Vision, Inc.	New Jersey
L3 Open Water Power, Inc.	Delaware
L3 OceanServer, Inc.	Massachusetts
L3 Oceania Pty Limited, Inc.	Australia
L-3 Saudi Arabia LLC	Saudi Arabia
L3 Security & Detection Systems, Inc.	Delaware
L-3 Security Equipment Trading (Beijing) Co., Ltd.*	China
L-3 Societa Srl.	Italy
L3 Technologies Australia Group Pty Ltd	Australia
L3 Technologies Canada Group Inc.	Canada
L3 Technologies Canada Inc.	Canada

Name	Jurisdiction
L3 Technologies ESS Inc.	Canada
L3 Technologies Investments Limited	Cyprus
L3 Technologies MAS Inc.	Canada
L3 Technologies UK Group Ltd	United Kingdom
L-3 Technology & Services UK Ltd	United Kingdom
L3 Unidyne, Inc.	Delaware
L3 Unmanned Systems, Inc.	Texas
L3 Westwood Corporation	Nevada
Linchpin Labs Inc.	Canada
Linchpin Labs Inc.	Delaware
Linchpin Labs Limited	New Zealand
Linchpin Labs Limited	United Kingdom
Linchpin Labs Pty Limited	Australia
L-Tres Comunicaciones Costa Rica, S.A.	Costa Rica
MacDonald Humfrey (Automation) India Private Limited	India
MacDonald Humfrey (Automation) Limited	United Kingdom
MacDonald Humfrey (Automation) SEA PTE. Ltd.	Singapore
MacDonald Humfrey Automation Middle East Control Systems LLC	United Arab Emirates
Mustang Technology Group, L.P.	Texas
Narda Safety Test Solutions GmbH	Germany
Narda Safety Test Solutions S.r.l.	Italy
Power Paragon, Inc.	Delaware
SPD Electrical Systems, Inc.	Delaware
TRL Electronics Limited	United Kingdom
TRL Technology Limited	United Kingdom
Wescam Inc.	Canada
Wescam USA, Inc.	Florida

* Represents a non-wholly owned subsidiary.

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-212152) and Form S-8 (Nos. 333-183353, 333-168467, 333-160359, 333-144135, 333-103752, 333-64389, 333-212151, 333-188450, 333-168466, 333-151964, 333-123424, 333-120393, 333-78317, 333-216192 and 333-221805) of L3 Technologies, Inc. of our report dated February 21, 2019 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
New York, New York
February 21, 2019

Exhibit 31.1

CERTIFICATION

I, Christopher E. Kubasik, certify that:

1. I have reviewed this report on Form 10-K for the year ended December 31, 2018 of L3 Technologies, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 21, 2019

/s/ Christopher E. Kubasik

Christopher E. Kubasik
Chairman, Chief Executive Officer and President

Exhibit 31.2

CERTIFICATION

I, Ralph G. D'Ambrosio, certify that:

1. I have reviewed this report on Form 10-K for the year ended December 31, 2018 of L3 Technologies, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 21, 2019

/s/ Ralph G. D'Ambrosio

Ralph G. D'Ambrosio
Senior Vice President and Chief Financial Officer

Exhibit 32

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of L3 Technologies, Inc. ("L3") on Form 10-K for the year ended December 31, 2018 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Christopher E. Kubasik, Chairman, Chief Executive Officer and President and Ralph G. D'Ambrosio, Senior Vice President and Chief Financial Officer, of L3, each certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of L3.

Date: February 21, 2019

/s/ Christopher E. Kubasik	/s/ Ralph G. D'Ambrosio
Christopher E. Kubasik	Ralph G. D'Ambrosio
Chairman, Chief Executive Officer and President	Senior Vice President and Chief Financial Officer