

FORM **BCA 8.12**
FEMALE AND MINORITY
DIRECTORS REPORT
Business Corporation Act



FILED

JUL 30 2020

JESSE WHITE
SECRETARY OF STATE

Jesse White, Secretary of State
Department of Business Services
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Springfield, IL 62756
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Payment must be made by check or money order payable to Secretary of State.

FILING FEE: \$25.00 File prior to: _____ Year: 2020 File #: 50232859 Approved: SL

Corporate Name: Motorola Solutions, Inc.
Registered Agent: CT Corporation System
Registered Office: 208 South LaSalle St, Suite 814
City, IL, ZIP: Chicago, IL 60604 County: Cook

A COPY OF THE CORPORATION'S MOST RECENT SEC 10-K MUST ACCOMPANY THIS REPORT.

1. Is the corporation a publicly held corporation with its principal executive office located in Illinois? YES NO
- 1a. Principal address of executive office in Illinois:

500 W. Monroe Street, Chicago, IL 60661
2. Set forth data on specific qualifications, skills and experience that the corporation considers for its board of directors, nominees for the board of directors, and executive officers. (If additional space is required, please attach an additional page(s) as needed.)

See Attachment A 1
3. Set forth the self-identified gender of each member of the board of directors. (If additional space is required, please attach an additional page(s) as needed.)

See Attachment A 2
4. Set forth the race or ethnicity of each member of the board of directors. (If additional space is required, please attach an additional page(s) as needed.)

See Attachment A 3
5. Set forth a description of the corporation's process for identifying and evaluating nominees for the board of directors, including whether and, if so, how demographic diversity is considered. (If additional space is required, please attach an additional page(s) as needed.)

See Attachment A 4
6. Set forth a description of the corporation's process for identifying and appointing executive officers, including whether and, if so, how demographic diversity is considered. (If additional space is required, please attach an additional page(s) as needed.)

See Attachment A 5
7. Set forth a description of the corporation's policies and practices for promoting diversity, equity and inclusion among the board of directors and executive officers. (If additional space is required, please attach an additional page(s) as needed.)

See Attachment A 6

Under the penalty of perjury and as an authorized officer, I declare that this report, pursuant to provisions of the Business Corporation Act, has been examined by me and is, to the best of my knowledge and belief, true, correct and complete.

Item 8 must be signed.

⇒ 8. By  Assistant Secretary, Tax 06/19/2020
Any Authorized Officer's Signature Title Date

**Attachment A
To Motorola Solutions, Inc.
Female and Minority Directors Report**

1. Please see the following excerpt from page 12 of our 2020 Proxy Statement, Our Board's Qualifications:

We believe the Board should be comprised of individuals with appropriate skills and experiences to meet its board governance responsibilities and contribute effectively to the Company. Our Governance and Nominating Committee carefully considers the skills and experiences of current directors and new candidates to ensure that they meet the needs of the Company before nominating directors for election to the Board. All of our non-employee directors serve on Board committees, further supporting the Board by providing expertise to those committees. The needs of the committees also are reviewed when considering nominees to the Board. The Board has a deep working knowledge of matters common to large companies and is comprised of individuals with a mix of skills and qualifications which include:

- Independence: Seven of eight director nominees
- Gender and ethnic diversity: Three of eight director nominees
- Relevant industry experience: Six of eight director nominees
- Public company CEO, division CEO or CFO: Six of eight director nominees
- Financial and accounting expertise: All director nominees
- Technology and information technology experience: All director nominees
- Cybersecurity, safety and security experience: Four of eight director nominees
- Software and services business experience: Five of eight director nominees
- Global business experience: All director nominees
- Developing markets experience: Four of eight director nominees
- Government, public policy and regulatory experience: Five of eight director nominees
- Private equity, investment banking or capital allocation experience: Seven of eight director nominees
- Public company board experience: All director nominees

2. Gregory Q. Brown-Male
Kenneth D. Denman-Male
Egon P. Durban-Male
Clayton M. Jones-Male
Judy C. Lewent-Female
Gregory K. Mondre-Male
Anne R. Pramaggiore-Female
Joseph M. Tucci-Male
3. Gregory Q. Brown-White or Caucasian
Kenneth D. Denman-Black or African American
Egon P. Durban- White or Caucasian
Clayton M. Jones-White or Caucasian
Judy C. Lewent-White or Caucasian
Gregory K. Mondre-White or Caucasian
Anne R. Pramaggiore-White or Caucasian
Joseph M. Tucci-White or Caucasian

4. Please see the following excerpt from page 12 of our 2020 Proxy Statement, How our Board is Selected and Evaluated:

As stated in our Board Governance Guidelines, when selecting directors, the Board and the Governance and Nominating Committee review and consider many factors, including: experience in the context of the Board's needs; leadership qualities; ability to exercise sound judgment; existing time commitments; years to retirement age; and independence from management. They also consider ethical standards and integrity. While the Company does not have a formal policy regarding diversity, gender and ethnic diversity is an essential factor considered by the Board and the Governance and Nominating Committee when selecting director nominees. The Board and the Governance and Nominating Committee recognize the importance of a Board representing diverse knowledge and experiences and strive to nominate directors with a variety of complementary skills, backgrounds and perspectives so that, as a group, the Board will possess the appropriate talent, skills, experience and expertise to oversee the Company's businesses. The Governance and Nominating Committee annually assesses the effectiveness of its director nomination process and the Board Governance Guidelines.

The Governance and Nominating Committee will consider nominees recommended by Motorola Solutions shareholders, provided that the recommendation contains sufficient information (as required by the Company's Bylaws), including the candidate's qualifications, to assess the suitability of the candidate, and is timely received in accordance with the Company's Bylaws. Shareholder-recommended candidates that comply with these procedures will receive the same consideration that other candidates receive.

The Governance and Nominating Committee considers recommendations from many sources, including members of the Board, management and search firms. From time to time, Motorola Solutions hires search firms to help identify and facilitate the screening and interview process of director candidates. In 2019, we continued our retention of Russell Reynolds to assist with this process. Russell Reynolds compiles a list of candidates, evaluates each candidate and makes recommendations to the Governance and Nominating Committee. They screen candidates based on the Board's criteria, perform reference checks, prepare a biography of each candidate for the Governance and Nominating Committee's review and help arrange interviews if necessary. The Governance and Nominating Committee and the Chairman of the Board will conduct interviews with candidates who meet the Board's criteria. The Governance and Nominating Committee has full discretion in considering potential candidates and making its nominations to the Board.

5. We have a well defined succession process for our vice presidents and our executive committee members. Our internal talent team and outside experts identify succession candidates for all of these positions. A critical component of our succession is the percentage of diverse candidates identified for these roles.
6. We have a well-defined succession process for our vice presidents and our executive committee members. Our internal talent team and outside experts identify succession candidates for all of these positions. A critical component of our succession is the percentage of diverse candidates identified for these roles.

The CEO of our company regularly updates our board of directors on talent and diversity in senior roles at the company.

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, 2019
or

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 1-7221

MOTOROLA SOLUTIONS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State of Incorporation)

36-1115800
(I.R.S. Employer Identification No.)

500 W. Monroe Street, Chicago, Illinois 60661
(Address of principal executive offices)

(847) 576-5000
Registrant's telephone number, including area code:

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

None

Title of Each Class	Trading Symbol(s)	Name of Each Exchange on Which Registered
Common Stock \$0.01 Par Value	MSI	New York Stock Exchange

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 15(d) of the Securities Exchange Act of 1934. 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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a 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
(Do not check if a smaller reporting 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 Exchange Act). Yes No

The aggregate market value of voting and non-voting common equity held by non-affiliates of the registrant as of June 29, 2019 (the last business day of the Registrant's most recently completed second quarter) was approximately \$21.4 billion.

The number of shares of the registrant's Common Stock, \$.01 par value per share, outstanding as of January 31, 2020 was 170,579,096.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement to be delivered to stockholders in connection with its Annual Meeting of Stockholders to be held on May 11, 2020, are incorporated by reference into Part III.

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PART I

Throughout this 10-K report we "incorporate by reference" certain information in parts of other documents filed with the Securities and Exchange Commission (the "SEC"). The SEC allows us to disclose important information by referring to it in that manner. Please refer to such information.

We are making forward-looking statements in this report. In "Item 1A: Risk Factors" we discuss some of the risk factors that could cause actual results to differ materially from those stated in the forward-looking statements.

"Motorola Solutions" (which may be referred to as the "Company," "we," "us," or "our") means Motorola Solutions, Inc. or Motorola Solutions, Inc. and its subsidiaries, or one of our segments, as the context requires. MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo, as well as iDEN are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license.

Item 1: Business

General

Motorola Solutions is a global leader in mission critical communications and analytics. Our technology platforms in mission critical communications, command center software and video security, bolstered by managed and support services, make cities safer and help communities and businesses thrive. We serve more than 100,000 public safety and commercial customers in over 100 countries and have a rich heritage of innovation spanning more than 90 years.

We are incorporated under the laws of the State of Delaware as the successor to an Illinois corporation, Motorola, Inc., organized in 1928. We changed our name from Motorola, Inc. to Motorola Solutions, Inc. on January 4, 2011. Our principal executive offices are located at 500 W. Monroe St., Chicago, Illinois 60661.

Business Organization

Products and Systems Integration Segment

The Products and Systems Integration segment offers an extensive portfolio of devices, including land mobile radio ("LMR") handsets, infrastructure and accessories, as well as video security devices and infrastructure. The segment also includes the implementation and integration of such systems, devices and applications. The primary customers of the Products and Systems Integration segment are government, public safety and first responder agencies and municipalities. We also sell to commercial and industrial customers who use private radio networks and video security in the course of their operations. In 2019, the segment's net sales were \$5.3 billion, representing 68% of our consolidated net sales. The Products and Systems Integration segment has the following two principal product lines:

Devices: Devices includes two-way portable and vehicle-mounted radios, fixed and mobile video cameras and accessories. Devices represented 65% of the net sales of the Products and Systems Integration segment in 2019.

Systems and Systems Integration: Systems and Systems Integration include the infrastructure related to customized radio networks and video solutions and the implementation and integration associated with the systems. Systems and Systems Integration represented 35% of the net sales of the Products and Systems Integration segment in 2019.

Software and Services Segment

As of December 31, 2019, we changed the name of the "Services and Software" segment to "Software and Services." The change is to the name only and no other financial information has been reclassified from previous periods presented or for the year ended December 31, 2019.

The Software and Services segment provides a broad range of solutions for government, public safety and commercial customers. In 2019, the segment's net sales were \$2.6 billion, representing 32% of our consolidated net sales. The Software and Services segment has the following principal product lines:

Software: Software includes a public safety and enterprise command center software suite, unified communications applications, and video software solutions, delivered both on-premise and "as a service" and represented 26% of the net sales of the Software and Services segment in 2019.

Services: Services includes a continuum of service offerings beginning with repair, technical support, and maintenance. More advanced offerings include monitoring, software updates, and cybersecurity services. Managed services range from partial or full operation of customer-owned networks to operation of Motorola Solutions-owned networks. Services represented 74% of the net sales of the Software and Services segment in 2019.

Strategy and Focus Areas

We offer comprehensive solutions in mission critical communications, command center software and video security and analytics, bolstered by managed and support services that help our customers work safely and efficiently. These solutions are designed to be "purpose-built" for the unique needs of our customers, which include customers in the government, public safety and commercial verticals.

Our strategy for long-term growth and the evolution of our business includes organic and inorganic investments in the following four areas:

(i) Innovation in a standards-based mission critical voice and data solutions market, which is made up of LMR and Long-Term Evolution ("LTE") technologies. Our dedication, focus, and innovation for public safety and commercial solutions built the foundation of our LMR business, which is reflected in an install base of over 13,000 systems deployed in 100+ countries around the world. These systems often have multi-year or multi-decade life spans that help drive demand for additional device sales, software upgrades, infrastructure refresh and expansion, as well as additional services to maintain, monitor and manage these complex networks and solutions. We believe our government, public safety and commercial customers will continue to require next-generation systems, enhanced software features and analytics, as well as incremental services to drive operational efficiencies.

(ii) Service offerings that leverage our large global install base and allow our customers to improve performance across their systems, devices and applications for greater safety and productivity. Our comprehensive suite of services, ranging from repair, technical support, security and system monitoring to operation of customer-owned networks or Motorola Solutions-owned networks, ensures continuity and reduces risks for continued critical communications operations. Today, agency procurement models are primarily capital expenditure investments in customer-owned and operated solutions with long-term contracts. As communication networks have become increasingly complex, software-centric and data-driven, we have expanded our services offerings and accordingly, we expect the deeper penetration of service sales into existing LMR customers to be a driver in our Services business growth.

(iii) Video analytics, network video management software and hardware, video cameras, and access control solutions for government and commercial customers. We have video solutions installed at thousands of customer sites, including school campuses, transportation systems, healthcare centers, public venues, critical infrastructure, prisons, factories, casinos, airports, financial institutions, government facilities, and retailers. We have invested in go-to-market resources to increase coverage and drive share gains in the video market. In addition, our strategy is to utilize the relationships we have as a leader in mission critical communications to expand our video security offerings further in the government and public safety verticals.

(iv) Command center software solutions to support public safety workflow from calling 9-1-1 and dispatching first responders to communicating with personnel in the field and managing records and evidence. Today, the public safety workflow is addressed by a variety of point solutions. We have built an end-to-end command center software offering that provides a unified suite of solutions across the public safety workflow which differentiates us from much of the competition. As the public safety market continues to embrace software offerings to enhance their workflows, we are able to sell cloud-based software as a service ("SaaS") offerings in addition to on-premise solutions with ancillary implementation and managed services.

Our Customers and Contracts

We serve government agencies, state and local public safety and first-responder agencies, as well as commercial and industrial customers. Our customer base is fragmented and widespread when considering the many levels of governmental and first-responder decision-makers that procure and use our products and services. Serving this global customer base spanning federal, state, county, province, territory, municipal, and departmental independent bodies, along with our commercial and industrial customers, requires a significant go-to-market investment.

Our sales model includes both direct sales by our in-house sales force, which tend to focus on our largest accounts, and sales through our channel partner program. Our trained channel partners include independent dealers, distributors, and software vendors around the world. The dealers and distributors each have their own sales organizations that complement and extend the reach of our sales force. The independent software vendors offer customized applications that meet specific needs in the verticals we serve.

Our largest customers are the U.S. government (through multiple contracts with its various branches and agencies, including the armed services) and the Home Office of the United Kingdom, representing approximately 9% and 8% of our consolidated net sales in 2019, respectively. The loss of these customers could have a material adverse effect on our revenue and earnings over several quarters as many of our contracts with these governments are long-term in nature. All contracts with the U.S. government, and certain other government agencies within the U.S., are subject to cancellation at the customer's convenience. For a discussion of risks related to government contracting requirements, please refer to "Item 1A. Risk Factors."

Payment terms with our customers vary worldwide. Generally, contractual payment terms range from 30 to 45 days from the invoice date within North America and typically do not exceed 90 days from the invoice date in regions outside of North America. A portion of our contracts include implementation milestones, such as delivery, installation, and system acceptance, which generally take 30 to 180 days to complete. Invoicing the customer is dependent on completion of the milestones. We generally do not grant extended payment terms. As required for competitive reasons, we may provide long-term financing in connection with equipment purchases. Financing may cover all or a portion of the purchase price.

Generally, our contracts do not include a right of return, other than for standard warranty provisions. Due to customer purchasing patterns and the cyclical nature of the markets we serve, our sales tend to be somewhat higher in the second half of the year, with the fourth quarter being the highest.

Competition

The competitive landscape in each platform varies across the markets we serve. The mission critical communications platform has a high barrier to entry due to the technological standards and requirements driven by customers resulting in less competitive turnover. The command center software and video analytics and security markets have a lower barrier to entry due to the fewer technological requirements needed to enter the market. The command center software market has many competitors who provide point solutions for pieces of the command center workflow. The video and security market has become

increasingly competitive as video technology has advanced, incorporating artificial intelligence and machine learning, which provide richer solutions to customers. Key competitive factors include: performance, features, quality, warranty, price, vendor financing, availability of service, company financial strength, partner community, and relationships with customers. Our strong reputation with customers and partners, trusted brand, technology leadership, breadth of portfolio, product performance, and specialized support services position us well for success.

We experience widespread competition from a growing number of existing and new competitors, including large system integrators and manufacturers of private and public wireless network equipment and devices. As demand for fully integrated voice, data, broadband systems and video solutions continues to grow, we may face additional competition from public telecommunications carriers and telecommunications equipment providers to small video solutions start-ups.

As we continue to evolve our services strategy, we may subcontract work to other companies to fulfill customer needs in geographical areas that we do not have coverage or additional services that we do not provide.

Some of our major competitors within LMR, command center software, and video security are below.

Platform	Competitor
LMR	L3Harris Technologies, Inc., Hytera, Airbus SE, and Kenwood Corporation
Command center software	Central Square Technologies, Axon Enterprise, Inc., Tyler Technologies, Inc., West Corporation, Intergraph Corporation, and Zetron
Video security	Axis Communications, Hikvision, Dahua Technology Company, Hanwha Group, Genetec Inc., Axon Enterprise, Inc.

Other Information

Backlog

Our backlog includes orders that have been received and are believed to be firm. As of December 31, 2019 and December 31, 2018, our backlog was as follows:

<i>(In millions)</i>	<i>December 31</i>	
	<i>2019</i>	<i>2018</i>
Products and Systems Integration	\$ 3,158	\$ 3,199
Software and Services	8,101	7,401
	<u>\$ 11,259</u>	<u>\$ 10,600</u>

Approximately 47% of the Products and Systems Integration segment backlog and 21% of the Software and Services segment backlog is expected to be recognized as revenue during 2020. The firmness of such orders is subject to future events that may cause the amount recognized to change.

Recent Acquisitions

On October 16, 2019, we acquired a data solutions business for vehicle location information for a purchase price of \$85 million, net of cash acquired. The acquisition enhances our video security platform by adding data to our existing license plate recognition ("LPR") database within our Software and Services segment.

On July 11, 2019, we acquired WatchGuard, Inc. ("WatchGuard"), a provider of in-car and body-worn video solutions for \$271 million, inclusive of share-based compensation withheld at a fair value of \$16 million that will be expensed over an average service period of two years. The acquisition was settled with \$250 million of cash, net of cash acquired. The acquisition expands our video security platform within both the Product and Systems Integration segment and the Software and Services segment.

On March 11, 2019, we acquired Avtec, Inc. ("Avtec"), a provider of dispatch communications for U.S. public safety and commercial customers for a purchase price of \$136 million in cash, net of cash acquired. This acquisition expands our commercial portfolio with new capabilities, allowing us to offer an enhanced platform for customers to communicate, coordinate resources and secure their facilities. The business is part of both the Product and Systems Integration segment and the Software and Services segment.

On January 7, 2019, we announced that we acquired VaaS International Holdings ("VaaS"), a company that is a global provider of data and image analytics for vehicle location for \$445 million, inclusive of share-based compensation withheld at a fair value of \$38 million that will be expensed over an average service period of one year. The acquisition was settled with \$231 million of cash, net of cash acquired, and 1.4 million of shares issued at a fair value of \$160 million for a purchase price of \$391 million. This acquisition expands our video security platform within both the Product and Systems Integration segment and the Software and Services segment.

On March 28, 2018, we completed the acquisition of Avigilon Corporation ("Avigilon"), a provider of advanced security and video solutions including video analytics, network video management hardware and software, video cameras and access control solutions, for a purchase price of \$974 million. The acquisition expands our video security platform within both the Product and Systems Integration segment and the Software and Services segment.

On March 7, 2018, we completed the acquisition of Plant Holdings, Inc. ("Plant"), the parent company of Airbus DS Communications, for a purchase price of \$237 million. This acquisition expands our command center software portfolio with additional solutions for next generation 9-1-1 within our Software and Services segment.

On August 28, 2017, we completed the acquisition of Kodiak Networks, a provider of broadband push-to-talk for commercial customers, for a purchase price of \$225 million. The business is part of the Software and Services segment.

On March 13, 2017, we completed the acquisition of Interexport, a managed service provider of communications systems to public safety and commercial customers in Chile, for a purchase price of 98 billion Chilean pesos, or approximately \$147 million. The business is part of the Software and Services segment.

Research and Development

We continue to prioritize investments in R&D to expand and improve our products through both new product introductions and continuous enhancements to our core products. Our R&D programs are focused on the development of: (i) mission critical communications (ii) command center software and (iii) video security.

R&D expenditures were \$687 million in 2019, \$637 million in 2018, and \$568 million in 2017. As of December 31, 2019, we had approximately 6,000 employees engaged in R&D activities. In addition, we engage in R&D activities with joint development and manufacturing partners and outsource certain activities to engineering firms to further supplement our internal spend.

Intellectual Property Matters

Patent protection is an important aspect of our operations. We have a portfolio of U.S. and foreign utility and design patents relating to our products, systems, and technologies, including developments in radio frequency technology and circuits, wireless network technologies, over-the-air protocols, mission critical communications, software and services, video security and next-generation public safety. We also file new patent applications with the U.S. Patent and Trademark Office and foreign patent offices.

We license some of our patents to third-parties, but licensing is not a significant source of revenue for our business. We are also licensed to use certain patents owned by others. Royalty and licensing fees vary from year-to-year and are subject to the terms of the agreements and sales volumes of the products subject to the license. Motorola Solutions has a royalty-free license under all of the patents and patent applications assigned to Motorola Mobility at the time of the separation of the two businesses in 2011.

We actively participate in the development of standards for interoperable, mission critical digital two-way radio systems. Our patents are used in standards in which our products and services are based. We offer standards-based licenses to those patents on fair, reasonable, and non-discriminatory terms.

We believe that our patent portfolio will continue to provide us with a competitive advantage in our core product areas as well as provide leverage in the development of future technologies. While we are not dependent upon a single patent or even a few patents, we do have patents that protect features and functionality of our products and services. While these patents are important, our success also depends upon our extensive know-how, innovative culture, technological leadership, and distribution channels. We do not rely solely on patents or other intellectual property rights to protect or establish our market position; however, we will enforce our intellectual property rights when it is necessary to protect our innovation, or in some cases where attempts to negotiate mutually-agreeable licenses are not successful.

We seek to obtain patents, copyright registrations, and trademark registrations to protect our proprietary positions whenever possible and wherever practical. As of December 31, 2019, we owned approximately 5,700 granted patents in the U.S. and in foreign countries. As of December 31, 2019, we had approximately 1,475 U.S. and foreign patent applications pending. Foreign patents and patent applications are mostly counterparts of our U.S. patents. During 2019, we were granted approximately 575 patents in the U.S. and in foreign countries.

We no longer own certain logos and other trademarks, trade names and service marks, including MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M logo and all derivatives thereof ("Motorola Marks") and we license the Motorola Marks from Motorola Mobility, which is currently owned by Lenovo Group Limited.

Inventory and Raw Materials

Our practice is to carry reasonable amounts of inventory to meet customers delivery requirements. We provide custom products that require the stocking of inventories and a large variety of piece parts and replacement parts in order to meet delivery and warranty requirements. To the extent supplier product life cycles are shorter than ours, stocking of lifetime buy inventories is required to meet long-term warranty and contractual requirements. In addition, replacement parts are stocked for delivery on customer demand within a short delivery cycle.

Availability of required materials and components is generally dependable; however, fluctuations in supply and market demand could cause selective shortages and affect our results of operations. We currently procure certain materials and components from single-source vendors. In addition, we import materials and components that are subject to import duties, including tariffs in connection with products procured in China. The duties and tariffs we are subject to do not have a significant impact on our financial results. A material disruption from a single-source vendor may have a material adverse impact on our results of operations. If certain single-source suppliers were to become capacity constrained or insolvent, it could result in a reduction or interruption in supplies, or an increase in the price of supplies, and adversely impact our financial results.

Natural gas, electricity and, to a lesser extent, oil are the primary sources of energy for our manufacturing operations. Each of these resources is currently in adequate supply for our operations. The cost to operate our facilities and freight costs are dependent on world oil prices and external third-party logistics rates for inbound and outbound air lanes. Labor is generally available in reasonable proximity to our manufacturing facilities and the manufacturing facilities of our largest outsourced manufacturing suppliers. Difficulties in obtaining any of the aforementioned resources, or significant cost increases, could affect our financial results.

Environmental Quality

Some of our operations use substances regulated under various federal, state, local, and international laws governing the environment and worker health and safety, including those governing the discharge of pollutants into the ground, air, and water, the management and disposal of hazardous substances and wastes, and the cleanup of contaminated sites, as well as relating to the protection of the environment. Certain products of ours are subject to various federal, state, local, and international laws governing chemical substances in electronic products. During 2018, compliance with these U.S. federal, state and local, and international laws did not have a material effect on our capital expenditures or competitive position; however, we recorded a \$57 million charge once we became aware of additional remediation requirements for the designated Superfund site under the Comprehensive Environmental Response, Compensation and Liability Act (commonly known as the "Superfund Act") incurred by a legacy business.

Regulatory Matters

Radio spectrum is required to provide wireless voice, data, and video communications service. The allocation of spectrum is regulated in the U.S. and other countries and limited spectrum is allocated to wireless services and specifically to public safety users. We manufacture and market products in spectrum bands already allocated by regulatory bodies. These include voice and data infrastructure, mobile radios, and portable or hand-held devices. Consequently, our results could be positively or negatively affected by the rules and regulations adopted by regulatory agencies. Our products operate both on licensed and unlicensed spectrum. The availability of additional radio spectrum may provide new business opportunities. Conversely, the loss of available radio spectrum may result in the loss of business opportunities. Regulatory changes in current spectrum bands (e.g., the sharing of previously dedicated or other spectrum) may also provide opportunities or may require modifications to some of our products so they can continue to be manufactured and marketed.

The U.S. federal government and many state and local governments have adopted or are considering laws or regulations governing the use of artificial intelligence, biometrics, facial recognition and license plate recognition technology, primarily based on concerns about privacy or bias. (References to privacy-related legislation or laws in this document encompass all of these technologies.) Similar laws and regulations are being considered in some countries outside the U.S. Based on growing demands for broadband, regulators continue to consider repurposing narrowband spectrum to broadband. There are calls for more stringent health and safety requirements for occupational equipment for public safety and commercial users. There is also increasing attention in the U.S. on supply chain vulnerabilities related to country of origin and national security. Our entrance into new service offerings could present new or additional regulatory burdens and compliance issues.

Employees

At December 31, 2019 and December 31, 2018 we had approximately 17,000 and 16,000 employees, respectively.

Material Dispositions

None.

Financial Information About Geographic Areas

The response to this section of Item 1 incorporates by reference Note 11, "Commitments and Contingencies" and Note 12, "Information by Segment and Geographic Region" of Part II, "Item 8: Financial Statements and Supplementary Data" of this document, the "Results of Operations—2019 Compared to 2018" and "Results of Operations—2018 Compared to 2017" sections of Part II, "Item 7: Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Item 1A: Risk Factors" of this document.

Financial Information About Segments

The response to this section of Item 1 incorporates by reference Note 12, "Information by Segment and Geographic Region," of Part II, "Item 8: Financial Statements and Supplementary Data" of this document.

Available Information

We make available free of charge through our website, www.motorolasolutions.com/investors, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements, other reports filed under the Securities Exchange Act of 1934 ("Exchange Act"), and all amendments to those reports simultaneously or as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. Our reports are also available free of charge on the SEC's website, www.sec.gov. Also available free of charge on our website are the following corporate governance documents:

- Motorola Solutions, Inc. Restated Certificate of Incorporation with Amendments
- Conformed Restated Certificate of Incorporation of Motorola Solutions, Inc. (amended Jan. 4, 2011)
- Certificate of Amendment to the Restated Certificate of Incorporation of Motorola, Inc. (effective Jan. 4, 2011)
- Certificate of Ownership and Merger of Motorola Name Change Corporation into Motorola, Inc. (effective Jan. 4, 2011)
- Motorola Solutions, Inc. Amended and Restated Bylaws
- Board Governance Guidelines
- Director Independence Guidelines
- Principles of Conduct for Members of the Motorola Solutions, Inc. Board of Directors
- Motorola Solutions Code of Business Conduct, which is applicable to all Motorola Solutions employees, including the principal executive officers, the principal financial officer and the controller (principal accounting officer)
- Audit Committee Charter
- Compensation and Leadership Committee Charter
- Governance and Nominating Committee Charter

All of our reports and corporate governance documents may also be obtained without charge by contacting Investor Relations, Motorola Solutions, Inc., Corporate Offices, 500 W. Monroe Street, Chicago, IL 60661, E-mail: investors@motorolasolutions.com. This annual report on Form 10-K and Definitive Proxy Statement are available on the Internet at <http://investors.motorolasolutions.com/AnnualReports> and may also be requested in hardcopy by completing the on-line request form at the top of this page. Our internet website and the information contained therein or incorporated therein are not intended to be incorporated into this Annual Report on Form 10-K.

Item 1A: Risk Factors

We are subject to laws and regulations regarding privacy, data protection and information security, and our actual or perceived failure to comply with such legal obligations could adversely affect our business.

The European Union ("E.U.") adopted the General Data Protection Regulation ("GDPR") which took effect on May 25, 2018 harmonizing data protection laws across the E.U. The GDPR strengthens individual privacy rights and enhances data protection obligations for processors and controllers of personal data. This includes expanded disclosures about how personal information is to be used, limitations on retention of information and mandatory data breach notification requirements. Noncompliance with the GDPR can trigger significant fines.

Also, U.S. federal, state and other foreign governments and agencies have adopted or are considering adopting laws and regulations regarding the collection, storage, use, processing and disclosure of personal data. State governments within the U.S. are starting to enact their own versions of "GDPR- like" privacy legislation which will create additional compliance challenges, risk, and administrative burden e.g. the California Consumer Protection Act ('CCPA') which went into effect on January 1, 2020. Even though comprehensive U.S. Federal Privacy legislation is being discussed seriously by lawmakers and other stakeholders, it is possible that a one-size fits all compliance program may be difficult to achieve/manage globally.

Because the interpretation and application of privacy and data protection laws are still uncertain, it is possible that these laws may be interpreted and applied in a manner that is inconsistent with our existing practices or the features of our products, software and services.

Any failure or perceived failure by us, our business partners, or third party service providers to comply with GDPR, CCPA, other privacy-related or data protection laws and regulations, or the privacy commitments in contracts could result in proceedings against us by governmental entities or others and significant fines, which could have a material adverse effect on our business and operating results and harm our reputation.

In addition, some countries have or are considering legislation requiring local storage and processing of data that, if enacted, could increase the cost and complexity of offering our products, software and services or maintaining our business operations in those jurisdictions.

Existing or future privacy-related legislation and regulations pertaining to artificial intelligence that apply to us or to our customers may require us to change our current products and services and/or result in additional expenses, which could adversely affect our business and results of operations. We could suffer reputational damage from negative publicity related to products and services that utilize artificial intelligence, which could also adversely affect our business and results of operations.

Current or future privacy-related legislation and governmental regulations pertaining to artificial intelligence may affect how our business is conducted. Legislation and governmental regulations related to artificial intelligence may also influence our current and prospective customers' activities, as well as their expectations and needs in relation to our products and services. Compliance with these laws and regulations may be onerous and expensive, and may be inconsistent from jurisdiction to jurisdiction, further increasing the cost of compliance. Any such increase in costs as a result of changes in these laws and regulations or in their interpretation could individually or in the aggregate make our products and services that use artificial intelligence technologies less attractive to our customers, delay the introduction of new products, in one or more regions, cause us to change or limit our business practices or affect our financial condition and operating results.

We envision a future in which artificial intelligence operating in our products and services will help our public safety and private sector customers build safer communities with stronger communication platforms. Artificial intelligence may be flawed and datasets may be insufficient or contain biased information. As we work to responsibly meet our customers' needs for products and services that use artificial intelligence, we could suffer reputational damage as a result of any inconsistencies in the application of the technology or ethical concerns both of which may generate negative publicity.

A security breach or other significant disruption of our IT systems, those of our outsource partners, suppliers or those we manufacture, install, and in some cases operate and maintain for our customers, caused by cyber attack or other means, could have a negative impact on our operations, sales, and operating results.

All information technology systems are potentially vulnerable to damage, unauthorized access or interruption from a variety of sources, including but not limited to, cyber attack, cyber intrusion, computer viruses, security breach, energy blackouts, natural disasters, terrorism, sabotage, war, insider trading, and telecommunication failures. As a provider of mission critical communications systems for customers in critical infrastructure sectors of the U.S. and globally, including systems that we operate and maintain for certain customers of ours or as a software-based service, we face additional risk as a target of sophisticated attacks aimed at compromising both our company's and our customers' sensitive information and intellectual property. This risk is heightened because these systems may contain sensitive governmental information or personally identifiable or other protected information. While we employ a number of countermeasures and security controls, including training, audits, and utilization of commercial information security threat-sharing networks to protect against such attacks, the sophistication of these threats continues to grow and the complexity and scale of the systems to be protected continues to increase as well. We cannot guarantee that all threat attempts will be successfully thwarted even with these countermeasures despite significant investment and focus on the security of our products, services, and corporate environment. If we fail to effectively manage our investment in cybersecurity, our business, products, and services could suffer from the resulting weaknesses in our infrastructure, systems or controls. Further, we are dependent, in certain instances, upon our outsourced business partners, suppliers, and customers to adequately protect our IT systems and those IT systems that we manage for our

customers, including the hosts of our cloud infrastructure on top of which our cloud-based solutions are built. In addition, some of our customers are exploring broadband solutions that use public carrier networks on which our solutions would operate. We do not have direct oversight or influence over how public carrier networks manage the security, quality, or resiliency of their networks, and because they are an attractive high value target due to their role in critical infrastructure, they expose customers to an elevated risk over our private networks. Although we maintain insurance related to cybersecurity risks, there can be no assurance that our insurance coverage will cover the particular cyber incident at issue or that such coverage will be sufficient.

Our company outsources certain business operations, including, but not limited to IT, HR information systems, manufacturing, repair, distribution, and engineering services. These arrangements are governed by various contracts and agreements which reference and mandate Company and international standards of information protection, as appropriate. In addition, we maintain certain networked equipment at customer locations and are reliant on those customers to protect and maintain that equipment. The "attack surface" for us to protect against our adversaries is thus often extended to these partners and customers, as well as our suppliers, and we have some dependency upon their cybersecurity capabilities as well as their willingness to exchange threat and response information with us.

A cyber attack or other significant disruption involving our IT systems or those of our outsource partners, suppliers or our customers could result in the unauthorized release of proprietary, confidential or sensitive information of ours or our customers. Such unauthorized access to, or release of, this information could: (i) allow others to unfairly compete with us, (ii) compromise safety or security, given the mission critical nature of our customers' systems, (iii) subject us to claims for breach of contract, tort, and other civil claims without adequate indemnification from our suppliers, and (iv) damage our reputation. We could face regulatory penalties, enforcement actions, remediation obligations and/or private litigation by parties whose data is improperly disclosed or misused. In addition, there has been a sharp increase in laws in Europe, the U.S. and elsewhere, imposing requirements for the handling of personal data, including data of employees, consumers and business contacts, as well as imposing requirements for remediation action, including specific timing and method of notification. There is a risk that our company, directly or as the result of some third-party service provider we use, could be found to have failed to comply with the laws or regulations of some country regarding the collection, consent, handling, transfer, retention or disposal of such personal data, and therefore subject us to fines or other sanctions. The continued global trend to enforce data sovereignty and negate legitimate cross border data flows increases the risk that we, directly or through some third party service provider, may inappropriately transfer personal data. Any or all of the foregoing could have a negative impact on our business, financial condition, results of operations, and cash flow.

A portion of our business is dependent upon U.S. government contracts and grants, which are highly regulated and subject to oversight audits by U.S. government representatives and subject to cancellations. Such audits could result in adverse findings and negatively impact our business.

Our U.S. government business is subject to specific procurement regulations with numerous compliance requirements. These requirements, although customary in government contracting in the U.S., increase our performance and compliance costs. These costs may increase in the future, thereby reducing our margins, which could have an adverse effect on our financial condition. Failure to comply with these regulations or other compliance requirements could lead to suspension or debarment from U.S. government contracting or subcontracting for a period of time. Among the causes for debarment are violations of various laws or policies, including those related to procurement integrity, export control, U.S. government security regulations, employment practices, protection of criminal justice data, protection of the environment, accuracy of records, proper recording of costs, foreign corruption, Trade Agreements Act, Buy America Act, and the False Claims Act.

Generally, in the U.S., government contracts and grants are subject to oversight audits by government representatives. Such audits could result in adjustments to our contracts. For contracts covered by the Cost Accounting Standards, any costs found to be improperly allocated to a specific contract may not be allowed, and such costs already reimbursed may have to be refunded. Future audits and adjustments, if required, may materially reduce our revenues or profits upon completion and final negotiation of audits. Negative audit findings could also result in investigations, termination of a contract or grant, forfeiture of profits or reimbursements, suspension of payments, fines and suspension or prohibition from doing business with the U.S. government. All contracts with the U.S. government can be terminated for convenience by the government at any time.

In addition, contacts with government officials and participation in political activities are areas that are tightly controlled by federal, state, local and international laws. Failure to comply with these laws could cost us opportunities to seek certain government sales opportunities or even result in fines, prosecution, or debarment.

Government regulation of radio frequencies may limit the growth of public safety narrowband and broadband systems or reduce barriers to entry for new competitors.

Radio spectrum is required to provide wireless voice, data, and video communications service. The allocation of frequencies is regulated in the U.S. and other countries and limited spectrum is allocated to wireless services, including to public safety users. The global demand for wireless communications has grown exponentially, and spurred competition for access among various networks and users. In response, regulators are reassessing the allocations of spectrum among users, including public safety users, and considering whether to change the allocation of certain bands from narrowband to broadband use, or to require sharing of spectrum bands. Our results could be positively or negatively affected by the rules and regulations adopted by regulators. Our products operate both on licensed and unlicensed spectrum. The availability of additional radio spectrum may provide new business opportunities. Conversely, the loss of available radio spectrum may result in the loss of business opportunities. Regulatory changes in current spectrum bands (e.g., the sharing of previously dedicated or other spectrum) may also provide opportunities or may require modifications to some of our products so they can continue to be manufactured and

marketed. Opportunities in the public safety broadband market may also be impacted by the First Responder Network Authority which was authorized by Congress to develop, build, and operate a nationwide broadband network for first responders.

The expansion of our video security and software businesses creates a greater risk than we have been exposed to in the past that we may not be able to properly assess or mitigate.

The process of developing new video security and software products and enhancing existing products is complex, costly and uncertain, and any failure by us to anticipate customers' changing needs and emerging technological trends accurately could significantly harm our market share, results of operations and financial condition. Any failure to accurately predict technological and business trends, control research and development costs or execute our innovation strategy could harm our business and financial performance. Our research and development initiatives may not be successful in whole or in part, including research and development projects which we have prioritized with respect to funding and/or personnel.

As part of our growth strategy, we may seek to acquire new technologies. The process of integrating acquired assets into our operations may result in unforeseen operating difficulties and expenditures and may absorb significant management attention that would otherwise be available for the ongoing development of our business. We may allocate a significant portion of our available operating cash flow to finance all or a portion of the purchase price relating to possible acquisitions. Any future acquisition or investment opportunity may require us to obtain additional financing to complete the transaction. The anticipated benefits of any acquisitions may not be realized. In addition, future acquisitions by us could result in potentially dilutive issuances of equity securities, the incurrence of debt and contingent liabilities and amortization expenses related to intangible assets, any of which could materially adversely affect our operating results and financial position.

The expansion of our services business creates increased areas of risk that we may not be able to properly assess or mitigate.

We plan to continue to expand our services business by offering additional and expanded managed services for existing and new types of customers, such as designing, building, operating, managing and in some cases owning a public-safety system or other commercial system. The offering of managed services involves the integration of multiple services, multiple vendors and multiple technologies, requiring that we partner with other solutions and services providers, often on multi-year projects. Additionally, our managed services business includes the hosting of software applications. This allows the customers to "consume" the software "as a service" and avoid the costs and complexities of acquiring and operating the software.

We may face increasing competition from traditional system integrators, the defense industry, commercial software companies, and commercial telecommunication carriers as services contracts become larger and more complicated. Expansion will bring us into contact with new regulatory requirements and restrictions, such as data security or data residency/localization obligations, with which we will have to comply and may increase the costs of doing business, reduce margins and delay or limit the range of new solutions and services which we will be able to offer. We may be required to agree to specific performance metrics that meet the customer's requirements for network security, availability, reliability, maintenance and support and, in some cases, if these performance metrics are not met we may not be paid.

Additionally, as our portfolio of products increases, we may be subject to new regulatory and statutory requirements and could result in additional compliance obligations and liabilities for our business. For example, in the United States we may be a provider of Next Generation 911 services which may be subject to Federal and state regulation.

Our success depends in part on our timely introduction of new products and technologies and our results can be impacted by the effectiveness of our significant investments in new products and technologies.

The markets for certain products of ours are characterized by changing technologies and evolving industry standards. In some cases, it is unclear what specific technology will be adopted in the market or what delivery model will prevail. In addition, new technologies such as voice over LTE and 5G or push-to-talk clients over LTE and 5G could reduce sales of our traditional products. The shift to smart public safety and the prevalence of data in our customer use cases results in our competing in a more fragmented marketplace. In addition, new technologies and new competitors continue to enter our markets at a faster pace than we have experienced in the past, resulting in increased competition from non-traditional suppliers, including public carriers, telecom equipment providers, consumer device manufacturers and software and video security companies. New products are expensive to develop and bring to market and additional complexities are added when this process is outsourced as we have done in certain cases or as we increase our reliance on third-party content and technology. Our success depends, in substantial part, on the timely and successful introduction of new products, upgrades and enhancements of current products to comply with emerging industry standards, laws and regulations, including country specific proprietary technology requirements, and to address competing technological and product developments carried out by our competitors. Developing new technologies to compete in a specific market may not be financially viable, resulting in our inability to compete in that market. The R&D of new, technologically-advanced products is a complex and uncertain process requiring high levels of innovation and investment, as well as the accurate anticipation of technology and market trends. Many of our products and systems are complex and we may experience delays in completing development and introducing new products or technologies in the future. We may focus our resources on technologies that do not become widely accepted or are not commercially viable or involve compliance obligations with additional areas of regulatory requirements.

Our results are subject to risks related to our significant investment in developing and introducing new products. These risks include among others: (i) difficulties and delays in the development, production, testing and marketing of products, particularly when such activities are done through third-parties, (ii) customer acceptance of products, (iii) the development of, approval of, and compliance with industry standards and regulatory requirements, (iv) the significant amount of resources we

must devote to the development of new technologies, and (v) the ability to differentiate our products and compete with other companies in the same markets.

We face many risks relating to intellectual property rights.

Our business will be harmed if: (i) we, our customers and/or our suppliers are found to have infringed intellectual property rights of third-parties, (ii) the intellectual property indemnities in our supplier agreements are inadequate to cover damages and losses due to infringement of third-party intellectual property rights by supplier products, (iii) we are required to provide broad intellectual property indemnities to our customers, (iv) our intellectual property protection is inadequate to protect against threats of misappropriation from internal or external sources or otherwise inadequate to protect our proprietary rights, or (v) our competitors negotiate significantly more favorable terms for licensed intellectual property. We may be harmed if we are forced to make publicly available, under the relevant open-source licenses, certain internally developed software-related intellectual property as a result of either our use of open-source software code or the use of third-party software that contains open-source code.

Since our products are comprised of complex technology, much of which we acquire from suppliers through the purchase of components or licensing of software, we are often involved in or impacted by assertions, including both requests for licenses and litigation, regarding patent and other intellectual property rights. Third-parties have asserted, and in the future may assert, intellectual property infringement claims against us and against our customers and suppliers. Many of these assertions are brought by non-practicing entities whose principal business model is to secure patent licensing-based revenue from product manufacturing companies. The patent holders often make broad and sweeping claims regarding the applicability of their patents to our products, seeking a percentage of sales as licenses fees, seeking injunctions to pressure us into taking a license, or a combination thereof. Defending claims may be expensive and divert the time and efforts of our management and employees. Increasingly, third-parties have sought broad injunctive relief which could limit our ability to sell our products in the U.S. or elsewhere with intellectual property subject to the claims. If we do not succeed in any such litigation, we could be required to expend significant resources to pay damages, develop non-infringing products or to obtain licenses to the intellectual property that is the subject of such litigation, each of which could have a negative impact on our financial results. However, we cannot be certain that any such licenses, if available at all, will be available to us on commercially reasonable terms. In some cases, we might be forced to stop delivering certain products if we or our customer or supplier are subject to a final injunction.

We attempt to negotiate favorable intellectual property indemnities with our suppliers for infringement of third-party intellectual property rights. However, there is no assurance that we will be successful in our negotiations or that a supplier's indemnity will cover all damages and losses suffered by us and our customers due to the infringing products or that a supplier will choose to accept a license or modify or replace its products with non-infringing products which would otherwise mitigate such damages and losses. Further, we may not be able to participate in intellectual property litigation involving a supplier and may not be able to influence any ultimate resolution or outcome that may negatively impact our sales if a court enters an injunction that enjoins the supplier's products or if the International Trade Commission issues an exclusionary order that blocks our products from importation into the U.S. Intellectual property disputes involving our suppliers have resulted in our involvement in International Trade Commission proceedings from time to time. These proceedings are costly and entail the risk that we will be subjected to a ban on the importation of our products into the U.S. solely as a result of our use of a supplier's components.

In addition, our customers increasingly demand that we indemnify them broadly from all damages and losses resulting from intellectual property litigation against them. These demands stem from the increasing trend of the non-practicing entities that engage in patent enforcement and litigation targeting the end users of our products. End users are targeted so the non-practicing entities can seek royalties and litigation judgments in proportion to the value of the use of our products, rather than in proportion to the cost of our products. Such demands can amount to many times the selling price of our products. Our patent and other intellectual property rights are important competitive tools and may generate income under license agreements. We regard our intellectual property as proprietary and attempt to protect it with patents, copyrights, trademarks, trade secret laws, confidentiality agreements and other methods. We also generally restrict access to and distribution of our proprietary information. Despite these precautions, it may be possible for a third-party to obtain and use our proprietary information or develop similar technology independently. In addition, effective patent, copyright, trademark and trade secret protection may be unavailable or limited in certain foreign countries. Unauthorized use of our intellectual property rights by third-parties and the cost of any litigation necessary to enforce our intellectual property rights could have a negative impact on our financial results.

As we expand our business, including through acquisitions, and compete with new competitors in new markets, the breadth and strength of our intellectual property portfolio in those new markets may not be as developed as in our longer-standing businesses. This may expose us to a heightened risk of litigation and other challenges from competitors in these new markets. Further, competitors may be able to negotiate significantly more favorable terms for licensed intellectual property than we are able to, which puts them at a competitive advantage.

As our business grows, the breadth and value of our intellectual property, including patents, trade secrets, and source code, may become a target from internal threats, business partners who assist in the development of products and our intellectual property, and external third party actors. Our intellectual property protection may be inadequate to protect against these threats of misappropriation, thereby allowing competitors to unfairly use our intellectual property to compete against us.

If the quality of our products does not meet our customers' expectations or regulatory or industry standards, then our sales and operating earnings, and ultimately our reputation, could be negatively impacted.

Some of the products we sell may have quality issues resulting from the design or manufacture of the product, or from the software used in the product. Sometimes, these issues may be caused by components we purchase from other manufacturers

or suppliers. Often these issues are identified prior to the shipment of the products and may cause delays in shipping products to customers, or even the cancellation of orders by customers. Sometimes, we discover quality issues in the products after they have been shipped to our customers, requiring us to resolve such issues in a timely manner that is the least disruptive to our customers, particularly in light of the mission critical nature of our communications products. Such pre-shipment and post-shipment quality issues can have legal, financial and reputational ramifications, including: (i) delays in the recognition of revenue, loss of revenue or future orders, (ii) customer-imposed penalties for failure to meet contractual requirements, (iii) increased costs associated with repairing or replacing products, and (iv) a negative impact on our goodwill and brand name reputation.

In some cases, if the quality issue affects the product's performance, safety or regulatory compliance, then such a "defective" product may need to be "stop-shipped" or recalled. Depending on the nature of the quality issue and the number of products in the field, it could cause us to incur substantial recall or corrective field action costs, in addition to the costs associated with the potential loss of future orders and the damage to our goodwill or brand reputation. In addition, we may be required, under certain customer contracts, to pay damages for failed performance that might exceed the revenue that we receive from the contracts. Recalls and field actions involving regulatory non-compliance could also result in fines and additional costs. Recalls and field actions could result in third-party litigation by persons or companies alleging harm or economic damage as a result of the use of the products.

We face a number of risks related to current global economic and political conditions, including low economic growth rates in certain markets, the impact of currency fluctuations, commodity price volatility, and unstable political conditions that have and could continue to unfavorably impact our business.

Global economic and political conditions continue to be challenging for many of our government and commercial markets, as economic growth in many countries and emerging markets, has remained low or declined, currency fluctuations have impacted profitability, credit markets have remained tight for certain counterparties of ours and some of our customers are dependent on government grants to fund purchases of our products and services.

In addition, conflicts in the Middle East and elsewhere have created many economic and political uncertainties that continue to impact worldwide markets. The length of time these adverse economic and political conditions may persist is unknown. These global economic and political conditions have impacted and could continue to impact our business, financial condition, results of operations, and cash flows in a number of ways, including:

- **Requests by Customers for Vendor Financing by Motorola Solutions:** Certain customers of ours, particularly, but not limited to, those who purchase large infrastructure systems, request that their suppliers provide financing in connection with equipment purchases and/or the provision of solutions and services, particularly as the size and length of these types of contracts increases and as we increase our business in developing countries. Requests for vendor financing continue, including in response to financial challenges surrounding state and local governments. Motorola Solutions has continued to provide vendor financing to both our government and commercial customers. We have been faced with and expect to continue to be faced with choosing between further increasing our level of vendor financing or potentially losing sales, as some of our competitors, particularly those in Asia, have been more willing to provide vendor financing to customers around the world, particularly customers in Africa and Latin America. To the extent we are unable to sell these receivables on terms acceptable to us we may retain exposure to the credit quality of our customers who we finance.

- **Customers' Inability to Obtain Financing to Make Purchases from Motorola Solutions and/or Maintain Their Business:** Some of our customers require substantial financing, including public financing or government grants, in order to fund their operations and make purchases from us. The inability of these customers to obtain sufficient credit or other funds, including as a result of lower tax revenues, increases in interest rates, currency fluctuations or unavailability of government grants, to finance purchases of our products and services and/or to meet their payment obligations to us could have, and in some cases has had, a negative impact on our financial results. This risk increases as the size and length of our contracts increase. In addition, if global economic conditions result in insolvencies for our customers, it will negatively impact our financial results.

- **Challenges in Budgeting and Forecasting:** It is difficult to estimate changes in various parts of the U.S. and world economy, including the markets in which we participate. Components of our budgeting and forecasting are dependent upon estimates of demand for our products and estimates of foreign exchange rates. The prevailing economic uncertainties render estimates of future income and expenditures challenging.

- **Potential Deferment or Cancellation of Purchases and Orders by Customers:** Uncertainty about current and future global economic conditions may cause, and in some cases has caused, businesses and governments to defer or cancel purchases in response to tighter credit, decreased cash availability and de-prioritization of communications equipment within the budgeting process. If future demand for our products declines due to economic conditions, it will negatively impact our financial results.

- **Inability to Operate and Grow in Certain Markets:** We operate in a number of markets with a risk of intensifying political instability, including Europe (including the impact of Brexit discussed below), Asia, Latin America, the Middle East and Africa. If political instability continues in these markets and in other parts of the world in which we operate it could have a significant impact on our ability to grow and, in some cases, operate in those locations, which will negatively impact our financial results.

We face uncertainty in the global geopolitical landscape that may impede the implementation of our strategy outside the United States.

Following a referendum in 2016, the United Kingdom (the "U.K.") formally left the E.U. on January 31, 2020. There is now a transition period until December 31, 2020, when current UK-EU relationships will continue unchanged. During this period, the U.K. and E.U. will seek to negotiate their long-term economic relations. Failure to reach agreement during 2020 could risk significant disruption to U.K./E.U. trade which could prolong stock market volatility and currency exchange rate fluctuations that resulted in strengthening of the U.S. dollar. There may be broader uncertainty over U.S. treaty and trade relations with other countries. This could impact the ability or willingness of non-U.S. companies to transact business in the U.S., regulation and trade agreements affecting U.S. companies, and global economic conditions. All these factors are outside our control, but may cause us to adjust strategy so as to compete effectively in global markets, and could adversely affect our business, financial condition, operating results and cash flow.

A significant amount of our international business is transacted in local currency and a significant percentage of our cash and cash equivalents are held outside of the United States, which exposes us to risk relating to currency fluctuations, changes in foreign exchange regulations and repatriation delays and costs, which could negatively impact our sales, profitability and financial flexibility.

A significant amount of our sales and operations are conducted outside the United States and transacted in local currency. As a result, our financial performance is impacted by currency fluctuations. We are also experiencing increased pressure to agree to established currency conversion rates and cost of living adjustments as a result of foreign currency fluctuations or the requirement to transact business in local currencies.

A significant percentage of our cash and cash equivalents is currently held outside the U.S. and we continue to generate profits outside of the U.S., while many of our liabilities, such as our public debt, the majority of our pension liabilities and certain other cash payments, such as dividends and share repurchases, are payable in the U.S. While we have regularly repatriated funds with minimal adverse impact, repatriation of some of the funds has been and could continue to be subject to delay for local country approvals and could have potential adverse tax consequences. In addition, foreign exchange regulations and capital controls enforced by certain jurisdictions may limit our ability to convert foreign currency or repatriate cash. As a result of having a lower amount of cash and cash equivalents in the U.S., our financial flexibility may be reduced.

We enter into fixed-price contracts that could subject us to losses in the event we fail to properly estimate our costs or hedge our risks associated with currency fluctuations.

We enter into a number of firm fixed-price contracts. If our initial cost estimates are incorrect, we can lose money on these contracts. Because certain of these contracts involve new technologies and applications, require us to engage subcontractors and/or can last multiple years, unforeseen events, such as technological difficulties, fluctuations in the price of raw materials, problems with our subcontractors or suppliers and other cost overruns, can result in the contract pricing becoming less favorable or even unprofitable to us and have an adverse impact on our financial results. In addition, a significant increase in inflation rates or currency fluctuations could have an adverse impact on the profitability of longer-term contracts.

We expect to continue to make strategic acquisitions of other companies or businesses and these acquisitions introduce significant risks and uncertainties, including risks related to integrating the acquired businesses and achieving benefits from the acquisitions.

In order to position ourselves to take advantage of growth opportunities or to meet other strategic needs such as product or technology gaps, we have made, and expect to continue to make, strategic acquisitions that involve significant risks and uncertainties. These risks and uncertainties include: (i) the difficulty or inability in integrating newly-acquired businesses and operations in an efficient and effective manner, including ensuring proper integration of acquired businesses' legal and regulatory compliance programs, (ii) risks associated with integrating financial reporting and internal control systems, (iii) difficulties in integrating information technology systems and other business processes to accommodate the acquired businesses, (iv) challenges in integrating acquired businesses to create the operating platform for public safety, (v) the challenges in achieving strategic objectives, cost savings and other benefits from acquisitions, (vi) the risk that our contractual relationships or the markets served do not evolve as anticipated and that the technologies acquired do not prove to be those needed to be successful in those markets, (vii) the potential loss of key employees of the acquired businesses, (viii) the risk of diverting the attention of senior management from our operations, (ix) the risks of entering new markets in which we have limited experience, and (x) future impairments of goodwill of an acquired business. In particular, failure to achieve targeted cost and revenue synergies could negatively impact our business performance.

Certain acquisition candidates in the industries in which we participate may carry higher relative valuations (based on revenues, earnings, cash flow, or other relevant multiples) than we do. This is particularly evident in software and certain services businesses. Acquiring a business that has a higher relative valuation than Motorola Solutions may be dilutive to our earnings. In addition, we may not pursue opportunities that are highly dilutive to near-term earnings.

Key employees of acquired businesses may receive substantial value in connection with a transaction in the form of cash payments for their ownership interest, particularly in the case of founders and other shareholder employees, or as a result of change-in-control agreements, acceleration of stock options and the lifting of restrictions on other equity-based compensation rights. To retain such employees and integrate the acquired business, we may offer additional retention incentives, but it may still be difficult to retain certain key employees.

We derive a portion of our revenue from government customers who award business through competitive bidding which can involve significant upfront costs and risks. This effort may not result in awards of business or we may fail to accurately estimate the costs to fulfill contracts awarded to us, which could have adverse consequences on our future profitability.

Many government customers, including most U.S. government customers, award business through competitive bidding processes, which result in greater competition and increased pricing pressure. These competitive bidding processes involve significant cost and managerial time to prepare bids for contracts that may not be awarded to us. Even if we are awarded contracts, we may fail to accurately estimate the resources and costs required to fulfill a contract, or to resolve problems with our subcontractors or suppliers, which could negatively impact the profitability of any contract awarded to us, particularly in the case of fixed price contracts. In addition, following the award of a contract, we have experienced and may continue to experience significant expense or delay, contract modification or contract rescission as a result of customer delay or our competitors protesting or challenging contracts awarded to us in competitive bidding.

We may not continue to have access to the capital markets for financing on acceptable terms and conditions, particularly if our credit ratings are downgraded, which could limit our ability to repay our indebtedness and could cause liquidity issues.

From time-to-time we access the capital markets to obtain financing. Our access to the capital markets and the bank credit markets at acceptable terms and conditions are impacted by many factors, including: (i) our credit ratings, (ii) the liquidity of the overall capital markets, (iii) strength and credit availability in the banking markets, and (iv) the current state of the global economy. In addition, we frequently access the credit markets to obtain performance bonds, bid bonds, standby letters of credit and surety bonds, as well as to hedge foreign exchange risk and sell receivables. Furthermore, there can be no assurances we will be able to refinance our existing indebtedness (i) on commercially reasonable terms, (ii) on terms, including with respect to interest rates, as favorable as our current debt, or (iii) at all. There can be no assurances that we will continue to have access to the capital markets or bank credit markets on terms acceptable to us and if we are unable to repay or refinance our debt, we cannot guarantee that we will be able to generate enough cash flows from operations or that we will be able to obtain enough capital to service our debt, fund our planned capital expenditures or pay future dividends.

We are rated investment grade by all three national rating agencies. Any downward changes by the rating agencies to our credit rating may negatively impact the value and liquidity of both our debt and equity securities. Under certain circumstances, an increase in the interest rate payable by us under our revolving credit facility, if any amounts are borrowed under such facility, could negatively affect our operating cash flows. In addition, a downgrade in our credit ratings could limit our ability to: (i) access the capital markets or bank credit markets, (ii) issue commercial paper (iii) provide performance bonds, bid bonds, standby letters of credit and surety bonds, (iv) hedge foreign exchange risk, (v) fund our foreign affiliates, and (vi) sell receivables. A downgrade in our credit rating could also result in less favorable trade terms with suppliers. In addition, any downgrades in our credit ratings may affect our ability to obtain additional financing in the future and may affect the terms of any such financing. Any future disruptions, uncertainty or volatility in the capital markets may result in higher funding costs for us and adversely affect our ability to access funds and other credit related products. In addition, we may avoid taking actions that would otherwise benefit us or our stockholders, such as engaging in certain acquisitions or engaging in stock repurchases, that would negatively impact our credit rating.

Our future operating results depend on our ability to purchase at acceptable prices a sufficient amount of materials, parts, and components, as well as software and services, to meet the demands of our customers and any disruption to our suppliers or significant increase in the price of supplies could have a negative impact on our results of operations.

Our ability to meet customers' demands depends, in part, on our ability to timely obtain an adequate delivery of quality materials, parts, and components, as well as software and services from our suppliers. In addition, certain supplies, including for some of our critical components, software and services solutions, are available only from a single source or limited sources and we may not be able to diversify sources in a timely manner. If demand for our products or services increases from our current expectations or if suppliers are unable to meet our demand for other reasons, including as a result of natural disasters or financial issues, we could experience an interruption in supply or a significant increase in the price of supply, including as a result of having to move to an alternative source, that could have a negative impact on our business as a result of increased cost or delay in or inability to deliver our products or services. This risk may increase as a result of consolidation of certain suppliers of ours. We have experienced shortages in the past that have negatively impacted our results of operations and may experience such shortages in the future. In addition, credit constraints at our suppliers could cause us to accelerate payment of accounts payable by us, impacting our cash flow.

Over the last several years we have outsourced portions of certain business operations like IT, HR information systems, manufacturing, repair, distribution and engineering services and expect to outsource additional business operations. This outsourcing limits our control over these business operations and exposes us to additional risk as a result of the actions of our outsource partners.

As we outsource more of our business operations we are not able to directly control these activities. Our outsource partners may not prioritize our business over that of their other customers and they may not meet our desired level of quality, performance, service, cost reductions or other metrics. Failure to meet key performance indicators may result in our being in default with our customers. In addition, we may rely on our outsource partners to secure materials from our suppliers with whom our outsource partners may not have existing relationships and we may be required to continue to manage these relationships even after we outsource certain business operations.

As we outsource business operations we become dependent on the IT systems of our outsource partners, including to transmit demand and purchase orders to suppliers, which can result in a delay in order placement. In addition, in an effort to reduce costs and limit their liabilities, our outsource partners may not have robust systems or make commitments in as timely a manner as we require.

In some cases the actions of our outsource partners may result in our being found to be in violation of laws or regulations like import or export regulations or local employment laws. As many of our outsource partners operate outside of the U.S., our outsourcing activity exposes us to information security vulnerabilities and increases our global risks. In addition, we are exposed to the financial viability of our outsource partners. Once a business activity is outsourced we may be contractually prohibited from or may not practically be able to bring such activity back within the Company or move it to another outsource partner. The actions of our outsource partners could result in reputational damage to us and could negatively impact our business, financial conditions, results of operations, and cash flows.

Our sales within a quarter are not linear, with a substantial percentage of products shipping in the final month of the quarter. This lack of linearity creates inefficiencies in our business performance and any interruption during this final month could have a substantial impact on our quarterly financial results.

On average, a substantial percentage of our quarterly sales ship in the final month of a quarter. Any interruption in our ability to ship products during this final month, such as unavailability of critical components, disruption to our manufacturing capabilities or disruptions in our distribution channel, will have a disproportionately large impact on our quarterly financial results, as we may be unable to recover in time to ship the products and recognize revenue in that quarter.

In addition, this lack of linearity results in inefficiencies in our financial performance, as we must invest in capacity and resources to support this business model, meaning we have underutilized operations during the first two months of the quarter. We also must maintain additional component inventory and engage in pre-builds of finished goods to mitigate the impact of this lack of linearity and meet potential last month demand. This could result in our carrying excess inventory, which is costly and may result in increased inventory obsolescence over time.

We no longer own certain logos and other trademarks, trade names and service marks, including MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M logo and all derivatives and formatives thereof ("Motorola Marks") and we license the Motorola Marks from Motorola Trademark Holdings, LLC ("MTH"), which is currently owned by Motorola Mobility, a subsidiary of Lenovo. Our joint use of the Motorola Marks could result in product and market confusion and negatively impact our ability to expand business under the Motorola brand. In addition, if we do not comply with the terms of the license agreement we could lose our rights to the Motorola Marks. Because of the change of control of Motorola Mobility, which is now owned by Lenovo, we may find that an incompatible third-party owns the Motorola Marks.

We have a worldwide, perpetual and royalty-free license from MTH to use the Motorola Marks as part of our corporate name and in connection with the manufacture, sale, and marketing of our current products and services. The license of the Motorola Marks is important to us because of the reputation of the Motorola brand for our products and services. There are risks associated with both Motorola Mobility and the Company using the Motorola Marks and with this loss of ownership. As both Motorola Mobility and the Company will be using the Motorola Marks, confusion could arise in the market, including customer confusion regarding the products offered by and the actions of the two companies. Motorola Mobility was acquired by Lenovo in 2014, which resulted in Lenovo having effective control over the Motorola Marks. This risk could increase as both Motorola Mobility's and our products continue to converge. This risk could increase under Lenovo's control if they expand their use of the Motorola Marks. Also, any negative publicity associated with either company in the future could adversely affect the public image of the other. In addition, because our license of the Motorola Marks will be limited to products and services within our specified fields of use, we will not be permitted to use the Motorola Marks in other fields of use without the approval of Motorola Mobility, which is now controlled by Lenovo. In the event that we desire to expand our business into any other fields of use, we may need to do so with a brand other than the Motorola brand. Developing a brand as well-known and with as much brand equity as Motorola could take considerable time and expense. The risk of needing to develop a second brand increases as Motorola Mobility's and our products continue to converge and if our business expands into other fields of use. In addition, we could lose our rights to use the Motorola Marks if we do not comply with the terms of the license agreement. Such a loss could negatively affect our business, results of operations and financial condition. Furthermore, MTH has the right to license the brand to third-parties and either Motorola Mobility or licensed third-parties may use the brand in ways that make the brand less attractive for customers of Motorola Solutions, creating increased risk that Motorola Solutions may need to develop an alternate or additional brand. In 2013 Motorola Mobility modified certain Motorola Marks used by the Company. Motorola Mobility may require the Company to adopt the use of the modified Motorola Marks, which would result in the Company incurring the costs of rebranding.

In addition, neither Motorola Mobility nor Lenovo are prohibited from selling the Motorola Marks. In the event of a liquidation of Motorola Mobility or the then owner of the Motorola Marks, it is possible that a bankruptcy court would permit the Motorola Marks to be assigned to a third-party. While our right to use the Motorola Marks under our license should continue in our specified field of use in such situations, it is possible that we could be party to a license arrangement with a third-party whose interests are incompatible with ours, thereby potentially making the license arrangement difficult to administer, and increasing the costs and risks associated with sharing the Motorola Marks. In addition, there is a risk that, in the event of a bankruptcy of Motorola Mobility or the then owner of the Motorola Marks, Motorola Mobility, the then owner or its bankruptcy trustee may attempt to reject the license, or a bankruptcy court may refuse to uphold the license or certain of its terms. Such a loss could negatively affect our business, results of operations and financial condition.

We utilize the services of subcontractors to perform under many of our contracts and the inability of our subcontractors to perform in a timely and compliant manner could negatively impact our ability to comply with our performance obligations as the prime contractor.

We engage subcontractors, including third-party integrators, on many of our contracts and as we expand our solutions and services business, our use of subcontractors has and will continue to increase. Our subcontractors may further subcontract performance and may supply third-party products and software from a number of smaller companies. We may have disputes with our subcontractors, including disputes regarding the quality and timeliness of work performed by the subcontractor or its subcontractors and the functionality, warranty and indemnities of products, software and services supplied by our subcontractor. We are not always successful in passing down customer requirements to our subcontractors, and thus in some cases may be required to absorb contractual risks from our customers without corresponding back-to-back coverage from our subcontractor. Even when we are able to pass down customer requirements to our subcontractors, sometimes those subcontractors have less financial resources than we do, and a customer may look to us to cover a loss or damage. Our subcontractors may not be able to acquire or maintain the quality of the materials, components, subsystems and services they supply, or secure preferred warranty and indemnity coverage from their suppliers which might result in greater product returns, service problems, warranty claims and costs and regulatory compliance issues. Any of the foregoing could harm our business, financial condition and results of operations.

Failure of our suppliers, subcontractors, distributors, resellers and representatives to use acceptable legal or ethical business practices and adhere to our Supplier Code of Conduct or our Human Rights Policy could negatively impact our business.

It is our policy to require our suppliers, subcontractors, distributors, resellers, and third-party sales representatives ("TPSRs") to operate in compliance with applicable laws, rules and regulations regarding working conditions, employment practices, environmental compliance, anti-corruption and trademark and copyright licensing. However, we do not control their labor and other business practices. If one of our suppliers, subcontractors, brokers, distributors, resellers, or TPSRs violates labor or other laws or implements labor or other business practices that are regarded as unethical, the shipment of finished products to us could be interrupted, orders could be canceled, relationships could be terminated and our reputation could be damaged. If one of our suppliers or subcontractors fails to procure necessary license rights to trademarks, copyrights or patents, legal action could be taken against us that could impact the salability of our products and expose us to financial obligations to a third-party. Any of these events could have a negative impact on our sales and results of operations.

Our employees, customers, suppliers and outsource partners are located throughout the world and, as a result, we face risks that other companies that are not global may not face.

Our customers and suppliers are located throughout the world. In 2019, 33% percent of our revenue was generated outside the U.S. In addition, we have a number of research and development, administrative and sales facilities outside the U.S. and 53% of our employees are employed outside the U.S. Most of our suppliers' operations are outside the U.S. and a significant portion of our products are manufactured outside the U.S., both internally and by third-parties.

Most of our products that are manufactured by or for us outside the U.S. are manufactured in Malaysia. If manufacturing in our facility, or a facility manufacturing products for us, in Malaysia is disrupted, our overall capacity would be significantly reduced and our business, financial condition, results of operation, and cash flows could be negatively impacted.

Because we have sizable sales and operations, including outsourcing and procurement arrangements, outside of the U.S., we have more complexity in our operations and are exposed to a unique set of global risks that could negatively impact our business, financial condition, results of operations, and cash flows, including but not limited to: (i) currency fluctuations, (ii) import/export regulations, tariffs, trade barriers and trade disputes, customs classifications and certifications, including but not limited to changes in classifications or errors or omissions related to such classifications and certifications, (iii) changes in U.S. and non-U.S. rules related to trade, labor and employment, environmental, health and safety, technical standards, consumer and intellectual property and consumer protection, (iv) longer payment cycles, (v) tax issues, such as tax law changes, variations in tax laws from country to country and as compared to the U.S., obligations under tax incentive agreements, and difficulties in securing local country approvals for cash repatriations, (vi) changes in foreign exchange regulations, (vii) challenges in collecting accounts receivable, (viii) cultural and language differences, (ix) employment regulations and local labor conditions, (x) privacy and data protection regulations and restrictions, (xi) difficulties protecting intellectual property in foreign countries, (xii) instability in economic or political conditions, including inflation, recession and actual or anticipated military or political conflicts and terrorism, (xiii) natural disasters, (xiv) public health issues or outbreaks, (xv) changes in laws or regulations that negatively impact benefits being received by us or that require costly modifications in products sold or operations performed in such countries, (xvi) litigation in foreign court systems and foreign enforcement or administrative proceedings, and (xvii) applicability of anti-corruption laws including the Foreign Corrupt Practices Act ("FCPA") and the U.K. Bribery Act.

We have a number of employees, contractors, representatives and agents in, and sell our products and services throughout, the Middle East and our operations, as well as demand for our products and services, could be negatively impacted by political conflicts and hostilities in this region. The potential for future unrest, terrorist attacks, increased global conflicts, hostility against U.S.-based multinational companies and the escalation of existing conflicts has created worldwide uncertainties that have negatively impacted, and may continue to negatively impact, demand for certain products of ours.

We also are subject to risks that our operations could be impacted by our employees, contractors, representatives or agents in ways that violate the FCPA, the U.K. Bribery Act, or other similar anti-corruption laws. While we have policies and procedures to comply with these laws, our employees, contractors, representatives and agents may take actions that violate our

policies. Any such violations could have a negative impact on our business. Moreover, we face additional risks that our anti-corruption policies and procedures may be violated by TPSRs or other third-parties that help sell our products or provide other solutions and services, because such TPSRs and other third-parties are not our employees, and, it is therefore more difficult to oversee and control their conduct.

Many of our components and some of our products, including software, are developed and/or manufactured by third-parties and in some cases designed by third-parties and if such third-parties lack sufficient quality control, change the design of components or if there are significant changes in the financial or business condition of such third-parties, it may have a negative impact on our business.

We rely on third-parties to develop and/or manufacture many of our components and some of our finished products, and to design certain components and finished products, as well as provide us with software necessary for the operation of those products and we may increase our reliance on such third-parties in the future. We could have difficulties fulfilling our orders and our sales and profits could decline if: (i) we are not able to engage such third-parties with the capabilities or capacities required by our business, (ii) such third-parties lack sufficient quality control or fail to deliver quality components, products, services or software on time and at reasonable prices, or deliver products, services or software that do not meet regulatory or industry standards or requirements, (iii) if there are significant changes in the financial or business condition of such third-parties, (iv) our third party providers fail to comply with legal or regulatory requirements, or (v) if we have difficulties transitioning operations to such third-parties.

Because of the long life-cycle of many of our products, we need access to limited quantities of components for manufacturing and repair and suppliers have been and may continue to be unwilling to manufacture such components or may only do so at high prices. Certain key component suppliers are reducing the expected lifetime of key components, in particular semiconductor and electrical components, on some of our products. This could result in the need for more frequent product redesigns and increased engineering costs on some products or costly last time buys, which may negatively impact our financial performance. In addition, we may be unable to meet our repair obligations to our customers.

We are exposed to risks under large, multi-year system and services contracts that may negatively impact our business.

We enter into large, multi-year system and services contracts with large municipal, state, and nationwide government and commercial customers. In some cases we may not be the prime contractor and may be dependent on other third-parties such as commercial carriers or systems integrators. This exposes us to risks, including among others: (i) technological risks, especially when the contracts involve new technology, (ii) risk of defaults by third-parties on whom we are relying for products or services as part of our offering or who are the prime contractors, (iii) financial risks, including the estimates inherent in projecting costs associated with large, long-term contracts, the impact of currency fluctuations, inflation, and the related impact on operating results, (iv) cybersecurity risk, especially in managed services contracts with public safety and commercial customers that process data, and (v) political risk, especially related to the contracts with government customers. In addition, multi-year awards from governmental customers may often only receive partial funding initially and may typically be cancelable on short notice with limited penalties. Recovery of front loaded capital expenditures in long-term managed services contracts is dependent on the continued viability of such customers. The termination of funding for a government program or insolvency of commercial customer could result in a loss of anticipated future revenue attributable to that program, which could have an adverse impact on our profitability.

We completed a number of large divestitures in the past and these divestitures have resulted in less diversity of our business and our customer base, which could negatively impact our financial results in the event of a downturn in our mission critical communications business.

We are singularly focused on mission critical communications for public safety and commercial customers, and accordingly we have less diversity in our business and our customer base. A downturn in this business could have a greater negative impact on our financial results than when we were a more diversified communications provider.

The accounting for convertible debt securities that may be settled in cash or in shares of common stock could have a material effect on our reported financial results.

Under U.S. GAAP, an entity must separately account for the debt component and the embedded conversion option of convertible debt instruments that may be settled entirely or partially in cash or in shares of common stock upon conversion, such as our 1.75% senior convertible notes ("New Senior Convertible Note"). The fair value of the embedded conversion option is classified as an addition to stockholder's equity. The difference between book carrying cost and face value of the debt represents a non-cash discount. This difference will be amortized into interest expense over the estimated life of the New Senior Convertible Notes. As a result, we will be required to record a greater amount of non-cash interest expense as a result of the amortization of the discount over the expected term of the New Senior Convertible Notes. Accordingly, we will report lower net income because of the recognition of both the current period's discount amortization and the New Senior Convertible Notes' coupon interest, which could adversely affect the trading price of our shares of common stock and the trading price (if any) of the New Senior Convertible Notes.

Convertible debt instruments (such as the New Senior Convertible Notes) that may be settled entirely or partially in cash are evaluated for their impact on earnings per share utilizing the treasury stock method, the effect of which is that the shares issuable upon conversion of the New Senior Convertible Notes are not included in the calculation of diluted earnings per share except to the extent that the conversion value of the New Senior Convertible Notes exceeds their principal amount. Under the treasury stock method the number of shares outstanding for purposes of calculating diluted earnings per share includes the

number of shares that would be required to settle the excess of the conversion value of the New Senior Convertible Notes, if any, over the principal amounts of the New Senior Convertible Notes (which would be settled in cash). The conversion value of the New Senior Convertible Notes will exceed the principal amount of the notes to the extent the trading price of a share of our stock exceeds \$203.50. We intend to settle the principal amount of the convertible notes in cash. However, we may not have access to the capital markets for financing on acceptable terms and conditions, particularly if our credit ratings are downgraded. Accordingly, we may be forced to fully settle the New Senior Convertible Notes in shares of common stock upon conversion, the effect of which would cause the dilutive impact to earnings per share to be significantly in excess of the dilutive impact reflected by the treasury stock method.

Tax matters could have a negative impact on our financial condition and results of operations.

We are subject to income taxes in the U.S. and numerous foreign tax jurisdictions. Our provision for income taxes and cash tax liability may be negatively impacted by: (i) changes in the mix of earnings taxable in jurisdictions with different statutory tax rates, (ii) changes in tax laws and accounting principles, (iii) changes in the valuation of our deferred tax assets and liabilities, (iv) failure to meet commitments under tax incentive agreements, (v) discovery of new information during the course of tax return preparation, (vi) increases in non-deductible expenses, or (vii) repatriating cash held abroad.

Tax audits may also negatively impact our business, financial condition and results of operations. We are subject to continued examination of our income tax returns, and tax authorities may disagree with our tax positions and assess additional tax. We regularly evaluate the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. There can be no assurance that the outcomes from these continuing examinations will not have a negative impact on our future financial condition and operating results.

Certain tax policy efforts, including the Organization for Economic Co-operation and Development's ("OECD") Base Erosion and Profit Shifting ("BEPS") Project, the European Commission's state aid investigations, and other initiatives could have an adverse effect on the taxation of international businesses. Furthermore, many of the countries where we are subject to taxes, including the U.S. are independently evaluating their tax policy and we may see significant changes in legislation and regulations concerning taxation. Certain countries have already enacted legislation which could affect international businesses, and other countries have become more aggressive in their approach to audits and enforcement of their applicable tax laws. Such changes, to the extent they are brought into tax legislation, regulations, policies, or practices, could increase our effective tax rates in many of the countries where we have operations and have an adverse effect on our overall tax rate, along with increasing the complexity, burden and cost of tax compliance, all of which could impact our operating results, cash flows and financial condition.

Our success depends in part upon our ability to attract, retain and prepare succession plans for senior management and key employees.

The performance of our CEO, senior management and other key employees is critical to our success. If we are unable to retain talented, highly-qualified senior management and other key employees or attract them when needed, it could negatively impact our business. We rely on the experience of our senior management, most of whom have been with the Company for many years and as a result have specific knowledge relating to us and our industry that is difficult to replace and competition for management with experience in the communications industry is intense. A loss of the CEO, a member of senior management or key employee particularly to a competitor could also place us at a competitive disadvantage. Further, if we fail to adequately plan for the succession of our CEO, senior management and other key employees, our business could be negatively impacted.

It may be difficult for us to recruit and retain the types of engineers and other highly-skilled employees that are necessary to remain competitive and layoffs of such skilled employees as a result of restructuring activities, or cost reductions or divestitures, may benefit our competitors.

Competition for key technical personnel in high-technology industries is intense. As we expand our solutions and services business, we now have increased demand for technical personnel in areas like software development, which is an area of particularly high demand for skilled employees. We believe that our future success depends in large part on our continued ability to hire, assimilate, retain and leverage the skills of qualified engineers and other highly-skilled personnel needed to develop successful new products or services. We may not be as successful as our competitors at recruiting, assimilating, retaining and utilizing these highly-skilled personnel, which could have a negative impact on our business.

Returns on pension and retirement plan assets and interest rate changes could affect our earnings and cash flows in future periods.

Although we made a voluntary contribution into the U.S. pension plan in early 2018, and completed a lump sum offer for certain participants in the U.S. pension plan in 2019, we continue to have large underfunded pension obligations, in part resulting from the fact that we retained almost all of the U.S. pension liabilities and a major portion of our non-U.S. pension liabilities following our divestitures, including the distribution of Motorola Mobility, the sale of our Networks business and the sale of our Enterprise business. The funding position of our pension plans is affected by the performance of the financial markets, particularly the equity and debt markets, and the interest rates used to calculate our pension obligations for funding and expense purposes. Minimum annual pension contributions are determined by government regulations and calculated based upon our pension funding status, interest rates, and other factors. If the financial markets perform poorly, we have been and could be required to make additional large contributions. The equity and debt markets can be volatile, and therefore our estimate of future contribution requirements can change dramatically in relatively short periods of time. Similarly, changes in interest rates can affect our contribution requirements. In volatile capital market environments, the uncertainty of material changes in future minimum required contributions increases.

Changes in our operations or sales outside the U.S. markets could result in lost benefits in impacted countries and increase our cost of doing business.

We have entered into various agreements with non-U.S. governments, agencies or similar organizations under which we receive certain benefits relating to its operations and/or sales in the jurisdiction. If our circumstances change, and operations or sales are not at levels originally anticipated, we may be at risk of having to reimburse benefits already granted, and losing some or all of these benefits and increasing our cost of doing business.

We transferred a significant portfolio of intellectual property rights, including patents, to Motorola Mobility and Zebra and we are unable to leverage these intellectual property rights as we did prior to the distribution of Motorola Mobility or the sale of our Enterprise business.

We contributed approximately 17,200 granted patents and approximately 8,000 pending patent applications worldwide to Motorola Mobility in connection with the distribution. We also transferred approximately 2,700 granted patents and approximately 800 pending patent applications to Zebra in connection with the sale of the Enterprise business. Although we have a worldwide, perpetual, royalty-free license to these patents and other intellectual property rights, we no longer own them. As a result we are unable to leverage these intellectual property rights for purposes of generating licensing revenue or entering into favorable licensing arrangements with third-parties. As a result we may incur increased license fees or litigation costs. Although we cannot predict the extent of such unanticipated costs, it is possible such costs could negatively impact our financial results.

We are subject to a wide range of product regulatory and safety, consumer, worker safety and environmental laws that continue to expand and could impact our ability to grow our business, could subject us to unexpected costs and liabilities and could impact our financial performance.

Our operations and the products we manufacture are subject to a wide range of product regulatory and safety, consumer, worker safety and environmental laws. Compliance with such existing or future laws could subject us to future costs or liabilities, impact our production capabilities, constrict our ability to sell, expand or acquire facilities, restrict what products and services we can offer, and generally impact our financial performance. Some of these laws are environmental and relate to the use, disposal, clean up of, and exposure to certain substances. For example, in the U.S., laws often require parties to fund remedial studies or actions regardless of fault and often times in response to action or omissions that were legal at the time they occurred. We continue to incur disposal costs and have ongoing remediation obligations. Changes to environmental laws or our discovery of additional obligations under these laws could have a negative impact on our financial performance.

Laws focused on: (i) the energy efficiency of electronic products and accessories, (ii) recycling of both electronic products and packaging, (iii) reducing or eliminating certain hazardous substances in electronic products, (iv) the use and transportation of batteries continue to expand significantly and (v) debt collection and other consumer finance matters. Laws pertaining to accessibility features of electronic products, standardization of connectors and power supplies, the use and transportation of lithium-ion batteries and other aspects of our products are also proliferating. There are also demanding and rapidly changing laws around the globe related to issues such as product safety, radio interference, radio frequency radiation exposure, medical related functionality, use of products with video functionality, and consumer and social mandates pertaining to use of wireless or electronic equipment. These laws, and changes to these laws, could have a substantial impact on whether we can offer certain products, solutions and services, on product costs, and on what capabilities and characteristics our products or services can or must include.

These laws could impact our products and negatively affect our ability to manufacture and sell products competitively. We expect these trends to continue. In addition, we anticipate that we will see increased demand to meet voluntary criteria related to reduction or elimination of certain constituents from products, increasing energy efficiency, and providing additional accessibility.

We may be unable to obtain components and parts that are verified to be Democratic Republic of Congo ("DRC") Conflict-Free, which could result in reputational damage if we disclose that our products include minerals that have been identified as "not found to be DRC Conflict-Free" or if we disclose that we are unable to determine whether such minerals are included in our products.

The Dodd-Frank Wall Street Reform and Consumer Protection Act included disclosure requirements regarding the use of tin, tantalum, tungsten and gold (which are defined as "conflict minerals") in our products and if the origin of these materials were from the DRC or an adjoining country. If the minerals originated from the DRC or an adjoining country then a company must disclose the measures it has taken to exercise due diligence and chain of custody to prevent the sourcing of such minerals that have been found to be financing conflict in the DRC. There is a limited pool of suppliers who can provide verifiable DRC Conflict Free components and parts, particularly since our supply chain is complex. As a result, we may be required to publicly disclose that we are not currently able to determine if the products we manufactured in 2019 are DRC Conflict-Free. For future reporting years, if the industry systems that we are relying on are not mature enough for us to make a definitive Conflict-Free determination, we may have to declare our products as "not found to be DRC Conflict-Free," or such other definitional standard as determined by the SEC and/or the judicial system and we may face reputational challenges with our customers, other stockholders and the activist community as a result. In addition, the E.U. has passed conflict minerals legislation which may have an impact on our reporting obligations and compliance programs in Europe.

Any system or network disruption could have a negative impact on our operations, sales and operating results.

We rely extensively on our information systems to manage our business operations. Our systems are subject to damage or interruption from various sources, including power outages, computer and telecommunications failures, computer viruses, cybersecurity breaches, vandalism, severe weather conditions, catastrophic events, terrorism, and human error, and our disaster

recovery planning cannot account for all eventualities. If our systems are damaged, fail to function properly, or otherwise become compromised or unavailable, we may incur substantial costs to repair or replace them, and we may experience loss of critical data and interruptions or delays in our ability to perform critical functions, which could adversely affect our business and operating results. While we have significantly reduced our reliance on a number of older legacy information systems that are harder to maintain we could negatively impact our operations and financial results. In addition, as we have outsourced more of our business operations we have increased our dependence on the IT systems of our outsourced business partners which are not under our direct management or control. Any disruption to either those outsourced systems or the communication links between Motorola Solutions and the outsourced supplier, may negatively impact our ability to manufacture, distribute, or repair products. We may incur additional costs to remedy the damages caused by these disruptions.

Increasing attention globally on supply chain vulnerabilities related to country of origin and national security could have an impact on our sales and operating results.

Governments in the U.S. and around the world are considering and taking action to address threats to national security vulnerabilities linked to country of origin. In the U.S., the National Defense Authorization Act for Fiscal Year 2019 ("NDAA") implemented prohibitions on the use of federal funds to purchase and/or the use of telecommunications equipment and services and video surveillance equipment and services from Chinese vendors including Huawei, ZTE, Hytera, Hikvision, and Dahua. There currently exists some ambiguity with regard to the scope of the prohibitions, and, therefore, the final rules implementing these prohibitions could impact the Company.

Item 1B: Unresolved Staff Comments

None.

Item 2: Properties

Motorola Solutions' global headquarters is 500 W. Monroe Street, Chicago, Illinois 60661. Motorola Solutions also operates manufacturing facilities and sales offices in other U.S. locations and in many other countries.

As of December 31, 2019, we: (i) owned three facilities: one manufacturing facility in Europe, an office in Europe and an office in the U.S., (ii) leased 232 facilities, 128 of which were located in the Americas region and 104 of which were located in other countries and (iii) primarily utilized six major facilities for the manufacturing and distribution of our products, located in: Penang, Malaysia; Elgin, Illinois; Plano, Texas; McAllen, Texas; Vancouver, BC, Canada; and Gatineau, Quebec, Canada.

We generally consider the productive capacity of our manufacturing facilities to be adequate and sufficient for our requirements. The extent of utilization of each manufacturing facility varies throughout the year.

In 2019, approximately 19% of our products were manufactured in Illinois and approximately 59% of our products were manufactured in Penang. We rely on third-party providers in order to enhance our ability to lower costs and deliver products that meet demand. If manufacturing in Penang or Illinois were disrupted, our overall productive capacity could be significantly reduced.

Item 3: Legal Proceedings

We are a defendant in various lawsuits, claims, and actions, which arise in the normal course of business. In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on our consolidated financial position or liquidity. However, an unfavorable resolution could have a material adverse effect on our results of operations in the periods in which the matters are ultimately resolved, or in the periods in which more information is obtained that changes management's opinion of the ultimate disposition.

Item 4: Mine Safety Disclosures

Not applicable.

Information about our Executive Officers

The following are the persons who were the executive officers of Motorola Solutions, their ages, and their current titles as of February 14, 2020 and the positions they have held during the last five years with the Company or as otherwise noted:

Gregory Q. Brown; age 59; Chairman and Chief Executive Officer since May 3, 2011.

Gino A. Bonanotte; age 55; Executive Vice President and Chief Financial Officer since November 13, 2013.

Mark S. Hacker; age 48; Executive Vice President, General Counsel and Chief Administrative Officer since January 21, 2015.

Kelly S. Mark; age 48; Executive Vice President, Software and Services since August 28, 2018; Senior Vice President, Managed and Support Services from July 2017 to August 2018; Corporate Vice President, Managed and Support Services from August 2015 to July 2017; and Corporate Vice President, Strategy from May 2011 to August 2015.

John P. "Jack" Molloy; age 48; Executive Vice President, Products and Sales since August 28, 2018; Executive Vice President, Worldwide Sales and Services from July 2017 to August 2018; Executive Vice President, Worldwide Sales from January 2016 to July 2017; Executive Vice President, Americas Sales and Services from November 2015 to January 2016; Senior Vice President, Americas Sales and Marketing from September 2015 to November 2015; and Senior Vice President, North America Sales from January 2014 to August 2015.

Rajan S. Naik; age 48; Senior Vice President, Strategy and Ventures, since December 2017; Corporate Vice President, Chief Strategy Officer from March 2016 to December 2017; and Senior Vice President, Chief Strategy Officer, Advanced Micro Devices, Inc. from January 2012 to February 2015.

Daniel G. Pekofske; age 43; Corporate Vice President and Chief Accounting Officer since September 10, 2018; Vice President and Treasurer from January 2016 to September 2018; Vice President and Assistant Treasurer from March 2015 to January 2016; and Vice President and Assistant Controller from February 2014 to March 2015.

Cynthia M. Yazdi; age 55; Senior Vice President, Chief of Staff, Marketing and Communications and Motorola Solutions Foundation since August 28, 2018; Corporate Vice President, Chief of Staff to the Chairman and CEO, Global Marketing and Communications from February 2018 to August 2018; Vice President, Chief of Staff, Global Marketing and Communications from September 2016 to February 2018; Vice President, Chief of Staff from August 2015 to September 2016; and Senior Director, Sales Operations for Asia Pacific from January 2013 to August 2015.

The above executive officers will serve as executive officers of Motorola Solutions until the regular meeting of the Board of Directors in May 2020 or until their respective successors are elected. There is no family relationship between any of the executive officers listed above.

PART II

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

Motorola Solutions' common stock is listed on the New York Stock Exchange. The number of stockholders of record of its common stock on January 31, 2020 was 24,266.

Information regarding securities authorized for issuance under equity compensation plans is incorporated by reference to the information under the caption "Equity Compensation Plan Information" of Motorola Solutions' Proxy Statement for the 2020 Annual Meeting of Stockholders. The remainder of the response to this Item incorporates by reference Note 16, "Quarterly and Other Financial Data (unaudited)" of the notes to consolidated financial statements appearing under "Item 8: Financial Statements and Supplementary Data."

The following table provides information with respect to acquisitions by the Company of shares of its common stock during the quarter ended December 31, 2019.

ISSUER PURCHASES OF EQUITY SECURITIES

<i>Period</i>	<i>(a) Total Number of Shares Purchased</i>	<i>(b) Average Price Paid per Share ⁽¹⁾</i>	<i>(c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Program ⁽²⁾</i>	<i>(d) Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Program ⁽²⁾</i>
09/26/19 to 10/23/19	—	\$ —	—	\$ 1,406,799,929
10/24/19 to 11/20/19	599,930	\$ 159.71	599,930	\$ 1,310,984,815
11/21/19 to 12/27/19	306,782	\$ 161.60	306,782	\$ 1,261,407,490
Total	<u>906,712</u>	<u>\$ 160.35</u>	<u>906,712</u>	

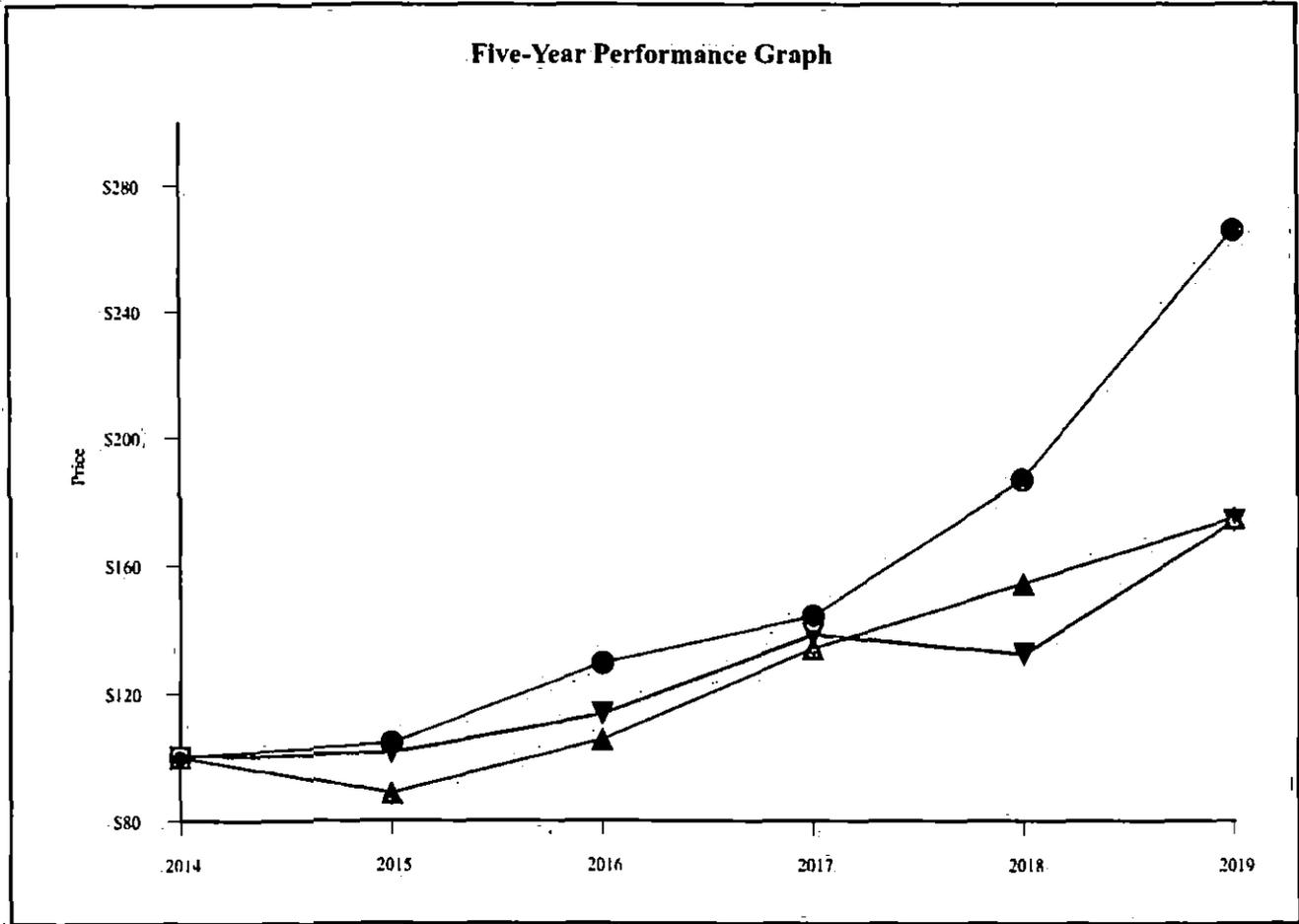
(1) Average price paid per share of common stock repurchased is the execution price, including commissions paid to brokers.

(2) Through a series of actions, the board of directors has authorized the Company to repurchase an aggregate amount of up to \$14.0 billion of its outstanding shares of common stock (the "share repurchase program"). The share repurchase program does not have an expiration date. As of December 31, 2019, the Company had used approximately \$12.7 billion, including transaction costs, to repurchase shares.

PERFORMANCE GRAPH

The following graph compares the five-year cumulative total returns of Motorola Solutions, Inc., the S&P 500 Index and the S&P Communications Equipment Index.

This graph assumes \$100 was invested in the stock or the indices on December 31, 2014 and reflects the payment of dividends.



	2014	2015	2016	2017	2018	2019
—●— Motorola Solutions	\$100.00	\$104.31	\$129.24	\$144.04	\$188.72	\$266.49
—▼— S&P 500	\$100.00	\$101.37	\$113.49	\$138.28	\$132.19	\$173.80
—▲— S&P Communications	\$100.00	\$88.87	\$105.45	\$134.04	\$154.25	\$174.93

Item 6: Selected Financial Data

<i>(In millions, except per share amounts)</i>	<i>Years Ended December 31</i>				
	2019	2018	2017	2016	2015
Operating Results					
Net sales	\$ 7,887	\$ 7,343	\$ 6,380	\$ 6,038	\$ 5,695
Operating earnings	1,581	1,255	1,284	1,048	916
Earnings (loss) attributable to Motorola Solutions, Inc.	868	966	(155)	560	640
Per Share Data (in dollars)					
Diluted earnings (loss) from continuing operations per common share*	\$ 4.95	\$ 5.62	\$ (0.95)	\$ 3.24	\$ 3.17
Earnings (loss) per diluted common share*	4.95	5.62	(0.95)	3.24	3.02
Diluted weighted average common shares outstanding (in millions)	175.6	172.0	162.9	173.1	201.8
Dividends declared per share	\$ 2.35	\$ 2.13	\$ 1.93	\$ 1.70	\$ 1.43
Balance Sheet					
Total assets	\$ 10,642	\$ 9,409	\$ 8,208	\$ 8,463	\$ 8,346
Total debt	5,129	5,320	4,471	4,396	4,349
Other Data					
Capital expenditures	\$ 248	\$ 197	\$ 227	\$ 271	\$ 175
% of sales	3.1%	2.7%	3.6%	4.5%	3.1%
Research and development expenditures	\$ 687	\$ 637	\$ 568	\$ 553	\$ 620
% of sales	8.7%	8.7%	8.9%	9.2%	10.9%

* Amounts attributable to Motorola Solutions, Inc. common shareholders.

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

The following is a discussion and analysis of our financial position as of December 31, 2019 and 2018 and results of operations for each of the three years in the period ended December 31, 2019. This commentary should be read in conjunction with our consolidated financial statements and the notes thereto appearing under "Item 8: Financial Statements and Supplementary Data."

Executive Overview

Our Business

Motorola Solutions is a leading global provider of mission critical communications and analytics. Our technology platforms in communications, software, video, and services make cities safer and help communities and businesses thrive. We serve our customers with a global footprint of sales in more than 100 countries and 17,000 employees worldwide utilizing our industry leading innovation and a deep portfolio of products and services.

We conduct our business globally and manage it by two segments (as mentioned, we changed the name order of the segment to Software and Services):

Products and Systems Integration: The Products and Systems Integration segment offers an extensive portfolio of infrastructure, devices, accessories, video security devices and infrastructure, and the implementation, and integration of such systems, devices, and applications, including the Company's: (i) "ASTRO" products, which meet the Association of Public Safety Communications Officials Project 25 standard, (ii) "Dimetra" products which meet the European Telecommunications Standards Institute Terrestrial Trunked Radio ("TETRA") standard, (iii) Professional and Commercial Radio ("PCR") products, (iv) broadband technology products, such as Long-Term Evolution ("LTE"), and (v) video solutions, such as video cameras. The primary customers of the Products and Systems Integration segment are government, public safety and first-responder agencies, municipalities, and commercial and industrial customers who operate private communications networks and video solutions typically managing a mobile workforce. In 2019, the segment's net sales were \$5.3 billion, representing 68% of our consolidated net sales.

Software and Services: The Software and Services segment provides a broad range of solution offerings for government, public safety and commercial customers. Software includes a public safety and enterprise command center software suite, unified communications applications, and video software solutions, delivered both on-premise and "as a service." Services includes a continuum of service offerings beginning with repair, technical support and maintenance. More advanced offerings include monitoring, software updates and cybersecurity services. Managed services range from partial to full operation of customer or Motorola Solutions-owned networks. In 2019, the segment's net sales were \$2.6 billion, representing 32% of our consolidated net sales.

2019 Financial Results

- Net sales were \$7.9 billion in 2019 compared to \$7.3 billion in 2018 and driven by growth in the Americas.
- Operating earnings were \$1.6 billion in 2019 compared to \$1.3 billion in 2018.
- Earnings attributable to Motorola Solutions, Inc. were \$868 million, or \$4.95 per diluted common share in 2019, compared to earnings of \$966 million, or \$5.62 per diluted common share in 2018.
- Our operating cash flow increased \$748 million to \$1.8 billion in 2019.
- We returned \$694 million of capital in the form of \$315 million in share repurchases and \$379 million in dividends in 2019.
- We increased our quarterly dividend by 12% to \$0.64 per share in November 2019.
- Ended 2019 with a backlog position of \$11.3 billion, up \$659 million compared to 2018.

Segment Financial Highlights

- In the Products and Systems Integration segment, net sales were \$5.3 billion in 2019, an increase of \$229 million, or 5%, compared to \$5.1 billion in 2018. On a geographic basis, net sales increased in the Americas, partially offset by declines in EMEA and AP. Operating earnings were \$994 million in 2019, compared to \$854 million in 2018. Operating margin increased in 2019 to 18.7% from 16.7% in 2018 driven by higher sales and gross margin, as well as an environmental reserve charge of \$40 million taken in 2018.
- In the Software and Services segment, net sales were \$2.6 billion in 2019, an increase of \$315 million, or 14%, compared to \$2.2 billion in 2018. On a geographic basis, net sales increased in the Americas and EMEA, partially offset by declines in AP. Operating earnings were \$587 million in 2019, compared to \$401 million in 2018. Operating margin increased in 2019 to 22.9% from 17.9% in 2018 driven by higher sales and gross margin, as well as an environmental reserve charge of \$17 million taken in 2018.

Recent Acquisitions and Developments

On October 16, 2019, we acquired a data solutions business for vehicle location information for a purchase price of \$85 million, net of cash acquired. The acquisition enhances our video security platform by adding data to our existing license plate recognition ("LPR") database within our Software and Services segment.

On July 11, 2019, we acquired WatchGuard, Inc. ("WatchGuard"), a provider of in-car and body-worn video solutions for \$271 million, inclusive of share-based compensation withheld at a fair value of \$16 million that will be expensed over an average service period of two years. The acquisition was settled with \$250 million of cash, net of cash acquired. The acquisition expands our video security platform within both the Product and Systems Integration segment and the Software and Services segment.

On March 11, 2019, we acquired Avtec, Inc. ("Avtec"), a provider of dispatch communication equipment for U.S. public safety and commercial customers for a purchase price of \$136 million in cash, net of cash acquired. This acquisition expands our commercial portfolio with new capabilities, allowing us to offer an enhanced platform for customers to communicate, coordinate resources, and secure their facilities. The business is part of both the Product and Systems Integration segment and the Software and Services segment.

On January 7, 2019, we announced that we acquired VaaS International Holdings ("VaaS"), a company that is a global provider of data and image analytics for vehicle location for \$445 million, inclusive of share-based compensation withheld at a fair value of \$38 million that will be expensed over an average service period of one year. The acquisition was settled with \$231 million of cash, net of cash acquired, and 1.4 million of shares issued at a fair value of \$160 million for a purchase price of \$391 million. This acquisition expands our video security platform within both the Product and Systems Integration segment and the Software and Services segment.

On March 28, 2018, we completed the acquisition of Avigilon Corporation ("Avigilon"), a provider of advanced security and video solutions including video analytics, network video management hardware and software, video cameras and access control solutions for a purchase price of \$974 million. The acquisition expands our video security platform within both the Product and Systems Integration segment and the Software and Services segment.

On March 7, 2018, we completed the acquisition of Plant Holdings, Inc. ("Plant"), the parent company of Airbus DS Communications for a purchase price of \$237 million. This acquisition expands our software portfolio in the command center with additional solutions for Next Generation 9-1-1 within our Software and Services segment.

On August 28, 2017, we completed the acquisition of Kodiak Networks, a provider of broadband push-to-talk for commercial customers, for a purchase price of \$225 million. The business is part of our Software and Services segment.

On March 13, 2017, we completed the acquisition of Interexport, a managed service provider of communications systems to public safety and commercial customers in Chile, for a purchase price of 98 billion Chilean pesos, or approximately \$147 million. The business is part of our Software and Services segment.

Looking Forward

We continue to further leverage our position as a leader in mission critical communications into additional growth opportunities in our video security and command center software platforms. Specifically, we view drivers of these growth opportunities as follows: (i) video cross-selling opportunities, where we have traditionally sold video into commercial verticals, we are now seeking opportunities into the government and public safety verticals; (ii) potential share gains in video from customers seeking domestic vendors; (iii) accelerating traction with command center software suite sales; and (iv) a deeper penetration of service into existing LMR customers as communication networks become more complex, software-centric and data-driven.

As the Company pursues these growth opportunities, we continue to expect to gain operating leverage as we scale our businesses. Specifically, we've made go-to-market investments in both video security and our command center software platforms with growth in mind. We've made a number of acquisitions since 2016 and we see opportunity to continue to rationalize costs within both segments of our business, further driving gains in the operating margins of our businesses.

Lastly, we remain committed to our capital deployment model, which is a framework in which we allocate cash flow from operations as follows: (i) 50% for acquisitions and share repurchases, (ii) 30% for dividends, and (iii) 20% for investments in capital expenditures. We expect to continue a balanced approach in capital allocation through this framework.

Results of Operations

Years ended December 31

<i>(Dollars in millions, except per share amounts)</i>	2019	% of Sales **	2018	% of Sales **	2017	% of Sales **
Net sales from products	\$ 4,746		\$ 4,463		\$ 3,772	
Net sales from services	3,141		2,880		2,608	
Net sales	7,887		7,343		6,380	
Costs of product sales	2,049	43.2 %	2,035	45.6 %	1,686	44.7 %
Costs of services sales	1,907	60.7 %	1,828	63.5 %	1,670	64.0 %
Costs of sales	3,956	50.2 %	3,863	52.6 %	3,356	52.6 %
Gross margin	3,931	49.8 %	3,480	47.4 %	3,024	47.4 %
Selling, general and administrative expenses	1,403	17.8 %	1,254	17.1 %	1,025	16.1 %
Research and development expenditures	687	8.7 %	637	8.7 %	568	8.9 %
Other charges	260	3.3 %	334	4.5 %	147	2.3 %
Operating earnings	1,581	20.0 %	1,255	17.1 %	1,284	20.1 %
Other income (expense):						
Interest expense, net	(220)	(2.8)%	(222)	(3.0)%	(201)	(3.2)%
Gains on sales of investments and businesses, net	5	0.1 %	16	0.2 %	3	— %
Other	(365)	(4.6)%	53	0.7 %	(10)	(0.2)%
Total other expense	(580)	(7.4)%	(153)	(2.1)%	(208)	(3.3)%
Net earnings before income taxes	1,001	12.7 %	1,102	15.0 %	1,076	16.9 %
Income tax expense	130	1.6 %	133	1.8 %	1,227	19.2 %
Net earnings (loss)	871	11.0 %	969	13.2 %	(151)	(2.4)%
Less: Earnings attributable to noncontrolling interests	3	— %	3	— %	4	0.1 %
Net earnings (loss)*	\$ 868	11.0 %	\$ 966	13.2 %	\$ (155)	(2.4)%
Earnings (loss) per diluted common share*	\$ 4.95		\$ 5.62		\$ (0.95)	

* Amounts attributable to Motorola Solutions, Inc. common shareholders.

** Percentages may not add due to rounding.

Geographic Market Sales by Locale of End Customer

	2019	2018	2017
Americas	72%	69%	68%
EMEA	20%	22%	21%
AP	8%	9%	11%
	100%	100%	100%

Results of Operations—2019 Compared to 2018

Net Sales

<i>(In millions)</i>	Years ended December 31		
	2019	2018	% Change
Net sales from Products and Systems Integration	\$ 6,329	\$ 5,100	5%
Net sales from Software and Services	2,558	2,243	14%
Net sales	\$ 7,887	\$ 7,343	7%

The Products and Systems Integration segment's net sales represented 68% of our consolidated net sales in 2019, compared to 69% in 2018. The Software and Services segment's net sales represented 32% of our consolidated net sales in 2019, compared to 31% in 2018.

Net sales were up \$544 million, or 7%, compared to 2018. The increase in net sales was driven by the Americas, partially offset by sales declines in EMEA and AP, with a 14% increase in the Software and Services segment and a 5% increase in the Products and Systems Integration segment. Net sales includes:

- growth in Devices, Software, and Services due to strong demand in Americas, inclusive of acquisitions;
- \$312 million of incremental revenue from acquisitions; and
- partially offset by \$113 million from unfavorable currency rates.

Regional results include:

- the Americas grew 12% across video security, LMR and command center software within both the Products and Systems Integration and the Software and Services segments, inclusive of incremental revenue from acquisitions;
- EMEA was down 3%, with a 14% decrease in Products and Systems Integration, partially offset by a 9% growth in the Software and Services segments, inclusive of incremental revenue from acquisitions. EMEA experienced \$61 million of unfavorable foreign currency effects in 2019 compared to 2018; and
- AP was down 3% with declines of 4% in the Products and Systems Integration segment and 2% in the Software and Services segment. AP experienced \$28 million of unfavorable foreign currency effects in 2019 compared to 2018.

Products and Systems Integration

The 5% growth in the Products and Systems Integration segment was driven by:

- \$157 million of incremental revenue from acquisitions; and
- partially offset by \$54 million foreign currency headwinds;
- Devices were up \$251 million reflecting strong demand for both LMR and video security devices; and
- Systems and Systems Integration decreased 1% driven primarily by EMEA, which had two large system deployments completed in the Middle East and Africa in 2018.

Software and Services

The 14% growth in the Software and Services segment was driven by the following:

- \$155 million of incremental revenue from acquisitions; and
- partially offset by \$59 million of foreign currency headwinds;
- Software was up \$234 million, or 55%, driven by growth in both our video software solutions portfolio and command center software sales, inclusive of acquisitions; and
- Services were up \$81 million, or 4%, driven by growth in both maintenance and managed service revenues, inclusive of acquisitions.

Gross Margin

	Years ended December 31		
<i>(In millions)</i>	2019	2018	% Change
Gross margin	\$ 3,931	\$ 3,480	13%

Gross margin was 49.8% of net sales in 2019 and 47.4% in 2018. The increase was driven by:

- higher margins in the Products and Systems Integration segment primarily driven by a favorable mix in Devices; and
- higher margins within the Software and Services segment primarily driven by higher Software sales, inclusive of acquisitions.

Selling, General and Administrative Expenses

	Years ended December 31		
<i>(In millions)</i>	2019	2018	% Change
Selling, general and administrative expenses	\$ 1,403	\$ 1,254	12%

SG&A expenses increased 12% compared to 2018. SG&A expenses were 17.8% of net sales compared to 17.1% of net sales in 2018. The increase in SG&A expenditures is primarily due to increased expenses associated with acquired businesses, including the deployment of additional sales resources to support video security growth initiatives.

Research and Development Expenditures

	Years ended December 31		
<i>(In millions)</i>	2019	2018	% Change
Research and development expenditures	\$ 687	\$ 637	8%

R&D expenditures increased 8%. R&D expenditures were 8.7% of net sales in 2019 and 2018. The increase in R&D is primarily due to acquired businesses, specifically in our video security platform, as well as new product launches.

Other Charges

	Years ended December 31		
<i>(In millions)</i>	2019	2018	
Other charges	\$ 260	\$ 334	

The decrease in Other charges in 2019 as compared to 2018 can be summarized as follows:

- a \$57 million charge in 2018 related to ongoing remediation efforts for an environmental clean-up incurred by a legacy business (see Note 4 of our consolidated financial statements);
- \$40 million of net reorganization of business charges in 2019 as compared to \$61 million in 2018 (See Note 14 of our consolidated financial statements);
- \$3 million of charges for acquisition-related transaction fees in 2019 as compared to \$24 million in 2018; partially offset by
- \$208 million of amortization of intangibles in 2019 compared to \$188 million in 2018.

Operating Earnings

	Years ended December 31	
(In millions)	2019	2018
Operating earnings from Products and Systems Integration	\$ 994	\$ 854
Operating earnings from Software and Services	587	401
Operating earnings	\$ 1,581	\$ 1,255

Operating earnings were up \$326 million, or 26%, compared to 2018. The increase in Operating earnings was due to:

- Software and Services segment was up \$186 million from 2018 to 2019 due to higher sales and gross margin, as well as lower operating expenses driven by: (i) \$17 million lower environmental reserve expenses, (ii) \$11 million lower acquisition-related transaction fees, (iii) \$5 million lower reorganization of business expenses, and partially offset by (iv) \$4 million higher intangible amortization driven by acquisitions.
- Products and Systems Integration was up \$140 million from 2018 to 2019 due to higher sales and gross margin, as well as lower operating expenses driven by: (i) \$40 million lower environmental reserve expenses, (ii) \$15 million lower reorganization of business expenses, (iii) \$10 million lower acquisition-related transaction fees, and partially offset by (iv) \$16 million higher intangible amortization driven by acquisitions.

Net Interest Expense

	Years ended December 31	
(In millions)	2019	2018
Interest expense, net	\$ (220)	\$ (222)

Interest expense, net in 2019 compared to 2018 remained relatively consistent given the similar average outstanding debt balance.

Gains (losses) on Sales of Investments and Businesses, net

	Years ended December 31	
(In millions)	2019	2018
Gains on sales of investments and businesses, net	\$ 5	\$ 16

The net gains in 2019 and 2018 were primarily related to the sales of various equity investments.

Other

	Years ended December 31	
(In millions)	2019	2018
Other income (expense)	\$ (365)	\$ 53

The change in net Other expense in 2019 as compared to 2018 was primarily comprised of:

- \$359 million U.S. pension settlement loss in 2019 (See Note 8 of our consolidated financial statements);
- \$46 million of net losses from repurchases of long term debt as compared to a gain of \$6 million in 2018 (See Note 5 of our consolidated financial statements).

Effective Tax Rate

	Years ended December 31	
(In millions)	2019	2018
Income tax expense	\$ 130	\$ 133

Income tax expense decreased by \$3 million for an effective tax rate of 13.0%, which is lower than the current U.S. federal statutory rate of 21% primarily due to:

- a \$77 million benefit due to the partial release of a valuation allowance to our U.S. foreign tax credit carryforward (see Note 7 of our consolidated financial statements); and
- \$27 million of benefits due to the recognition of excess tax benefits on share-based compensation.

Our effective tax rate in 2018 was 12.1% primarily related to:

- \$79 million benefit related to updates of the provisional amounts on the impact of the Tax Act; and
- \$30 million of benefits due to the recognition of excess tax benefits on share-based compensation.

Results of Operations—2018 Compared to 2017

Net Sales

<i>(In millions)</i>	<i>Years ended December 31</i>		
	2018	2017	% Change
Net sales from Products and Systems Integration	\$ 5,100	\$ 4,513	13%
Net sales from Software and Services	2,243	1,867	20%
Net sales	\$ 7,343	\$ 6,380	15%

The Products and Systems Integration segment's net sales represented 69% of our consolidated net sales in 2018, compared to 71% in 2017. The Software and Services segment's net sales represented 31% of our consolidated net sales in 2018, compared to 29% in 2017.

Net sales were up \$963 million, or 15%, compared to 2017. The increase in net sales was driven by the Americas and EMEA with a 13% increase in the Products and Systems Integration segment and a 20% increase in the Software and Services segment. The growth includes:

- \$507 million of incremental revenue from the acquisitions of Avigilon and Plant in 2018 and Kodiak Networks and Interexport which were acquired during 2017;
- \$83 million from the adoption of Accounting Standards Codification ("ASC") 606 (see Note 1 of our consolidated financial statements); and
- \$32 million from favorable currency rates.

Regional results include:

- the Americas grew 17% across major categories within both the Products and Systems Integration and the Software and Services segments, inclusive of incremental revenue from acquisitions;
- EMEA grew 18% on broad-based growth within all offerings within our Products and Systems Integration and Software and Services segments, inclusive of incremental revenue from acquisitions; and
- AP was relatively flat with growth in the Software and Services segment offset by lower Products and Systems Integration revenue.

Products and Systems Integration

The 13% growth in the Products and Systems Integration segment was driven by the following:

- \$318 million of incremental revenue from the acquisitions of Avigilon in 2018 and Interexport during 2017;
- \$78 million from the adoption of ASC 606;
- Devices revenues were up significantly due to the acquisition of Avigilon along with strong demand in the Americas and EMEA; and
- Systems and Systems Integration revenues increased 10% in 2018, as compared to 2017 driven by incremental revenue from Avigilon, as well as system deployments in EMEA and AP.

Software and Services

The 20% growth in the Software and Services segment was driven by the following:

- \$189 million of incremental revenue primarily from the acquisitions of Plant and Avigilon in 2018 and Kodiak Networks and Interexport during 2017;
- \$5 million from the adoption of ASC 606;
- Services were up \$174 million, or 9%, driven by growth in both maintenance and managed service revenues, and incremental revenue from the acquisitions of Interexport and Plant; and
- Software was up \$202 million, or 89%, driven primarily by incremental revenue from the acquisitions of Plant, Avigilon, and Kodiak Networks, and growth in our command center software suite.

Gross Margin

<i>(In millions)</i>	<i>Years ended December 31</i>		
	2018	2017	% Change
Gross margin	\$ 3,480	\$ 3,024	15%

Gross margin was 47.4% of net sales in both 2018 and 2017 due to:

- higher margins within the Software and Services segment primarily driven by operational improvements and efficiencies in service delivery costs of our Services portfolio and higher margin contribution within our Software portfolio from acquisitions;
- lower margins in the Products and Systems Integration segment primarily driven by lower margin in Systems and Systems Integration due to certain large projects where we have taken an integrator role, partially offset by higher Devices volumes; and
- \$50 million of additional reorganization of business charges (see further detail in "Reorganization of Businesses" section) primarily associated with costs related to the closure of certain supply chain operations in Europe in 2018 as compared to 2017.

Selling, General and Administrative Expenses

<i>(In millions)</i>	<i>Years ended December 31</i>		
	2018	2017	% Change
Selling, general and administrative expenses	\$ 1,254	\$ 1,025	22%

SG&A expenses increased 22% compared to 2017. SG&A expenses were 17.1% of net sales compared to 16.1% of net sales in 2017.

The increase in SG&A expenses is primarily due to increased expenses associated with acquired businesses, \$72 million related to the change in classification of our third-party sales commissions from the adoption of ASC 606, and higher incentive compensation.

Research and Development Expenditures

<i>(In millions)</i>	<i>Years ended December 31</i>		
	2018	2017	% Change
Research and development expenditures	\$ 637	\$ 568	12%

R&D expenditures increased 12%. R&D expenditures were 8.7% of net sales compared to 8.9% of net sales in 2017. The increase in R&D expenditures is primarily due to increased expenses associated with acquired businesses.

Other Charges

<i>(In millions)</i>	<i>Years ended December 31</i>		
	2018	2017	
Other charges	\$ 334	\$ 147	

The Other charges in 2018 as compared to 2017 can be summarized as follows:

- \$188 million of amortization of intangibles in 2018 compared to \$151 million in 2017, driven by 2018 acquisitions;
- \$61 million of reorganization of business charges in 2018 as compared to \$33 million in 2017, driven by acquisitions (see further detail in "Reorganization of Businesses" section);
- a \$57 million charge in 2018 related to ongoing remediation efforts for an environmental clean-up incurred by a legacy business;
- a gain of \$47 million in 2017 related to the recovery of receivables owed to us by a former customer of a legacy business;
- \$24 million of charges for acquisition related transaction fees in 2018 as compared to \$1 million in 2017.

Operating Earnings

<i>(In millions)</i>	<i>Years ended December 31</i>	
	2018	2017
Operating earnings from Products and Systems Integration	\$ 854	\$ 969
Operating earnings from Software and Services	401	315
Operating earnings	\$ 1,255	\$ 1,284

Operating earnings were down \$29 million, or 2%, compared to 2017. The decrease in Operating earnings was due to the following:

- Products and Systems Integration was down \$115 million from 2017 to 2018, driven by: (i) \$69 million more reorganization of business expenses, (ii) environmental reserve expenses of \$40 million in 2018, (iii) \$28 million more intangible amortization driven by acquisitions, and (iv) \$12 million of acquisition-related transaction fees; and
- partially offset by the Software and Services segment, which was up \$86 million from 2017 to 2018, driven by higher sales and partially offset by: (i) environmental reserve expenses of \$17 million in 2018, (ii) \$9 million more reorganization of business expenses, (iii) \$9 million more intangible amortization from 2018 acquisitions, and (iv) \$11 million more of acquisition-related transactions fees.

Net Interest Expense

<i>(In millions)</i>	<i>Years ended December 31</i>	
	2018	2017
Interest expense, net	\$ (222)	\$ (201)

The increase in net interest expense in 2018 compared to 2017 was a result of increases in outstanding debt:

- \$500 million of senior notes due in 2028, that were used to make a voluntary contribution to the U.S. pension plan, issued during the first quarter of 2018;
- \$400 million term loan due in 2021 ("the Term Loan") that was issued during the first quarter of 2018 and was used to complete the acquisition of Avigilon;
- \$400 million borrowed under our revolving credit facility at the end of the first quarter of 2018 and repaid throughout the year; and
- \$200 million of follow-on senior notes due in 2028, issued in the third quarter of 2018, which were used to repurchase \$200 million of 2.00% senior convertible notes.

Gains (losses) on Sales of Investments and Businesses, net

<i>(In millions)</i>	<i>Years ended December 31</i>	
	2018	2017
Gains on sales of investments and businesses, net	\$ 16	\$ 3

The net gains in 2018 and 2017 were primarily related to the sales of various equity investments.

Other

<i>(In millions)</i>	<i>Years ended December 31</i>	
	2018	2017
Other income (expense)	\$ 53	\$ (10)

The net Other income in 2018 as compared to 2017 was primarily comprised of:

- \$75 million of net periodic pension and postretirement benefit in 2018 as compared to \$46 million in 2017;
- \$48 million of losses on settlements within our U.K. defined benefit plan during 2017 with no activity in 2018;
- \$11 million of favorable fair value adjustments to investments;

- a \$6 million gain from the repurchase of \$200 million of our 2.00% senior convertible notes in 2018;
- foreign currency losses of \$24 million in 2018 as compared to \$31 million of losses in 2017; and
- a \$14 million loss on derivative instruments in 2018 compared to a \$15 million gain in 2017.

Effective Tax Rate

<i>(In millions)</i>	<i>Years ended December 31</i>	
	2018	2017
Income tax expense	\$ 133	\$ 1,227

Income tax expense decreased by \$1.1 billion compared to 2017, for an effective tax rate of 12%. Our effective tax rate for 2018 was lower than the current U.S. federal statutory rate of 21% primarily due to:

- a \$79 million benefit related to updates of the provisional amounts on the impact of the Tax Act; and
- a \$30 million benefit due to the recognition of excess tax benefits on share-based compensation.

Our effective tax rate in 2017 was 114% primarily due to the implementation of Tax Act. As a result of the Tax Act we recorded \$874 million of non-recurring charges, primarily related to:

- a \$471 million valuation allowance against U.S. foreign tax credit carryforwards; and
- income tax expense of \$366 million from the remeasurement of our deferred tax balances at the lower federal tax rate of 21%.

Excluding the income tax effects from the Tax Act, our effective tax rate was lower than the 2017 U.S. statutory tax rate of 35% (see Note 7 of our consolidated financial statements).

Reorganization of Businesses

In 2019, we recorded net reorganization of business charges of \$57 million relating to the separation of 700 employees, of which 500 were indirect employees and 200 were direct employees. The \$57 million of charges included \$17 million recorded to Cost of sales and \$40 million recorded to Other charges. Included in the aggregate \$57 million are charges of \$64 million for employee separation costs, \$5 million for exit costs, partially offset by \$12 million of reversals for accruals no longer needed.

During 2018, we recorded net reorganization of business charges of \$120 million relating to the separation of 1,200 employees, of which 700 were indirect employees and 500 were direct employees. The \$120 million of charges included \$59 million recorded to Cost of sales and \$61 million recorded to Other charges. Included in the aggregate \$120 million are charges of \$122 million for employee separation costs and \$16 million for exit costs, partially offset by \$18 million of reversals for accruals no longer needed. Also, included in the \$120 million of charges for 2018 was a \$44 million charge that related to the announcement of our plan to close our Europe manufacturing facility which impacted 165 employees primarily within the Products and Systems Integration segment. The remainder of the initiatives impacted both of our segments and affected employees located in all geographic regions.

During 2017, we recorded net reorganization of business charges of \$42 million relating to the separation of 400 employees, of which 300 were indirect employees and 100 were direct employees. The \$42 million of charges included \$9 million recorded to Cost of sales and \$33 million recorded to Other charges. Included in the aggregate \$42 million are charges of: (i) \$43 million for employee separation costs and (ii) \$8 million for exit costs, partially offset by \$9 million of reversals for accruals no longer needed.

The following table displays the net charges incurred by business segment:

<i>Years ended December 31</i>	2019	2018	2017
Products and Systems Integration	\$ 45	\$ 101	\$ 32
Software and Services	12	19	10
	\$ 57	\$ 120	\$ 42

Cash payments for employee severance in connection with the reorganization of business plans were \$63 million, \$65 million, and \$93 million in 2019, 2018, and 2017, respectively. The reorganization of business accruals for employee separation costs at December 31, 2019 were \$78 million that are expected to be paid within one year.

Liquidity and Capital Resources

	Years Ended December 31		
	2019	2018	2017
Cash flows provided by (used for):			
Operating activities	\$ 1,823	\$ 1,075	\$ 1,346
Investing activities	(934)	(1,266)	(448)
Financing activities	(1,144)	220	(722)
Effect of exchange rates on cash and cash equivalents	(1)	(40)	62
Increase (decrease) in cash and cash equivalents	\$ (256)	\$ (11)	\$ 238

Cash and Cash Equivalents

At December 31, 2019, \$495 million of the \$1.0 billion cash and cash equivalents balance was held in the U.S. and \$506 million was held in other countries, with \$143 million held in the United Kingdom. Restricted cash was \$2 million at December 31, 2019 and \$11 million at December 31, 2018.

In 2019, we repatriated \$434 million in cash to the U.S. from international jurisdictions. We routinely repatriate a portion of non-U.S. earnings each year. We have recorded income tax expense for foreign withholding tax and distribution taxes on such earnings and, under current U.S. tax laws, do not expect to incur material incremental U.S. tax on repatriation.

Where appropriate, we may also pursue capital reduction activities; however, such activities can be involved and lengthy. While we regularly repatriate funds, and a portion of offshore funds can be repatriated with minimal adverse financial impact, repatriation of some of these funds may be subject to delay due to local country approvals.

Operating Activities

The increase in operating cash flows from 2018 to 2019 was driven by:

- a \$500 million debt-funded voluntary contribution to our U.S. pension plan in 2018 compared to no material contributions to our U.S. pension plan in 2019;
- higher operating earnings in 2019 as compared to 2018;
- a \$51 million settlement arising from a legacy business in 2018; and
- partially offset by \$19 million of higher tax payments and \$17 million of higher interest payments in 2019 compared to 2018.

The decrease in operating cash flows from 2017 to 2018 was driven by:

- a \$500 million debt-funded voluntary contribution to our U.S. pension plan in the first quarter of 2018, compared to no material contributions to our U.S. pension plans in 2017;
- a \$51 million payment out of restricted cash related to a settlement arising from a legacy business in 2018, as compared to the recovery of \$47 million of receivables owed to us by a former customer of a legacy business in 2017;
- \$28 million of higher interest payments driven by additional debt issued in 2018 as compared to 2017; and
- partially offset by higher earnings in 2018 as compared to 2017.

We do not expect to make any material contributions to our pension plans in 2020.

Investing Activities

The decrease in net cash used by investing activities from 2018 to 2019 was primarily due to:

- \$455 million decrease in acquisitions and investments, primarily driven by acquisitions of \$709 million in 2019 as compared to \$1.2 billion in 2018;
- \$79 million of lower proceeds from sales of investments and businesses, driven by \$60 million of excess cash received from company-sponsored life insurance investments in 2018; and
- partially offset by \$51 million higher capital expenditures in 2019 as compared 2018, due to higher spend associated with revenue-generating networks within our Software and Services segment.

The increase in net cash used by investing activities from 2017 to 2018 was primarily due to:

- a \$760 million increase in acquisitions and investments, primarily driven by acquisitions of \$1.2 billion in 2018 as compared to \$404 million in 2017; and

- \$88 million of lower proceeds from sales of investments and businesses, driven by the \$60 million of excess cash withdrawn from company-sponsored life insurance investments in 2018, as compared to \$183 million of cash received from short-term government securities that were previously maintained in foreign countries in 2017; and
- partially offset by \$30 million lower capital expenditures in 2018 as compared 2017, due to lower information technology ("IT") spend as we completed our ERP implementation in 2017, as well as lower facilities spend.

Financing Activities

The increase in cash used by financing activities in 2019 as compared to cash from financing activities in 2018 was driven by (also see further discussion in "Debt," "Credit Facilities," "Share Repurchase Program" and "Dividends" below):

- \$1.1 billion used for the settlement of the 2.00% senior convertible notes, inclusive of the \$326 million conversion premium compared to the settlement of \$369 million during 2018, inclusive of the \$169 million conversion premium;
- \$400 million used in 2019 for the repayment of the term loan, compared to the \$400 million of proceeds received from the issuance of the term loan in 2018;
- \$379 million of cash used for the payment of dividends in 2019 as compared to \$337 million in 2018;
- \$315 million used for purchases under our share repurchase program in 2019 as compared to \$132 million in 2018; and partially offset by
- \$1.0 billion received from the issuance of 1.75% senior convertible notes due 2024 in 2019;
- \$700 million of proceeds received from the issuance of 4.6% senior notes due 2028 in 2018;
- \$645 net proceeds from the issuance of \$650 million of 4.6% senior notes due 2029 in the second quarter of 2019, of which proceeds were used to repurchase \$654 million of outstanding long term debt;
- \$159 net proceeds from the issuance of \$150 million of 4.6% senior notes due 2029 in the third quarter of 2019, which was subsequently used to repurchase \$155 million of the 3.5% senior notes due in 2021; and
- \$114 million of net proceeds from the issuance of common stock in connection with our employee stock option and employee stock purchase plans in 2019, as compared to \$168 million in 2018.

The increase in cash from financing activities in 2018, as compared to cash used in 2017 was driven by:

- the issuance of \$500 million of 4.60% senior notes due 2028 in the first quarter of 2018, of which the proceeds were contributed to our U.S. pension plan;
- we entered into a term loan for \$400 million in the first quarter of 2018 with a maturity date of March 26, 2021 to complete the acquisition of Avigilon;
- \$400 million borrowing from our revolving credit facility in the first quarter of 2018 to complete the acquisition of Avigilon, repaying the full \$400 million throughout 2018;
- in the third quarter of 2018, we issued an additional \$200 million on the outstanding 4.60% Senior notes due in 2028, of which the proceeds were used to repurchase \$200 million of our outstanding 2.00% senior convertible note with Silver Lake Partners;
- \$169 million of cash was used during the third quarter of 2018 to pay the conversion premium on the repurchase of our 2.00% senior convertible note with Silver Lake Partners;
- \$76 million used in the fourth quarter of 2018 to pay a contractually-defined deferred purchase price of Airwave;
- \$168 million of net proceeds from the issuance of common stock in connection with our employee stock option and employee stock purchase plans in 2018, as compared to \$82 million in 2017;
- \$337 million of cash used for the payment of dividends in 2018 as compared to \$307 million in 2017; and
- partially offset by \$132 million used for purchases under our share repurchase program in 2018 as compared to \$483 million in 2017.

Sales of Receivables

We may choose to sell accounts receivable and long-term receivables to third-parties under one-time arrangements. We may or may not retain the obligation to service the sold accounts receivable and long-term receivables.

The following table summarizes the proceeds received from sales of accounts receivable and long-term receivables for the years ended December 31, 2019, 2018, and 2017:

<i>Years ended December 31</i>	2019	2018	2017
Accounts receivable sales proceeds	\$ 34	\$ 77	\$ 193
Long-term receivables sales proceeds	265	270	284
Total proceeds from receivable sales	\$ 299	\$ 347	\$ 477

The proceeds of our receivable sales are included in "Operating Activities" within our Consolidated Statements of Cash Flows.

At December 31, 2019, the Company had retained servicing obligations for \$984 million of long-term receivables, compared to \$970 million of long-term receivables at December 31, 2018. Servicing obligations are limited to collection activities related to the sales of accounts receivables and long-term receivables.

Debt

We had outstanding long-term debt of \$5.1 billion and \$5.3 billion, including the current portions of \$16 million and \$31 million, at December 31, 2019 and December 31, 2018, respectively.

In February of 2018, we issued \$500 million of 4.60% senior notes due 2028. After debt issuance costs and debt discounts, we recognized net proceeds of \$497 million. These proceeds were then used to make a \$500 million contribution to our U.S. pension plan. In October of 2018, we issued an additional \$200 million on the outstanding 4.6% senior notes bringing the total outstanding principal to \$700 million. We recognized net proceeds of \$196 million after debt issuance costs and debt discounts.

To complete the acquisition of Avigilon during the quarter ended March 31, 2018, we entered into a term loan for \$400 million with a maturity date of March 26, 2021 (the "Term Loan"). The interest on the Term Loan was variable, indexed to the London Inter-bank Offered Rate ("LIBOR"), and paid monthly. The weighted average borrowing rate for amounts outstanding during the year ended December 31, 2019 was 3.68%. We repaid all amounts borrowed under the Term Loan during the year ended December 31, 2019.

In May of 2019, we issued \$650 million of 4.60% senior notes due 2029. We received proceeds of \$645 million after debt issuance costs and debt discounts. These proceeds were then used to repurchase \$614 million in principal amount of our outstanding long-term debt for a purchase price of \$654 million, excluding approximately \$3 million of accrued interest. After accelerating the amortization of debt issuance costs and debt discounts, we recognized a loss of approximately \$43 million related to this repurchase in Other within Other income (expense) in the Consolidated Statements of Operations.

In August of 2019, we issued a follow-on \$150 million to the outstanding 4.60% senior notes due 2029 bringing the total outstanding principal to \$800 million. We recognized net proceeds of \$159 million after debt premiums and debt issuance costs. These proceeds were then used to repurchase the remaining \$150 million principal amount of the 3.5% senior notes due 2021 for a purchase price of \$155 million, excluding approximately \$2 million of accrued interest. After accelerating the amortization of debt issuance costs, we recognized a loss of approximately \$7 million related to this repurchase in Other, net within Other income (expense) in the Consolidated Statements of Operations.

In 2015, we entered into an agreement with Silver Lake Partners to issue \$1.0 billion of 2.00% senior convertible notes which mature in September 2020 ("Senior Convertible Notes"). The notes became fully convertible as of August 25, 2017. The notes were convertible based on a conversion rate that may be adjusted for dividends declared and automatically adjusts the exercise price. In October of 2018, we repurchased \$200 million in principal amount of the Senior Convertible Notes for aggregate consideration of \$369 million in cash, inclusive of the conversion premium.

As of the third quarter of 2019, the remaining notes were convertible based on a conversion rate of rate of 14.9186, adjusted for dividends declared, per \$1,000 principal amount (equal to a conversion price of \$67.03 per share). On September 5, 2019, we entered into an agreement with Silver Lake Partners to settle the remaining \$800 million in principal amount of the Senior Convertible Notes in two installments: (i) \$200 million of notes were repurchased during the third quarter for an aggregate consideration of \$526 million in cash, inclusive of the conversion premium and (ii) \$600 million of principal paid in cash on October 7, 2019, and delivered 5.5 million shares of common stock on September 5, 2019 to settle the conversion premium. We recognized a gain of \$4 million from the extinguishment of the 2.00% senior convertible notes in Other, net within other income (expense) in the Consolidated Statement of Operations.

On September 5, 2019, we entered into an agreement with Silver Lake Partners to issue \$1.0 billion of 1.75% senior convertible notes which mature in September 2024 ("New Senior Convertible Notes"). Interest on these notes is payable semiannually. The notes are convertible anytime on or after two years from their issuance date, except in certain limited circumstances. The notes are convertible based on a conversion rate of 4.9140 per \$1,000 principal amount (which is equal to an initial conversion price of \$203.50 per share). In the event of conversion, we intend to settle the principal amount of the New Senior Convertible Notes in cash. We recorded a debt liability associated with the New Senior Convertible Notes by determining the fair value of an equivalent debt instrument without a conversion option. Using a discount rate of 2.45%, which was

determined based on a review of relevant market data, we calculated the debt liability to be \$986 million, indicating a \$14 million discount to be amortized over the expected life of the debt instrument. The remaining proceeds of \$14 million were allocated to the conversion option and accordingly, increased Additional paid-in capital.

During the third quarter of 2019, we established an unsecured commercial paper program, backed by the revolving credit facility, under which we may issue unsecured commercial paper notes up to a maximum aggregate principal amount of \$2.2 billion outstanding at any one time. Proceeds from the issuances of the notes are expected to be used for general corporate purposes. As of December 31, 2019 we had no outstanding debt under the commercial paper program.

We believe that we hold sufficient liquidity to cover the day-to-day operations of our business as well as any future volatility or uncertainty that may arise in the capital markets.

Credit Facilities

As of December 31, 2019, we had a \$2.2 billion unsecured revolving credit facility scheduled to mature in April 2022, which can be used for borrowing and letters of credit (the "2017 Motorola Solutions Credit Agreement"). As of March 31, 2018, we borrowed \$400 million under the facility to complete the Avigilon acquisition. The entire \$400 million was re-paid during the year ended December 31, 2018. The 2017 Motorola Solutions Credit Agreement includes a \$500 million letter of credit sub-limit with \$450 million of fronting commitments. Borrowings under the facility bear interest at the prime rate plus the applicable margin, or at a spread above LIBOR, at our option. An annual facility fee is payable on the undrawn amount of the credit line. The interest rate and facility fee are subject to adjustment if our credit rating changes. We must comply with certain customary covenants including a maximum leverage ratio, as defined in the 2017 Motorola Solutions Credit Agreement. We were in compliance with our financial covenants as of December 31, 2019. No letters of credit were issued under the revolving credit facility as of December 31, 2019.

Share Repurchase Program

Through a series of actions, the board of directors has authorized an aggregate share repurchase amount of up to \$14.0 billion of our outstanding shares of common stock (the "share repurchase program"). The share repurchase program does not have an expiration date. As of December 31, 2019, we have used approximately \$12.7 billion of the share repurchase authority, including transaction costs, to repurchase shares, leaving approximately \$1.3 billion of authority available for future repurchases.

Our share repurchases, including transaction costs, for 2019, 2018, and 2017 can be summarized as follows:

<i>Year</i>	<i>Shares Repurchased (in millions)</i>	<i>Average Price</i>	<i>Aggregate Amount (in millions)</i>
2019	2.3	\$ 137.35	\$ 315
2018	1.2	112.42	132
2017	5.7	85.32	483

Dividends

We paid cash dividends to holders of our common stock of \$379 million in 2019, \$337 million in 2018, and \$307 million in 2017. On January 15, 2020, we paid an additional \$109 million in cash dividends to holders of our common stock.

Adequate Internal Funding Resources

We believe that we have adequate internal resources available to fund expected working capital and capital expenditure requirements for the next twelve months as supported by the level of cash and cash equivalents in the U.S., the ability to repatriate funds from foreign jurisdictions, cash provided by operations, as well as liquidity provided by our commercial paper program backed by the \$2.2 billion revolving credit facility.

Contractual Obligations and Other Purchase Commitments

Summarized in the table and text below are our obligations and commitments to make future payments under long-term debt obligations, lease obligations, purchase obligations and tax obligations as of December 31, 2019.

(in millions)	Payments Due by Period						Uncertain Timeframe	Thereafter
	Total	2020	2021	2022	2023	2024		
Long-term debt obligations, gross	\$ 5,189	\$ 16	\$ 4	\$ 562	\$ 603	\$ 1,600	\$ —	\$ 2,404
Lease obligations	713	143	129	114	62	55	—	210
Purchase obligations*	142	95	32	8	5	2	—	—
Tax obligations	70	7	—	—	—	—	63	—
Total contractual obligations	\$ 6,114	\$ 261	\$ 165	\$ 684	\$ 670	\$ 1,657	\$ 63	\$ 2,614

*Amounts included represent firm, non-cancelable commitments.

Lease Obligations: We lease certain office, factory and warehouse space, land, and other equipment, principally under non-cancelable operating leases. Our future minimum lease obligations totaled \$713 million. Rental expense, net of sublease income, was \$133 million in 2019, \$108 million in 2018, and \$94 million in 2017.

Purchase Obligations: During the normal course of business, in order to manage manufacturing lead times and help ensure adequate component supply, we enter into agreements with contract manufacturers and suppliers that either allow them to procure inventory based upon criteria as defined by us or establish the parameters defining our requirements. In addition, we have entered into license agreements which are firm commitments and are not cancelable. We had entered into firm, non-cancelable, and unconditional commitments under such arrangements through 2024. The total payments expected to be made under these agreements are \$142 million. We do not anticipate the cancellation of any of our take-or-pay agreements in the future and estimate that purchases from these suppliers will exceed the minimum obligations during the agreement periods.

Tax Obligations: We have approximately \$70 million of unrecognized income tax benefits relating to multiple tax jurisdictions and tax years. Based on the potential outcome of our global tax examinations, or the expiration of the statute of limitations for specific jurisdictions, it is reasonably possible that the unrecognized tax benefits will change within the next twelve months. The associated net tax impact on the effective tax rate, exclusive of valuation allowance changes, is estimated to be in the range of a \$7 million tax charge to a \$27 million tax benefit, with cash payments not expected to exceed \$20 million.

Commitments Under Other Long-Term Agreements: We have entered into certain long-term agreements to purchase software, components, supplies and materials from suppliers which are not "take-or-pay" in nature. Most of the agreements extend for periods of one to three years (three to five years for software). Generally, these agreements do not obligate us to make any purchases, and many permit us to terminate the agreement with advance notice (usually ranging from 60 to 180 days). If we were to terminate these agreements, we generally would be liable for certain termination charges, typically based on work performed and supplier on-hand inventory and raw materials attributable to canceled orders. Our liability would only arise in the event we terminate the agreements for reasons other than "cause."

We outsource certain corporate functions, such as benefit administration and information technology-related services, under third-party contracts, the longest of which is expected to expire in 2023. Our remaining payments under these contracts are approximately \$48 million over the remaining life of the contracts; however, these contracts can be terminated. Termination would result in penalties substantially less than the remaining annual contract payments. We would also be required to find another source for these services, including the possibility of performing them in-house.

As is customary in bidding for and completing certain projects and pursuant to a practice we have followed for many years, we have a number of performance bonds, bid bonds, standby letters of credit and surety bonds outstanding (collectively, referred to as "Performance Bonds"), primarily relating to projects with our government customers. These Performance Bonds normally have maturities of multiple years and are standard in the industry as a way to give customers a convenient mechanism to seek resolution if a contractor does not satisfy certain requirements under a contract. Typically, a customer can draw on the Performance Bond only if we do not fulfill all terms of a project contract. If such an occasion occurred, we would be obligated to reimburse the institution that issued the Performance Bond for the amounts paid. In our long history, it has been rare for us to have a Performance Bond drawn upon. Outstanding Performance Bonds totaled approximately \$2.5 billion as of December 31, 2019 and December 31, 2018. Any future disruptions, uncertainty, or volatility in bank, insurance or capital markets, or a change in our credit ratings could adversely affect our ability to obtain Performance Bonds and may result in higher funding costs to obtain such Performance Bonds.

Off-Balance Sheet Arrangements: At December 31, 2019, we had no significant off-balance sheet arrangements other than our obligation to settle the conversion option under the New Senior Convertible Notes described in Note 5 to the consolidated financial statements.

Other Contingencies

Potential Contractual Damage Claims in Excess of Underlying Contract Value: In certain circumstances, we enter into contracts with customers pursuant to which the damages that could be claimed by the customer for failed performance might exceed the revenue we receive from the contract. Contracts with these types of uncapped damages provisions are fairly rare, but individual contracts could still represent meaningful risk. There is a possibility that a claim by a counterparty to one of these contracts could result in expenses that are far in excess of the revenue received from the counterparty in connection with the contract.

Indemnification Provisions: We may provide indemnifications for losses that result from the breach of general warranties contained in certain commercial, intellectual property and divestiture agreements. Historically, we have not made significant payments under these agreements, nor have there been significant claims asserted against us. However, there is an increasing risk in relation to intellectual property indemnities given the current legal climate. In indemnification cases, payment by us is conditioned on the other party making a claim pursuant to the procedures specified in the particular contract, which procedures typically allow us to challenge the other party's claims. In some instances we may have recourse against third-parties for certain payments made by us. Further, our obligations under divestiture agreements for indemnification based on breach of representations and warranties are generally limited in terms of duration, typically not more than 18 months, and for amounts not in excess of a percentage of the contract value.

Legal Matters: We are a defendant in various lawsuits, claims, and actions, which arise in the normal course of business. In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on our consolidated financial position or liquidity. However, an unfavorable resolution could have a material adverse effect on our results of operations in the periods in which the matters are ultimately resolved, or in the periods in which more information is obtained that changes management's opinion of the ultimate disposition.

Long-term Customer Financing Commitments

Outstanding Commitments: Certain purchasers of our products and services may request that we provide long-term financing (defined as financing with a term of greater than one year) in connection with the sale of equipment. These requests may include all or a portion of the purchase price of the products and services. Our obligation to provide long-term financing may be conditioned on the issuance of a letter of credit in favor of us by a reputable bank to support the purchaser's credit or a pre-existing commitment from a reputable bank to purchase the long-term receivables from us. We had outstanding commitments to provide long-term financing to third-parties totaling \$78 million at December 31, 2019, compared to \$62 million at December 31, 2018.

Critical Accounting Policies

Management's Discussion and Analysis of Financial Condition and Results of Operations discusses our consolidated financial statements, which have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP"). The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of revenues and expenses during the reporting period.

Management bases its estimates and judgments on historical experience, current economic and industry conditions and on various other factors that are believed to be reasonable under the circumstances. This forms the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. Management believes the following significant accounting policies require significant judgment and estimates.

Revenue Recognition

We enter into arrangements which consist of multiple promises to our customers. We evaluate whether the promised goods and services are distinct or a series of distinct goods or services. Where contracts contain multiple performance obligations, we generally allocate the total estimated consideration to each performance obligation based on applying an estimated selling price ("ESP") as our best estimate of standalone selling price. We determine ESP by: (i) collecting all reasonably available data points including sales, cost and margin analyses of the product or services, and other inputs based on our normal pricing and discounting practices, (ii) making any reasonably required adjustments to the data based on market and Company-specific factors, and (iii) stratifying the data points, when appropriate, based on major product or service, type of customer, geographic market, and sales volume.

We account for certain system contracts on an over-time basis, electing an input method of estimated costs as a measure of performance completed. The selection of the measurement of progress using estimated costs was based on a thorough consideration of alternatives of various output and input measures, including contract milestones and labor hours. However, we have determined that other input and output measures are not an appropriate measure of progress as they do not accurately align with the transfer of control on our customized systems. The selection of costs incurred as a measure of progress aligns the transfer of control to the overall production of the customized system.

For system contracts accounted for over time using estimated costs as a measure of performance completed, we rely on estimates around the total estimated costs to complete the contract ("Estimated Costs at Completion"). Total Estimated Costs at Completion include direct labor, material and subcontracting costs. Due to the nature of the efforts required to be performed to meet the underlying performance obligation, determining Estimated Costs at Completion may be complex and subject to many variables. We have a standard and disciplined quarterly process in which management reviews the progress and performance of

open contracts in order to determine the best estimate of Estimated Costs at Completion. As part of this process, management reviews information including, but not limited to, any outstanding key contract matters, progress towards completion, the project schedule, *identified risks and opportunities, and the related changes in estimates of costs*. The risks and opportunities include management's judgment about the ability and cost to achieve the project schedule, technical requirements, and other contract requirements. Management must make assumptions and estimates regarding labor productivity and availability, the complexity of work to be performed, the availability and cost of materials, and performance by subcontractors, among other variables. Based on this analysis, any quarterly adjustment to net sales, cost of sales, and the related impact to operating income are recorded as necessary in the period they become known. When estimates of total costs to be incurred on a contract exceed estimates of total revenue to be earned, a provision for the entire loss on the contract is recorded in the period in which the loss is determined.

Retirement Benefits

Our benefit obligations and net periodic pension costs (benefits) associated with our domestic noncontributory pension plans ("U.S. Pension Benefit Plans"), our foreign noncontributory pension plans ("Non-U.S. Plans"), as well as our domestic postretirement health care plan ("Postretirement Health Care Benefits"), are determined using actuarial assumptions. The assumptions are based on management's best estimates, after consulting with outside investment advisors and actuaries.

Accounting methodologies use an attribution approach that generally spreads the effects of individual events over the service lives of the participants in the plan, or *estimated average lifetime* when almost all of the plan participants are considered "inactive." Examples of "events" are plan amendments and changes in actuarial assumptions such as discount rate, expected long-term rate of return on plan assets, and rate of compensation increases.

There are various assumptions used in calculating the net periodic costs (benefits) and related benefit obligations. One of these assumptions is the expected long-term rate of return on plan assets. The required use of the expected long-term rate of return on plan assets may result in recognized pension income that is greater or less than the actual returns of those plan assets in any given year. Over time, however, the expected long-term returns are designed to approximate the actual long-term returns. We use a five-year, market-related asset value method of recognizing asset related gains and losses.

We use long-term historical actual return experience with consideration of the expected investment mix of the plans' assets, as well as future estimates of long-term investment returns, to develop our expected rate of return assumption used in calculating the net periodic pension cost and the net retirement health care expense. Our investment return assumption for the U.S. Pension Benefit Plans was 6.85% in 2019 and 6.95% 2018. Our investment return assumption for the Postretirement Health Care Benefits Plan was 6.90% in 2019 and 7.00% 2018. Our weighted average investment return assumption for the Non-U.S. Plans was 5.23% in 2019 and 5.18% in 2018.

A second key assumption is the discount rate. *The discount rate assumptions used for pension benefits and Postretirement Health Care Benefits Plan* reflects, at December 31 of each year, the prevailing market rates for high-quality, fixed-income debt instruments that, if the obligation was settled at the measurement date, would provide the necessary future cash flows to pay the benefit obligation when due. Our discount rates for measuring our U.S. Pension Benefit Plan obligations were 3.32% and 4.47% at December 2019 and 2018, respectively. Our weighted average discount rates for measuring our Non-U.S. Plans were 1.82% and 2.67% at December 2019 and 2018, respectively. Our discount rates for measuring the Postretirement Health Care Benefits Plan obligation were 3.15% and 4.29% at December 31, 2019 and 2018, respectively.

Under relevant accounting rules, when almost all of the plan participants are considered inactive, the amortization period for certain unrecognized losses changes from the average remaining service period to the average remaining lifetime of the participant. As such, depending on the specific plan, we amortize gains and losses over periods ranging from ten to thirty-one years. Prior service costs are being amortized over periods ranging from two to five years. Benefits under all pension plans are valued based on the projected unit credit cost method.

Valuation and Recoverability of Goodwill

We assess the recorded amount of goodwill for recovery on an annual basis in the fourth quarter of each fiscal year. Goodwill is assessed more frequently if an event occurs or circumstances change that would indicate it is *more-likely-than-not* that the fair value of a reporting unit is below its carrying amount. We continually assess whether any such events and circumstances have occurred, which requires a significant amount of judgment. Such events and circumstances may include: adverse changes in macroeconomic conditions, adverse changes in the industry or market in which we transact, changes in cost factors negatively impacting earnings and cash flows, negative or declining overall financial performance, events affecting the carrying value or composition of a reporting unit, or a sustained decrease in share price, among others. Any such adverse event or change in circumstances could have a significant impact on the recoverability of goodwill and could have a material impact on our consolidated financial statements.

The goodwill impairment assessment is performed at the reporting unit level. A reporting unit is an operating segment or one level below an operating segment (referred to as a "component"). A component of an operating segment is a reporting unit if the component constitutes a business for which discrete financial information is available and segment management regularly reviews the operating results of that component. When two or more components of an operating segment have similar economic characteristics, the components are aggregated and deemed a single reporting unit. An operating segment is deemed to be a reporting unit if all of its components are similar, if none of its components is a reporting unit, or if the segment comprises only a single component. Based on this guidance, we have determined that our Products and Systems Integration and Software and Services segments are comprised of three and two reporting units, respectively. In performing this qualitative assessment we assessed relevant events and circumstances including macroeconomic conditions, industry and market conditions, cost factors,

overall financial performance, changes in enterprise value, and entity-specific events. For fiscal years 2019, 2018, and 2017, we concluded it was more-likely-than-not that the fair value of each reporting unit exceeded its carrying value.

Valuation of Deferred Tax Assets and Liabilities

We use the asset and liability method of accounting for income taxes. Under this method, income tax expense is recognized for the amount of taxes payable or refundable for the current year. In addition, deferred tax assets and liabilities are recognized for the expected future tax consequences of temporary differences between the financial reporting and tax bases of assets and liabilities, and for operating losses and tax credit carryforwards. Management makes assumptions, judgments and estimates to determine our current and deferred tax provision and also the deferred tax assets and liabilities. We evaluate our deferred tax assets quarterly to determine if adjustments to our valuation allowance are required based on the consideration of all available positive and negative evidence.

Our assumptions, judgments and estimates for computing the income tax provision takes into account current tax laws, our interpretation of current tax law and possible outcomes of current and future audits conducted by foreign and domestic tax authorities. We believe such estimates to be reasonable; however, the final determination of certain audits could significantly impact the amounts provided for income taxes in our financial statements.

Recent Accounting Pronouncements

In December 2019, the FASB issued ASU No. 2019-12, "Income Taxes (Topic 740)," which simplifies the accounting for income taxes by removing certain exceptions and simplifying other areas of accounting for income taxes. The ASU is effective for the Company on January 1, 2021 with early adoption permitted. Portions of the amendment within the ASU require retrospective, modified retrospective or prospective adoption methods. We are still evaluating the impact of adoption on its financial statements and disclosures.

In August 2018, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2018-14, "Compensation - Retirement Benefits - Defined Benefit Plans - General (Subtopic 715-20) - Changes to the Disclosure Requirements for Defined Benefit Plans," which modifies the disclosure requirements for the defined benefit pension plans and other postretirement plans. The ASU is effective for us on January 1, 2021 with early adoption permitted. The ASU requires a retrospective adoption method. We do not believe the ASU will have a material impact on our financial statement disclosures.

In June 2016, the FASB issued ASU No. 2016-13, "Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments," which requires the Company to measure and recognize expected credit losses for financial assets held and not accounted for at fair value through net income. In November 2018, April 2019, May 2019 and November 2019, the FASB issued ASU No. 2018-19, "Codification Improvements to Topic 326, Financial Instruments - Credit Losses," ASU No. 2019-04, "Codification Improvements to Topic 326, Financial Instruments - Credit Losses," "Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments," ASU No. 2019-05, "Financial Instruments - Credit Losses (Topic 326): Targeted Transition Relief," and ASU No. 2019-11, "Codification Improvements to Topic 326, Financial Instruments - Credit Losses," which provided additional implementation guidance on the previously issued ASU. The ASU is effective for us on January 1, 2020. We do not believe there will be a material impact to the financial statements as a result of adoption.

Recently Adopted Accounting Pronouncements

We adopted ASU No. 2016-02, "Leases," and all the related amendments (collectively "ASC 842") on January 1, 2019. ASC 842 establishes a right-of-use model ("ROU") that requires a lessee to recognize a ROU asset and lease liability on the balance sheet for all leases with an initial term longer than twelve months. Leases are classified as finance or operating, with classification affecting the pattern and presentation of expense recognition in the income statement.

ASC 842 provides for a number of optional practical expedients in transition. We elected the practical expedients, which permit us to not reassess prior conclusions about lease identification, lease classification and initial direct costs under ASC 842. We did not elect the "use-of hindsight" practical expedient to determine the lease term or in assessing the likelihood that a lease purchase option will be exercised, allowing us to carry forward the lease term as determined prior to adoption of ASC 842. Finally, we also elected the practical expedient related to land easements, which enabled us to continue our accounting treatment for land easements on existing agreements as of January 1, 2019.

ASC 842 also provides practical expedients for an entity's ongoing accounting. We elected the short-term lease recognition exemption for all leases that qualify. A short-term lease is one with a term of 12 months or less, including any optional periods that are reasonably certain of exercise. For those leases that qualify, the exemption allows us to not recognize ROU assets or lease liabilities, including not recognizing ROU assets or lease liabilities for existing short-term leases at transition. Short-term lease costs are recognized as rent expense on a straight-line basis over the lease term consistent with our prior accounting. We also elected the practical expedient to not separate lease and non-lease components for all current lease categories.

As of January 1, 2019, we recognized operating lease liabilities of \$648 million based on the present value of the remaining minimum rental payments determined under prior lease accounting standards and corresponding ROU assets of \$588 million. The \$60 million difference between operating lease liabilities and ROU assets recognized is due to deferred rent and exit cost accruals recorded under prior accounting standards. ASC 842 requires such balances to be reclassified against ROU assets at transition.

For arrangements where we are the lessor, the adoption of ASC 842 did not have a material impact on our financial statements as the majority of our leases are operating leases embedded within managed services contracts. ASC 842 provides a practical expedient for lessors in which the lessor may elect, by class of underlying asset, to not separate non-lease

components from the associated lease component and, instead, to account for these components as a single component if both of the following are met: (i) the timing and pattern of transfer of the non-lease component(s) and associated lease component are the same and (ii) the lease component, if accounted for separately, would be classified as an operating lease. The accounting under the practical expedient depends on which component(s) is predominant in the contract. If the non-lease component is predominant, the single component is accounted under ASC Topic 606 "Revenue from Contracts with Customers" and accounting and disclosure under ASC 842 is not applicable. We have elected the above practical expedient and determined that non-lease components are predominant and, accordingly, are accounting for the single components as managed service contracts under ASC Topic 606.

We adopted ASU No. 2017-12 "Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities" on December 1, 2018, using the modified retrospective method of adoption. The ASU requires a cumulative effect adjustment to the opening balance of retained earnings as of the beginning of the fiscal year of adoption for the previously recorded ineffectiveness included in retained earnings related to existing net investment hedges as of the date of adoption. We did not record a cumulative effect adjustment to retained earnings as no net investment hedges existed as of the ASU adoption date. New hedging relationships entered after the adoption date have been presented in the financial statements using the guidance of the ASU. There were no material changes to our financial statements from the adoption of the ASU.

We adopted ASU No. 2016-16, "Accounting for Income Taxes: Intra-Entity Asset Transfers of Assets Other than Inventory" on January 1, 2018 using the modified retrospective method of adoption. This ASU eliminates the prior application of deferring the income tax effect of intra-entity asset transfers, other than inventory, until the transferred asset is sold to a third party or otherwise recovered through use. Under the ASU, we recognize tax expense when intra-entity transfers of assets other than inventory occur. We recognized \$31 million related to the cumulative effect of applying the ASU as an adjustment to our opening retained earnings balance. During the three months ended December 31, 2019, we identified an error in the amounts originally recorded when adopting ASU 2016-16. We recorded an out-of-period correction of \$30 million to deferred income tax assets in the Consolidated Balance Sheets and retained earnings in the Consolidated Statements of Stockholders' Equity. The adjustment did not have a material impact on the Consolidated Balance Sheets or Consolidated Statements of Stockholders' Equity for any period presented.

We adopted ASU No. 2017-07, "Compensation - Retirement Benefits (Topic 715) - Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost" on January 1, 2018 using the retrospective method of adoption. The amendments in the ASU require that an employer disaggregate the service cost component from the other components of net periodic cost (benefit) and report that component in the same line item as other compensation costs arising from services rendered by employees during the period. The other components of net periodic cost (benefit) are required to be presented in the statement of operations separately from the service cost component and outside of operating earnings. We have restated our comparative period results to reflect the application of the presentation guidance of the ASU. As a result of the ASU, the presentation of net periodic cost (benefit) has been updated to classify all components of our net periodic benefit, with the exception of the service cost component, within Other in Other income (expense) on the statement of operations. We reclassified \$78 million of benefits, \$75 million of benefit, and \$2 million of expense in the years ended December 31, 2019, 2018 and 2017, respectively, within Other in Other income (expense) accordingly.

We adopted ASU No. 2014-09, "Revenue from Contracts with Customers," and all the related amendments (collectively "ASC 606") on January 1, 2018 using the modified retrospective method. We recognized the cumulative effect of initially applying the new revenue standard as an adjustment to our opening retained earnings. The comparative information has not been restated and continues to be reported under the accounting standards in effect in those periods.

We have retained much of the same accounting treatment used to recognize revenue under ASC 606 as under accounting standards in effect in prior periods. Revenue on a significant portion of our Systems and Systems Integration contracts continues to be recognized under percentage of completion accounting, applying a cost-to-cost method. Services contracts continue to be recognized ratably over relevant contract terms as we stand ready to perform. Finally, revenue on equipment sales continues to be recognized based on delivery terms as aligned with the transfer of control.

Under the new standard, we identified distinct promises to transfer goods and services within our contracts. For system contracts that are recognized under percentage-of-completion accounting, we have considered the factors used to determine whether promises made in the contract are distinct and determined that devices and accessories represent distinct goods. Accordingly, the adoption of the new standard impacts our system contracts, with the result being revenue recognized earlier as control of devices and accessories transfers to the customer at a point in time rather than over time. For the remaining promised goods and services within our system contracts, we continue to recognize revenue on these contracts using a cost-to-cost method based on the continuous transfer of control to the customer over time.

Under the new standard, revenue recognition for software sales is accelerated based on when control of software licenses and related support services are transferred to the customer. Amounts deferred under previous software accounting rules due to lack of vendor-specific objective evidence have been recognized as an adjustment through opening retained earnings in 2018.

In 2017, we presented transactions that involved a third-party sales representative on a net basis. After considering the control concept and the remaining three indicators of gross presentation under the new standard, we have determined that we are the principal in contracts that involve a third-party sales representative. Thus, under the new standard, we present associated revenues on a gross basis, with the affect being an equal increase to selling, general and administrative expenses for our cost of third-party commissions.

Under prior accounting standards, we expensed sales commissions and other costs to obtain a contract as incurred. However, under the new standard, we capitalize sales commissions and certain other costs as incremental costs to obtain a contract. Such costs are classified as non-current contract cost assets within Other assets and amortized over a period that approximates the timing of revenue recognition on the underlying contracts.

The new standard clarified the definition of a receivable and requires us to present our net position in a contract with a customer on the balance sheet. The position is presented as either a receivable, contract asset, or a contract liability. Under the new definition, accounts receivable are unconditional rights to consideration from a customer. Contract assets represent rights to consideration from a customer in exchange for transferred goods and services that are conditional on events other than the passage of time. Contract liabilities represent obligations to transfer goods and services for which we have received, or are due, consideration from a customer. We reclassified our customer positions to align with the new definitions and presentation guidance.

Forward-Looking Statements

Except for historical matters, the matters discussed in this Form 10-K are forward-looking statements within the meaning of applicable federal securities law. These statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 and generally include words such as "believes," "expects," "intends," "aims," "estimates" and similar expressions. We can give no assurance that any future results or events discussed in these statements will be achieved. Any forward-looking statements represent our views only as of today and should not be relied upon as representing our views as of any subsequent date. Readers are cautioned that such forward-looking statements are subject to a variety of risks and uncertainties that could cause our actual results to differ materially from the statements contained in this Form 10-K. Forward-looking statements include, but are not limited to, statements under the following headings: (1) "Business," about: (a) industry growth and demand, including opportunities resulting from such growth, (b) future product development and the demand for new products, (c) growth of services sales with existing LMR customers (d) customer spending, (e) the impact of our strategy and focus areas, (f) the impact from the loss of key customers, (g) competitive position and our ability to maintain a leadership position in our core products, (h) increased competition, (i) the impact of regulatory matters, (j) the impact from the allocation and regulation of spectrum, particularly with respect to broadband spectrum, (k) the firmness of each segment's backlog, (l) the competitiveness of the patent portfolio, (m) the impact of research and development, (n) the availability of materials and components, energy supplies and labor, and (o) the seasonality of the business; (2) "Properties," about the sufficiency of our manufacturing capacity and the consequences of a disruption in manufacturing; (3) "Legal Proceedings," about the ultimate disposition of pending legal matters and timing; (4) "Management's Discussion and Analysis," about: (a) the impact of acquisitions on our business, (b) market growth/contraction, demand, spending and resulting opportunities, (c) the impact of foreign exchange rate fluctuations, (d) our continued ability to reduce our operating expenses, (e) expected improvements in operating leverage and operating margins, (f) the growth of sales opportunities in our video security, command center software suite and services offerings with existing LMR customers, (g) the return of capital to shareholders through dividends and/or repurchasing shares, (h) our ability to invest in capital expenditures and R&D, (i) the success of our business strategy and portfolio, (j) future payments, charges, use of accruals and expected cost-saving and profitability benefits associated with our reorganization of business programs and employee separation costs, (k) our ability and cost to repatriate funds, (l) future cash contributions to pension plans or retiree health benefit plans, (m) the liquidity of our investments, (n) our ability and cost to access the capital markets, (o) our ability to borrow and the amount available under our credit facilities, (p) our ability to settle the principal amount of the New Senior Convertible Notes in cash, (q) our ability and cost to obtain Performance Bonds, (r) adequacy of internal resources to fund expected working capital and capital expenditure measurements, (s) expected payments pursuant to commitments under long-term agreements, (t) the ability to meet minimum purchase obligations, (u) our ability to sell accounts receivable and the terms and amounts of such sales, (v) the outcome and effect of ongoing and future legal proceedings, (w) the impact of the loss of key customers, (x) the expected effective tax rate and deductibility of certain items, and (y) the impact of the adoption of accounting pronouncements on our retained earnings; and (5) "Quantitative and Qualitative Disclosures about Market Risk," about: (a) the impact of foreign currency exchange risks, (b) future hedging activity and expectations of the Company, and (c) the ability of counterparties to financial instruments to perform their obligations.

Some of the risk factors that affect our business and financial results are discussed in "Item 1A: Risk Factors." We caution the reader that the risk factors discussed in "Item 1A: Risk Factors," and those described elsewhere in this report or in our other Securities and Exchange Commission filings, could cause our actual results to differ materially from those stated in the forward-looking statements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk

As of December 31, 2019, we have \$5.1 billion of long-term debt, including the current portion, which is primarily priced at long-term, fixed interest rates.

Foreign Currency Risk

We are exposed to foreign currency risk as a result of buying and selling in various currencies, our net investments in foreign entities, and monetary assets and liabilities denominated in a currency other than the functional currency of the legal entity holding the instrument. We use financial instruments to reduce our overall exposure to the effects of currency fluctuations on cash flows. Our policy prohibits speculation in financial instruments for profit on exchange rate price fluctuations, trading in currencies for which there are no underlying exposures, or entering into transactions for any currency to intentionally increase the underlying exposure.

Our strategy related to foreign exchange exposure management is to offset the gains or losses on the financial instruments against losses or gains on the underlying operational cash flows, net investments or monetary assets and liabilities based on our assessment of risk. We enter into derivative contracts for some of our non-functional currency cash, receivables, and payables, which are primarily denominated in major currencies that can be traded on open markets. Our policy permits us to use forward contracts and options to hedge these currency exposures. In addition, we enter into derivative contracts for some forecasted transactions or net investments in some of our overseas entities, which are designated as part of a hedging relationship if it is determined that the transaction qualifies for hedge accounting under the provisions of the authoritative accounting guidance for derivative instruments and hedging activities. A portion of our exposure is from currencies that are not traded in liquid markets and these are addressed, to the extent reasonably possible, by managing net asset positions, product pricing and component sourcing.

At December 31, 2019, we had outstanding foreign exchange contracts totaling \$1.1 billion, compared to \$819 million outstanding at December 31, 2018. Management does not believe these financial instruments should subject it to undue risk due to foreign exchange movements because gains and losses on these contracts should generally offset gains and losses on the underlying assets, liabilities and transactions.

The following table shows the five largest net notional amounts of the positions to buy or sell foreign currency as of December 31, 2019 and the corresponding positions as of December 31, 2018:

<i>Net Buy (Sell) by Currency</i>	<i>Notional Amount</i>	
	2019	2018
Euro	\$ 134	\$ 89
British pound	107	139
Australian dollar	(123)	(105)
Chinese renminbi	(79)	(55)
Brazilian real	(47)	(41)

Foreign exchange financial instruments that are subject to the effects of currency fluctuations, which may affect reported earnings, include derivative financial instruments and other monetary assets and liabilities denominated in a currency other than the functional currency of the legal entity holding the instrument. Currently, our derivative financial instruments consist primarily of currency forward contracts. Other monetary assets and liabilities denominated in a currency other than the functional currency of the legal entity consist primarily of cash, cash equivalents, accounts payable and accounts receivable. Assuming the amounts of the outstanding foreign exchange contracts represent our underlying foreign exchange risk related to monetary assets and liabilities, a hypothetical unfavorable 10% movement in the foreign exchange rates, from current levels, would reduce the value of those monetary assets and liabilities by approximately \$59 million. Our market risk calculation represents an estimate of reasonably possible net losses that would be recognized assuming hypothetical 10% movements in future currency market pricing and is not necessarily indicative of actual results, which may or may not occur. It does not represent the maximum possible loss or any expected loss that may occur, since actual future gains and losses will differ from those estimated, based upon, among other things, actual fluctuation in market rates, operating exposures, and the timing thereof. We believe, however, that any such loss incurred would be offset by the effects of market rate movements on the respective underlying derivative financial instruments transactions.

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Item 8: Financial Statements and Supplementary Data

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of Motorola Solutions, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheet of Motorola Solutions, Inc. and its subsidiaries (the "Company") as of December 31, 2019, and the related consolidated statements of operations, of comprehensive income (loss), of stockholders' equity and of cash flows for the year then ended, 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, 2019, 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, 2019, and the results of its operations and its cash flows for the year then ended 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, 2019, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

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 audit. 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit 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 audit 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 audit 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 audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides 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.

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated, or required to be communicated, to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or

complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue Recognition - Estimated Costs to Complete Systems and Systems Integration Contracts

As described in Notes 1 and 2 to the consolidated financial statements, \$1,862 million of the Company's total revenues for the year ended December 31, 2019 was generated from Systems and Systems Integration contracts. The Company recognizes revenue on a significant portion of Systems and Systems Integration contracts on an over-time basis, electing an input method of estimated costs as a measure of performance completed. For contracts accounted for over time using estimated costs as a measure of performance completed, the Company relies on estimates of the total estimated costs to complete the contract ("Estimated Costs at Completion"). Total Estimated Costs at Completion include direct labor, material and subcontracting costs. Due to the nature of the efforts required to meet the underlying performance obligation, determining Estimated Costs at Completion may be complex and subject to many variables. As disclosed by management, management reviews the progress and performance of open contracts in order to determine the best estimate of Estimated Costs at Completion. As part of this process, management reviews information including, but not limited to, any outstanding key contract matters, progress towards completion, the project schedule, identified risks and opportunities, and the related changes in estimates of costs. The risks and opportunities include management's judgments about the ability and the cost to achieve the project schedule, technical requirements, and other contract requirements.

The principal considerations for our determination that performing procedures relating to the Estimated Costs at Completion for Systems and Systems Integration contracts is a critical audit matter are that there was significant judgment by management when developing the Estimated Costs at Completion, which in turn led to a high degree of auditor judgment, subjectivity and effort in performing procedures to evaluate management's estimates, including management's judgments about the cost to achieve the project schedule, technical requirements, and other contract requirements.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the revenue recognition process, including controls over the determination of Estimated Costs at Completion. These procedures also included, among others, evaluating and testing management's process for determining the Estimated Costs at Completion for a sample of contracts. Management's process for determining the Estimated Costs at Completion was evaluated for reasonableness by (i) performing a comparison of the originally estimated and actual costs incurred on completed contracts; (ii) evaluating the timely identification of circumstances that may warrant a modification to Estimated Costs at Completion, including actual costs in excess of estimates; and (iii) analyzing contracts and project schedules that support those estimates.

/s/ PricewaterhouseCoopers LLP

Chicago, Illinois

February 14, 2020

We have served as the Company's auditor since 2018.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors
Motorola Solutions, Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheet of Motorola Solutions, Inc. and subsidiaries (the Company) as of December 31, 2018, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the years in the two-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018, and the results of its operations and its cash flows for each of the years in the two-year period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Company changed its method of accounting for revenue recognition in 2018 due to the adoption of ASU No. 2014-09, "Revenue from Contracts with Customers."

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements 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 audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits 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. We believe that our audits provide a reasonable basis for our opinion.

KPMG LLP

We served as the Company's auditor from 1959 to 2019.

Chicago, Illinois
February 15, 2019

Consolidated Statements of Operations

<i>(In millions, except per share amounts)</i>	<i>Years ended December 31</i>		
	2019	2018	2017
Net sales from products	\$ 4,746	\$ 4,463	\$ 3,772
Net sales from services	3,141	2,880	2,608
Net sales	7,887	7,343	6,380
Costs of products sales	2,049	2,035	1,686
Costs of services sales	1,907	1,828	1,670
Costs of sales	3,956	3,863	3,356
Gross margin	3,931	3,480	3,024
Selling, general and administrative expenses	1,403	1,254	1,025
Research and development expenditures	687	637	568
Other charges	260	334	147
Operating earnings	1,581	1,255	1,284
Other income (expense):			
Interest expense, net	(220)	(222)	(201)
Gains on sales of investments and businesses, net	5	16	3
Other	(365)	53	(10)
Total other expense	(580)	(153)	(208)
Net earnings before income taxes	1,001	1,102	1,076
Income tax expense	130	133	1,227
Net earnings (loss)	871	969	(151)
Less: Earnings attributable to noncontrolling interests	3	3	4
Net earnings (loss) attributable to Motorola Solutions, Inc.	\$ 868	\$ 966	\$ (155)
<i>Earnings (loss) per common share:</i>			
Basic:	\$ 5.21	\$ 5.95	\$ (0.95)
Diluted:	4.95	5.62	(0.95)
<i>Weighted average common shares outstanding:</i>			
Basic	166.6	162.4	162.9
Diluted	175.6	172.0	162.9
Dividends declared per share	\$ 2.35	\$ 2.13	\$ 1.93

See accompanying notes to consolidated financial statements.

Consolidated Statements of Comprehensive Income (Loss)

<i>(In millions)</i>	<i>Years ended December 31</i>		
	2019	2018	2017
Net earnings (loss)	\$ 871	\$ 969	\$ (151)
Other comprehensive income (loss), net of tax (Note 4):			
Foreign currency translation adjustments	34	(91)	141
Marketable securities	—	(6)	6
Defined benefit plans	291	(106)	(392)
Total other comprehensive income (loss), net of tax	325	(203)	(245)
Comprehensive income (loss)	1,196	766	(396)
Less: Earnings attributable to noncontrolling interests	3	3	4
Comprehensive income (loss) attributable to Motorola Solutions, Inc. common shareholders	\$ 1,193	\$ 763	\$ (400)

See accompanying notes to consolidated financial statements.

Consolidated Balance Sheets

<i>(In millions, except par value)</i>	<i>December 31</i>	
	2019	2018
ASSETS		
Cash and cash equivalents	\$ 1,001	\$ 1,257
Accounts receivable, net	1,412	1,293
Contract assets	1,046	1,012
Inventories, net	447	356
Other current assets	272	354
Total current assets	4,178	4,272
Property, plant and equipment, net	992	895
Operating lease assets	654	—
Investments	159	169
Deferred income taxes	943	985
Goodwill	2,067	1,514
Intangible assets, net	1,327	1,230
Other assets	422	344
Total assets	\$ 10,642	\$ 9,409
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current portion of long-term debt	\$ 16	\$ 31
Accounts payable	618	592
Contract liabilities	1,449	1,263
Accrued liabilities	1,356	1,210
Total current liabilities	3,439	3,096
Long-term debt	5,113	5,289
Operating lease liabilities	497	—
Other liabilities	2,276	2,300
Preferred stock, \$100 par value	—	—
Common stock, \$.01 par value:	2	2
Authorized shares: 600.0		
Issued shares: 12/31/19—171.0; 12/31/18—164.0		
Outstanding shares: 12/31/19—170.5; 12/31/18—163.5		
Additional paid-in capital	499	419
Retained earnings	1,239	1,051
Accumulated other comprehensive loss	(2,440)	(2,765)
Total Motorola Solutions, Inc. stockholders' equity (deficit)	(700)	(1,293)
Noncontrolling interests	17	17
Total stockholders' equity (deficit)	(683)	(1,276)
Total liabilities and stockholders' equity	\$ 10,642	\$ 9,409

See accompanying notes to consolidated financial statements.

Consolidated Statements of Stockholders' Equity

<i>(In millions, except per share amounts)</i>	Shares	Common Stock and Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings	Noncontrolling Interests
Balance as of January 1, 2017	165.5	\$ 205	\$ (2,317)	\$ 1,148	\$ 12
Net earnings (loss)				(155)	4
Other comprehensive income			25		
Issuance of common stock and stock options exercised	1.8	82			
Share repurchase program	(5.7)			(483)	
Reclassification of stranded tax effects		—	(270)	270	
Share-based compensation expense		66			
Dividends paid to noncontrolling interest in subsidiary common stock					(1)
Dividends declared				(313)	
Balance as of December 31, 2017	161.6	\$ 353	\$ (2,562)	\$ 467	\$ 15
Net earnings				968	3
Other comprehensive loss			(203)		
Issuance of common stock and stock options exercised	3.6	168			
Share repurchase program	(1.2)			(132)	
ASU 2016-18 modified retrospective adoption				(31)	
Share-based compensation expense		73			
ASU 2014-09 modified retrospective adoption				127	
Dividends paid to noncontrolling interest in subsidiary common stock					(1)
Dividends declared				(346)	
Repurchase of senior convertible notes		(173)			
Balance as of December 31, 2018	164.0	\$ 421	\$ (2,765)	\$ 1,051	\$ 17
Net earnings				888	3
ASU 2016-16 beginning balance adjustment (Note 1)				130	
Other comprehensive income			325		
Issuance of common stock and stock options exercised	2.4	122			
Share repurchase program	(2.3)			(315)	
Issuances of common stock for acquisition	1.4	160			
Share-based compensation expense		118			
Issuance of common stock for 2.00% senior convertible notes	5.5	988			
Dividends paid to noncontrolling interest in subsidiary common stock					(3)
Equity component of 1.75% senior convertible notes		10			
Dividends declared				(395)	
Repurchase of 2.00% senior convertible notes		(1,318)			
Balance as of December 31, 2019	171.0	\$ 501	\$ (2,440)	\$ 1,239	\$ 17

See accompanying notes to consolidated financial statements.

Consolidated Statements of Cash Flows

(In millions)	Years ended December 31		
	2019	2018	2017
Operating			
Net earnings (loss) attributable to Motorola Solutions, Inc.	\$ 868	\$ 966	\$ (155)
Earnings attributable to noncontrolling interests	3	3	4
Net earnings (loss)	871	969	(151)
Adjustments to reconcile Net earnings (loss) to Net cash provided by operating activities:			
Depreciation and amortization	394	360	343
Non-cash other charges	35	58	32
Pension settlement losses	359	—	48
Gain from the extinguishment of 2.00% senior convertible notes	(4)	(8)	—
Share-based compensation expense	118	73	66
Gains on sales of investments and businesses, net	(6)	(16)	(3)
Losses from the extinguishment of long-term debt	50	—	—
Changes in assets and liabilities, net of effects of acquisitions, dispositions, and foreign currency translation adjustments:			
Accounts receivable	(79)	62	(60)
Inventories	(74)	71	(46)
Other current assets and contract assets	49	(251)	(99)
Accounts payable, accrued liabilities, and contract liabilities	188	271	160
Other assets and liabilities	(5)	(523)	(44)
Deferred income taxes	(84)	9	1,100
Net cash provided by operating activities	1,823	1,075	1,346
Investing			
Acquisitions and investments, net	(709)	(1,164)	(404)
Proceeds from sales of investments	16	95	183
Capital expenditures	(248)	(197)	(227)
Proceeds from sales of property, plant and equipment	7	—	—
Net cash used for investing activities	(934)	(1,266)	(448)
Financing			
Repayment of debt	(2,039)	(723)	(21)
Net proceeds from issuance of debt	1,804	1,490	10
Issuances of common stock	114	168	82
Purchases of common stock	(315)	(132)	(483)
Settlement of conversion premium on 2.00% senior convertible notes	(326)	(189)	—
Payment of dividends	(379)	(337)	(307)
Payment of dividends to noncontrolling interest	(3)	(1)	(1)
Deferred acquisition costs	—	(76)	(2)
Net cash provided by (used for) financing activities	(1,144)	220	(722)
Effect of exchange rate changes on cash and cash equivalents	(1)	(40)	62
Net increase (decrease) in cash and cash equivalents	(256)	(11)	238
Cash and cash equivalents, beginning of period	1,257	1,268	1,030
Cash and cash equivalents, end of period	\$ 1,001	\$ 1,257	\$ 1,268
Supplemental Cash Flow Information			
Cash paid during the period for:			
Interest, net	\$ 221	\$ 204	\$ 178
Income and withholding taxes, net of refunds	138	119	122

See accompanying notes to consolidated financial statements.

Notes to Consolidated Financial Statements

(Dollars in millions, except as noted)

1. Summary of Significant Accounting Policies

Principles of Consolidation: The consolidated financial statements include the accounts of Motorola Solutions, Inc. (the "Company" or "Motorola Solutions") and all controlled subsidiaries. All intercompany transactions and balances have been eliminated.

The consolidated financial statements as of December 31, 2019 and 2018 and for the years ended December 31, 2019, 2018 and 2017, include, in the opinion of management, all adjustments (consisting of normal recurring adjustments and reclassifications) necessary to present fairly the Company's consolidated financial position, results of operations, statements of comprehensive income, and statements of stockholders' equity and cash flows for all periods presented.

As of December 31, 2019, the Company changed the name of the "Services and Software" segment to "Software and Services." The change is to the name only and no other financial information has been reclassified from previous periods presented or for the year ended December 31, 2019.

Use of Estimates: The preparation of financial statements in conformity with United States ("U.S.") Generally Accepted Accounting Principles ("GAAP") requires management to make certain 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 revenues and expenses during the reporting periods. Actual results could differ from those estimates.

Revenue Recognition: Net sales consist of a wide range of goods and services including the delivery of devices, systems and system integration and a full set of software and service offerings. The Company recognizes revenue to reflect the transfer of control of promised goods or services to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for goods or services.

The Products and Systems Integration segment is comprised of Systems, Devices and Systems Integration. Direct customers of the Products and Systems Integration segment are typically government, public safety and first-responder agencies, procuring at state, local, and federal levels as well as large commercial customers with secure mission critical needs. Indirect customers are defined as customers purchasing professional commercial radios and video security, which are primarily sold through the Company's reseller partners to an end-customer base, composed of various industries where private communications networks and video security are used to secure operations and enable a mobile workforce. Contracts with the Company's customers are typically fixed fee, with consideration measured net of associated sales taxes, and, as it relates to our direct customers, funded through government appropriations. For Products and Systems Integration sales, the Company records consideration from shipping and handling on a gross basis within Net sales.

Devices includes two-way portable and vehicle-mounted radios, fixed and mobile video cameras and accessories. Devices are considered capable of being distinct and distinct within the context of our contracts. Revenue is recognized upon the transfer of control of the devices to the customer at a point in time, typically consistent with delivery under the applicable shipping terms. Devices are sold by both the direct sales force and through reseller partners. Revenue is generally recognized upon transfer of devices to reseller partners, rather than the end-customer, except for limited consignment arrangements. Provisions for returns and reseller discounts are made on a portfolio basis using historical data.

Systems and Systems Integration include customized radio network, video solutions and implementation, and integration of networks, devices, software, and applications. The radio network includes the aggregation of promises to the customer to provide the radio network core and central processing software, base stations, consoles, and repeaters. These individual promises are not distinct in the context of the contract, as the Company provides a significant service of integrating and customizing the goods and services promised. The radio network represents a distinct performance obligation for which revenue is recognized over time, as the Company creates an asset with no alternative use and has an enforceable right to payment for work performed. The Company's revenue recognition over time is based on an input measure of costs incurred, which depicts the transfer of control to its customers under its contracts. Systems and Systems Integration revenue is recognized over an average duration of approximately one to two years.

Systems also include video security including: video analytics, network video management hardware and software, and access control solutions, which are capable of being distinct and distinct in the context of the contract. Video security solutions are traditionally sold through reseller partners, with contracts negotiated under fixed pricing. Provisions for returns are determined on a portfolio basis using historical data. Revenue is recognized upon the transfer of control of the video solution to the reseller partners, typically upon shipment.

The Software and Services segment provides a full set of offerings for government, public safety and commercial communication networks. Direct customers of the Software and Services segment are typically government, public safety and first-responder agencies and municipalities. Indirect customers are commercial customers who distribute broadband push-to-talk services to a final end customer base. Contracts with our customers are typically fixed fee, with consideration measured net of associated sales taxes, and, as it relates to our direct customers, funded through government appropriations.

Software offerings include public safety and enterprise command solutions, unified communications applications, and video security software solutions delivered either "as a service" or on-premise. Solutions delivered as a service consist of a range of promises including hosted software, technical support and the right to unspecified future software enhancements. Software is

not distinct from the hosting service since the customer does not have the right to take possession of the software at any time during the term of the arrangement. The hosted software, technical support, and right to unspecified future software enhancements each represent a series of distinct services that are delivered concurrently using the same over-time method. As such, the promises are accounted for as a single performance obligation with revenue recognized on a straight-line basis.

On-premise offerings consist of multiple promises primarily including software licenses and post-contract customer support. The promises are each distinct and distinct within the context of the contract as the customer benefits from each promise individually without any significant integration or interrelationship between the promises. On-premise software revenue is recognized at the point in time when the customer can benefit from the software which generally aligns with the beginning of the license period. Revenue for post-contract customer support is recognized over time as the customer simultaneously receives and consumes the services on a straight-line basis.

Services includes a continuum of service offerings beginning with repair, technical support and maintenance. More advanced offerings include: monitoring, software updates and cybersecurity services. Managed service offerings range from partial to full operation of customer or Motorola Solutions-owned networks. Services are provided across all radio network technologies. Services are both distinct and capable of being distinct in the context of the contract, representing a series of recurring services that the Company stands ready to perform over the contract term. Since services contracts typically allow for customers to terminate for convenience or for non-appropriations of fiscal funding, the contract term is generally considered to be limited to a monthly or annual basis, subject to customer renewal. While contracts with customers are typically fixed fee, certain managed services contracts may be subject to variable consideration related to the achievement of service level agreement performance measurements. The Company has not historically paid significant penalties under service level agreements, and accordingly, it does not constrain its contract price. Certain contracts may also contain variable consideration driven by the number of users. Revenue is typically recognized on services over time as a series of services performed over the contract term on a straight-line basis.

Significant Judgments

The Company enters into arrangements which consist of multiple promises to our customers. The Company evaluates whether the promised goods and services are distinct or a series of distinct goods or services. Where contracts contain multiple performance obligations, the Company generally allocates the total estimated consideration to each performance obligation based on applying an estimated selling price ("ESP") as our best estimate of standalone selling price. The Company determines ESP by: (i) collecting all reasonably available data points including sales, cost and margin analyses of the product or services, and other inputs based on its normal pricing and discounting practices, (ii) making any reasonably required adjustments to the data based on market and Company-specific factors, and (iii) stratifying the data points, when appropriate, based on major product or service, type of customer, geographic market, and sales volume.

The Company accounts for certain system contracts on an over-time basis, electing an input method of estimated costs as a measure of performance completed. The selection of the measurement of progress using estimated costs was based on a thorough consideration of alternatives of various output and input measures, including contract milestones and labor hours. However, the Company has determined that other input and output measures are not an appropriate measure of progress as they do not accurately align with the transfer of control on its customized systems. The selection of costs incurred as a measure of progress aligns the transfer of control to the overall production of the customized system.

For system contracts accounted for over time using estimated costs as a measure of performance completed, the Company relies on estimates around the total estimated costs to complete the contract ("Estimated Costs at Completion"). Total Estimated Costs at Completion include direct labor, material and subcontracting costs. Due to the nature of the efforts required to be performed to meet the underlying performance obligation, determining Estimated Costs at Completion may be complex and subject to many variables. The Company has a standard and disciplined quarterly process in which management reviews the progress and performance of open contracts in order to determine the best estimate of Estimated Costs at Completion. As part of this process, management reviews information including, but not limited to, any outstanding key contract matters, progress towards completion, the project schedule, identified risks and opportunities, and the related changes in estimates of costs. The risks and opportunities include management's judgment about the ability and cost to achieve the project schedule, technical requirements, and other contract requirements. Management must make assumptions and estimates regarding labor productivity and availability, the complexity of work to be performed, the availability and cost of materials, and performance by subcontractors, among other variables. Based on this analysis, any quarterly adjustment to net sales, cost of sales, and the related impact to operating income are recorded as necessary in the period they become known. When estimates of total costs to be incurred on a contract exceed estimates of total revenue to be earned, a provision for the entire loss on the contract is recorded in the period in which the loss is determined.

Cash Equivalents: The Company considers all highly-liquid investments purchased with an original maturity of three months or less to be cash equivalents. Restricted cash was \$2 million at December 31, 2019 and \$11 million at December 31, 2018.

Investments: Investments in debt securities classified as available-for-sale are carried at fair value with changes in fair value recorded in other comprehensive income. Certain investments are accounted for using the equity method if the Company has significant influence over the issuing entity.

The Company assesses declines in the fair value of debt securities and equity method investments to determine whether such declines are other-than-temporary. This assessment is made considering all available evidence, including changes in general market conditions, specific industry and individual company data, the length of time and the extent to which the fair value

has been less than cost, the financial condition and the near-term prospects of the entity issuing the security, and the Company's ability and intent to hold the investment until recovery. Other-than-temporary impairments of investments are recorded to Other within Other income (expense) in the Company's Consolidated Statements of Operations in the period in which they become impaired.

Equity securities with readily determinable fair values are carried at fair value with changes in fair value recorded in Other within Other income (expense). Equity securities without readily determinable fair values are carried at cost, less impairments, if any, and adjusted for observable price changes for the identical or a similar investment of the same issuer. The Company performs a qualitative impairment assessment to determine if such investments are impaired. The qualitative assessment considers all available information, including declines in the financial performance of the issuing entity, the issuing entity's operating environment, and general market conditions. Impairments of equity securities without readily determinable fair values are recorded in Other within Other income (expense).

Inventories: Inventories are valued at the lower of average cost (which approximates cost on a first-in, first-out basis) or net realizable value.

Property, Plant and Equipment: Property, plant and equipment are stated at cost less accumulated depreciation. Depreciation is recorded on a straight-line basis, based on the estimated useful lives of the assets (leasehold improvements, five to twenty years; machinery and equipment, two to ten years) and commences once the assets are ready for their intended use. When certain events or changes in operating conditions occur, useful lives of the assets may be adjusted or an impairment assessment may be performed on the recoverability of the carrying value.

Goodwill and Intangible Assets: Goodwill is assessed for impairment at least annually at the reporting unit, or more frequently if events or circumstances occur that would more likely than not reduce the fair value of a reporting unit below its carrying value level. The Company performs its annual assessment of goodwill for impairment in the fourth quarter of each fiscal year, typically through a qualitative assessment. Indicators of impairment include: (i) macroeconomic conditions, (ii) industry and market conditions, (iii) cost factors, including product and SG&A costs, (iv) overall financial performance of the Company, (v) changes in share price, and (vi) other relevant company-specific events. If it is determined that it is more-likely-than-not that the fair value of the reporting unit is less than its carrying amount, the Company will perform the first step of the impairment process, which compares the fair value of the reporting unit to its book value. If the fair value of the reporting unit is less than its book value, the Company performs a hypothetical purchase price allocation based on the reporting unit's fair value to determine the fair value of the reporting unit's goodwill. Fair value is determined using a combination of present value techniques and market prices of comparable businesses.

Intangible assets are amortized on a straight line basis over their respective estimated useful lives ranging from one to twenty years. The Company has no intangible assets with indefinite useful lives.

Leases: The Company recognizes if an arrangement is a lease at the inception of the contract. The Company determines which party has the right to control an asset during the contract term and recognizes a Right of Use ("ROU") asset and operating lease liability based on the present value of the future minimum lease payments over the term of the lease. Refer to Note 3 for further discussion of the Company's accounting policy for leases.

Impairment of Long-Lived Assets: Long-lived assets, which include intangible assets, held and used by the Company are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of assets may not be recoverable. The Company evaluates recoverability of assets to be held and used by comparing the carrying amount of an asset (group) to future net undiscounted cash flows to be generated by the asset (group). If an asset (group) is considered to be impaired, the impairment to be recognized is equal to the amount by which the carrying amount of the asset (group) exceeds the asset's (group's) fair value calculated using a discounted future cash flows analysis or market comparable analysis. Assets held for sale, if any, are reported at the lower of the carrying amount or fair value less cost to sell.

Income Taxes: The Company records deferred income tax assets and liabilities based on the estimated future tax effects of differences between the financial and tax bases of assets and liabilities based on currently enacted tax laws. The Company's deferred and other tax balances are based on management's interpretation of the tax regulations and rulings in numerous tax jurisdictions. Income tax expenses and liabilities recognized by the Company also reflect its best estimates and assumptions regarding, among other things, the level of future taxable income, the effect of the Company's various tax planning strategies, and uncertain tax positions. Future tax authority rulings and changes in tax laws, changes in projected levels of taxable income, and future tax planning strategies could affect the actual effective tax rate and tax balances recorded by the Company.

Long-Term Receivables: Long-term receivables include trade receivables where contractual terms of the note agreement are greater than one year. Long-term receivables are considered impaired when management determines collection of all amounts due according to the contractual terms of the note agreement, including principal and interest, is no longer probable. Impaired long-term receivables are valued based on the present value of expected future cash flows discounted at the receivable's effective interest rate, or the fair value of the collateral if the receivable is collateral dependent. Interest income and late fees on impaired long-term receivables are recognized only when payments are received. Previously impaired long-term receivables are no longer considered impaired and are reclassified to performing when they have performed under restructuring for four consecutive quarters.

Environmental Liabilities: The Company maintains a liability related to ongoing remediation efforts of environmental media such as groundwater, soil, and soil vapor, as well as related legal fees for a designated Superfund site under the

Comprehensive Environmental Response, Compensation and Liability Act (commonly known as the "Superfund Act") incurred by a legacy business. It is the Company's policy to re-evaluate the reserve when certain events become known that will impact the future cash payments. When the timing and amount of the future cash payments are fixed or reliably determinable, the Company discounts the future cash flows used in estimating the accrual using a risk-free treasury rate. The current portion of the estimated environmental liability is included in the "Accrued liabilities" statement line and the non-current portion is included in the "Other liabilities" statement line within the Company's Consolidated Balance Sheet.

Foreign Currency: Certain non-U.S. operations within the Company use their respective local currency as their functional currency. Those operations that do not have the U.S. dollar as their functional currency translate assets and liabilities at current rates of exchange in effect at the balance sheet date and revenues and expenses using rates that approximate those in effect during the period. The resulting translation adjustments are included as a component of Accumulated other comprehensive income (loss) in the Company's Consolidated Balance Sheet. For those operations that have the U.S. dollar as their functional currency, transactions denominated in the local currency are measured in U.S. dollars using the current rates of exchange for monetary assets and liabilities and historical rates of exchange for nonmonetary assets. Gains and losses from remeasurement of monetary assets and liabilities are included in Other within Other income (expense) within the Company's Consolidated Statements of Operations.

The Company uses financial instruments to reduce its overall exposure to the effects of currency fluctuations on cash flows. The Company's policy prohibits speculation in financial instruments for profit on exchange rate fluctuations, trading in currencies for which there are no underlying exposures, or entering into transactions for any currency to intentionally increase the underlying exposure.

The Company's strategy related to foreign exchange exposure management is to offset the gains or losses on the financial instruments against gains or losses on the underlying operational cash flows, net investments or monetary assets and liabilities based on the Company's assessment of risk. The Company enters into derivative contracts for some of its non-functional currency cash, receivables, and payables, which are primarily denominated in major currencies that can be traded on open markets. The Company typically uses forward contracts and options to hedge these currency exposures. In addition, the Company has entered into derivative contracts for some forecasted transactions or net investments in some of its overseas entities, which are designated as part of a hedging relationship if it is determined that the transaction qualifies for hedge accounting under the provisions of the authoritative accounting guidance for derivative instruments and hedging activities. A portion of the Company's exposure is from currencies that are not traded in liquid markets and these are addressed, to the extent reasonably possible, by managing net asset positions, product pricing and component sourcing.

Derivative Instruments: Gains and losses on hedging instruments that do not qualify for hedge accounting are recorded immediately in Other income (expense) within the Consolidated Statements of Operations. Gains and losses pertaining to instruments designated as net investment hedges that qualify for hedge accounting are recognized as a component of Accumulated other comprehensive income (loss). Components excluded from the assessment of hedge ineffectiveness in net investment hedges are included in Accumulated other comprehensive income (loss) at their initial value and amortized into Interest expense, net on a straight-line basis.

Earnings Per Share: The Company calculates its basic earnings (loss) per share based on the weighted-average number of common shares issued and outstanding. Net earnings (loss) attributable to Motorola Solutions, Inc. is divided by the weighted average common shares outstanding during the period to arrive at the basic earnings (loss) per share. Diluted earnings (loss) per share is calculated by dividing net earnings (loss) attributable to Motorola Solutions, Inc. by the sum of the weighted-average number of common shares used in the basic earnings (loss) per share calculation and the weighted-average number of common shares that would be issued assuming exercise or conversion of all potentially dilutive securities, excluding those securities that would be anti-dilutive to the earnings (loss) per share calculation. Both basic and diluted earnings (loss) per share amounts are calculated for net earnings attributable to Motorola Solutions, Inc. for all periods presented.

Share-Based Compensation Costs: The Company grants share-based compensation awards and offers an employee stock purchase plan. The amount of compensation cost for these share-based awards is generally measured based on the fair value of the awards as of the date that the share-based awards are issued and adjusted to the estimated number of awards that are expected to vest. The fair values of stock options and stock appreciation rights are generally determined using a Black-Scholes option pricing model which incorporates assumptions about expected volatility, risk-free rate, dividend yield, and expected life. Performance-based stock options, performance-contingent stock options, and market stock units vest based on market conditions and are therefore measured under a Monte Carlo simulation in order to simulate a range of possible future unit prices for Motorola Solutions over the performance period. Compensation cost for share-based awards is recognized on a straight-line basis over the vesting period.

Defined Benefit Plans: The Company records annual expenses relating to its defined benefit plans based on calculations which include various actuarial assumptions, including discount rates, assumed asset rates of return, compensation increases, and turnover rates. The Company reviews its actuarial assumptions on an annual basis and makes modifications to the assumptions based on current rates and trends. The effects of the gains, losses, and prior service costs and credits are amortized either over the average service life or over the average remaining lifetime of the participants, depending on the number of active employees in the plan. The funded status, or projected benefit obligation less plan assets, for each plan, is reflected in the Company's Consolidated Balance Sheets using a December 31 measurement date.

Recent Acquisitions:

On October 16, 2019, the Company acquired a data solutions business for vehicle location information for a purchase price of \$85 million, net of cash acquired. The acquisition enhances the Company's video security platform by adding data to the Company's existing license plate recognition ("LPR") database within the Software and Services segment.

On July 11, 2019, the Company acquired WatchGuard, Inc. ("WatchGuard"), a provider of in-car and body-worn video solutions for \$271 million, inclusive of share-based compensation withheld at a fair value of \$16 million that will be expensed over an average service period of two years. The acquisition was settled with \$250 million of cash, net of cash acquired. The acquisition expands the Company's video security platform within both the Product and Systems Integration segment and the Software and Services segment.

On March 11, 2019, the Company acquired Avtec, Inc. ("Avtec"), a provider of dispatch communication equipment for U.S. public safety and commercial customers for a purchase price of \$136 million in cash, net of cash acquired. This acquisition expands the Company's commercial portfolio with new capabilities, allowing it to offer an enhanced platform for customers to communicate, coordinate resources, and secure their facilities. The business is part of both the Product and Systems Integration segment and the Software and Services segment.

On January 7, 2019, the Company announced that it acquired VaaS International Holdings ("VaaS"), a global provider of data and image analytics for vehicle location for \$445 million, inclusive of share-based compensation withheld at a fair value of \$38 million that will be expensed over an average service period of one year. The acquisition was settled with \$231 million of cash, net of cash acquired, and 1.4 million of shares issued at a fair value of \$160 million for a purchase price of \$391 million. This acquisition expands the Company's video security platform within both the Product and Systems Integration segment and the Software and Services segment.

On March 28, 2018, the Company completed the acquisition of Avigilon Corporation ("Avigilon"), a provider of advanced security and video solutions including video analytics, network video management hardware and software, video cameras and access control solutions for a purchase price of \$974 million. The acquisition expands the Company's video security platform within both the Product and Systems Integration segment and the Software and Services segment.

On March 7, 2018, the Company completed the acquisition of Plant Holdings, Inc. ("Plant"), the parent company of Airbus DS Communications for a purchase price of \$237 million. This acquisition expands the Company's software portfolio in the command center with additional solutions for Next Generation 9-1-1 within our Software and Services segment.

On August 28, 2017, the Company completed the acquisition of Kodiak Networks, a provider of broadband push-to-talk for commercial customers, for a purchase price of \$225 million. The business is part of the Software and Services segment.

On March 13, 2017, the Company completed the acquisition of Interexport, a managed service provider of communications systems to public safety and commercial customers in Chile, for a purchase price of 98 billion Chilean pesos, or approximately \$147 million. The business is part of the Software and Services segment.

Recent Accounting Pronouncements:

In December 2019, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2019-12, "Income Taxes (Topic 740)," which simplifies the accounting for income taxes by removing certain exceptions and streamlining other areas of accounting for income taxes. The ASU is effective for the Company on January 1, 2021 with early adoption permitted. Portions of the amendment within the ASU require retrospective, modified retrospective or prospective adoption methods. The Company is still evaluating the impact of adoption on its financial statements and disclosures.

In August 2018, the FASB issued ASU No. 2018-14, "Compensation - Retirement Benefits - Defined Benefit Plans - General (Subtopic 715-20) - Changes to the Disclosure Requirements for Defined Benefit Plans," which modifies the disclosure requirements for the defined benefit pension plans and other postretirement plans. The ASU is effective for the Company on January 1, 2021 with early adoption permitted. The ASU requires a retrospective adoption method. The Company does not believe the ASU will have a material impact on its financial statement disclosures.

In June 2016, the FASB issued ASU No. 2016-13, "Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments," which requires the Company to measure and recognize expected credit losses for financial assets held and not accounted for at fair value through net income. In November 2018, April 2019, May 2019 and November 2019, the FASB issued ASU No. 2018-19, "Codification Improvements to Topic 326, Financial Instruments - Credit Losses," "ASU No. 2019-04, Codification Improvements to Topic 326, Financial Instruments - Credit Losses," "Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments," "ASU No. 2019-05, Financial Instruments - Credit Losses (Topic 326): Targeted Transition Relief," and "ASU No. 2019-11, Codification Improvements to Topic 326, Financial Instruments - Credit Losses," which provided additional implementation guidance on the previously issued ASU. The ASU is effective for the Company on January 1, 2020. The Company does not believe there will be a material impact on its financial statements as a result of the adoption.

Recently Adopted Accounting Pronouncements:

In February 2016, the FASB issued ASU No. 2016-02, "Leases," which amends existing guidance to require lessees to recognize assets and liabilities on the balance sheet for the rights and obligations created by long-term leases and to disclose additional quantitative and qualitative information about leasing arrangements. This was subsequently amended by ASU No. 2018-01, "Land Easement Practical Expedient for Transition to Topic 842," ASU No. 2018-10, "Codification Improvements to

Topic 842, Leases," and ASU No. 2018-11, "Targeted Improvements" (collectively "ASC 842"). ASC 842 establishes a right-of-use model ("ROU") that requires a lessee to recognize a ROU asset and lease liability on the balance sheet for all leases with an initial term longer than twelve months. Leases are classified as finance or operating, with classification affecting the pattern and presentation of expense recognition in the income statement.

The Company adopted ASC 842 as of January 1, 2019 using a modified retrospective transition approach for all leases existing at January 1, 2019, the date of the initial application. Consequently, financial information will not be updated and disclosures required under ASC 842 will not be provided for dates and periods before January 1, 2019.

ASC 842 provides for a number of optional practical expedients in transition. The Company elected the practical expedients, which permit the Company to not reassess prior conclusions about lease identification, lease classification and initial direct costs under ASC 842. The Company did not elect the "use-of hindsight" practical expedient to determine the lease term or in assessing the likelihood that a lease purchase option will be exercised, allowing it to carry forward the lease term as determined prior to adoption of ASC 842. Finally, the Company also elected the practical expedient related to land easements, which enabled it to continue its accounting treatment for land easements on existing agreements as of January 1, 2019.

ASC 842 also provides practical expedients for an entity's ongoing accounting. The Company elected the short-term lease recognition exemption for all leases that qualify. A short-term lease is one with a term of twelve months or less, including any optional periods that are reasonably certain of exercise. For those leases that qualify, the exemption allows the Company to not recognize ROU assets or lease liabilities, including not recognizing ROU assets or lease liabilities for existing short-term leases at transition. Short-term lease costs are recognized as rent expense on a straight-line basis over the lease term consistent with the Company's prior accounting. The Company also elected the practical expedient to not separate lease and non-lease components for all current lease categories.

As of January 1, 2019, the Company recognized operating lease liabilities of \$648 million based on the present value of the remaining minimum rental payments determined under prior lease accounting standards and corresponding ROU assets of \$588 million. The \$60 million difference between operating lease liabilities and ROU assets recognized is due to deferred rent and exit cost accruals recorded under prior lease accounting standards. ASC 842 requires such balances to be reclassified against ROU assets at transition. In future periods such balances will not be presented separately.

For arrangements where the Company is the lessor, the adoption of ASC 842 did not have a material impact on its financial statements as the majority of its leases are operating leases embedded within managed services contracts. ASC 842 provides a practical expedient for lessors in which the lessor may elect, by class of underlying asset, to not separate non-lease components from the associated lease component and, instead, to account for these components as a single component if both of the following are met: (i) the timing and pattern of transfer of the non-lease component(s) and associated lease component are the same and (ii) the lease component, if accounted for separately, would be classified as an operating lease. The accounting under the practical expedient depends on which component(s) is predominant in the contract. If the non-lease component is predominant, the single component is accounted under ASC Topic 606, "Revenue from Contract with Customers" and accounting and disclosure under ASC 842 is not applicable. The Company has elected the above practical expedient and determined that non-lease components are predominant and is accounting for the single components as managed service contracts under ASC Topic 606.

The Company adopted ASU No. 2017-12 "Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities" on December 1, 2018, using the modified retrospective method of adoption. The ASU requires a cumulative effect adjustment to the opening balance of retained earnings as of the beginning of the fiscal year of adoption for the previously recorded ineffectiveness included in retained earnings related to existing net investment hedges as of the date of adoption. The Company did not record a cumulative effect adjustment to retained earnings as no net investment hedges existed as of the ASU adoption date. New hedging relationships entered after the adoption date have been presented in the financial statements using the guidance of the ASU. There were no material changes to the Company's financial statements from the adoption of the ASU.

The Company adopted ASU No. 2016-16, "Accounting for Income Taxes: Intra-Entity Asset Transfers of Assets Other than Inventory" on January 1, 2018 using the modified retrospective method of adoption. This ASU eliminates the prior application of deferring the income tax effect of intra-entity asset transfers, other than inventory, until the transferred asset is sold to a third party or otherwise recovered through use. Under the ASU, the Company recognizes tax expense when intra-entity transfers of assets other than inventory occur. The Company recognized \$31 million related to the cumulative effect of applying the ASU as an adjustment to its opening retained earnings balance as of January 1, 2018. During the three months ended December 31, 2019, the Company identified an error in the amounts originally recorded when adopting ASU 2016-16. The Company recorded an out-of-period correction of \$30 million to deferred income tax assets in the Consolidated Balance Sheets and retained earnings in the Consolidated Statements of Stockholders' Equity. The adjustment did not have a material impact on the Consolidated Balance Sheets or Consolidated Statements of Stockholders' Equity for any period presented.

The Company adopted ASU No. 2017-07, "Compensation - Retirement Benefits (Topic 715) - Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost" on January 1, 2018 using the retrospective method of adoption. The amendments in the ASU require that an employer disaggregate the service cost component from the other components of net periodic cost (benefit) and report that component in the same line item as other compensation costs arising from services rendered by employees during the period. The other components of net periodic cost (benefit) are required to be presented in the statement of operations separately from the service cost component and outside of operating earnings. The Company has restated its comparative period results to reflect the application of the presentation guidance of the ASU. As a result of the ASU, the presentation of net periodic cost (benefit) has been updated to classify all components of the Company's

net periodic benefit, with the exception of the service cost component, within Other in Other income (expense) on the statement of operations. Accordingly, the Company reclassified \$78 million of benefits, \$75 million of benefit, and \$2 million of expense in the years ended 2019, 2018 and 2017, respectively, within Other in Other income (expense).

The Company adopted ASU No. 2014-09, "Revenue from Contracts with Customers," and all the related amendments (collectively "ASC 606") on January 1, 2018 using the modified retrospective method. The Company recognized the cumulative effect of initially applying the new revenue standard as an adjustment to its opening retained earnings. The comparative information has not been restated and continues to be reported under the accounting standards in effect in those periods.

The Company has retained much of the same accounting *treatment* used to recognize revenue under ASC 606 as under accounting standards in effect in prior periods. Revenue on a significant portion of its Systems and Systems Integration contracts continues to be recognized under percentage-of-completion accounting, applying a cost-to-cost method. Services contracts continue to be recognized ratably over relevant contract terms as the Company stands ready to perform. Finally, revenue on equipment sales continues to be recognized based on delivery terms as aligned with the transfer of control.

Under the new standard, the Company identified distinct promises to transfer goods and services within its contracts. For system contracts that are recognized under percentage of completion accounting, the Company has considered the factors used to determine whether promises made in the contract are distinct and determined that devices and accessories represent distinct goods. Accordingly, adoption of the new standard impacts the Company's system contracts, with the result being revenue recognized earlier as control of devices and accessories transfers to the customer at a point in time rather than over time. For the remaining promised goods and services within the Company's system contracts, it continues to recognize revenue on these contracts using a cost-to-cost method based on the continuous transfer of control to the customer over time.

Under the new standard, revenue recognition for software sales is accelerated based on when control of software licenses and related support services are transferred to the customer. Amounts deferred under previous software accounting rules due to lack of vendor-specific objective evidence recognized an adjustment through opening retained earnings as of January 1, 2018.

Historically, the Company presented transactions that involved a third-party sales representative on a net basis. After considering the control concept and the remaining three indicators of gross presentation under the new standard, the Company has determined that it is the principal in contracts that involve a third-party sales representative. Thus, under the new standard, the Company presents associated revenues on a gross basis, with the affect being an equal increase to selling, general and administrative expenses for its cost of third-party commissions.

Under prior accounting standards, the Company expensed sales commissions and other costs to obtain a contract as incurred. However, under the new standard, the Company capitalizes sales commissions and certain other costs as incremental costs to obtain a contract. Such costs are classified as non-current contract cost assets within Other assets and amortized over a period that *approximates* the timing of revenue recognition on the underlying contracts.

The new standard clarified the definition of a receivable and requires the Company to present its *net position in a contract* with a customer on the balance sheet. The position is presented as either a receivable, contract asset, or a contract liability. Under the new definition, accounts receivable are unconditional rights to consideration from a customer. Contract assets represent rights to consideration from a customer in exchange for transferred goods and services that are conditional on events other than the passage of time. Contract liabilities represent obligations to transfer goods and services for which the Company has received, or is due, consideration from a customer.

2. Revenue from Contracts with Customers

Disaggregation of Revenue

The following table summarizes the disaggregation of our revenue by segment, geography, major product and service type and customer type for the year ended December 31, 2019, consistent with the information reviewed by our chief operating decision maker for evaluating the financial performance of reportable segments:

(in millions)	Years Ended			
	2019		2018	
	Products and Systems Integration	Software and Services	Products and Systems Integration	Software and Services
Regions				
Americas	\$ 4,107	\$ 1,572	\$ 3,743	\$ 1,320
EMEA	730	821	845	755
Asia Pacific	492	165	512	168
	<u>\$ 5,329</u>	<u>\$ 2,558</u>	<u>\$ 5,100</u>	<u>\$ 2,243</u>
Major Products and Services				
Devices	\$ 3,467	\$ —	\$ 3,216	\$ —
Systems and Systems Integration	1,862	—	1,884	—
Services	—	1,896	—	1,815
Software	—	662	—	428
	<u>\$ 5,329</u>	<u>\$ 2,558</u>	<u>\$ 5,100</u>	<u>\$ 2,243</u>
Customer Type				
Direct	\$ 3,441	\$ 2,395	\$ 3,317	\$ 2,134
Indirect	1,888	163	1,783	109
	<u>\$ 5,329</u>	<u>\$ 2,558</u>	<u>\$ 5,100</u>	<u>\$ 2,243</u>

Remaining Performance Obligations

Remaining performance obligations represent the revenue that is expected to be recognized in future periods related to performance obligations that are unsatisfied, or partially unsatisfied, as of the end of a period. The transaction value associated with remaining performance obligations which are not yet satisfied as of December 31, 2019 is \$7.3 billion. A total of \$3.2 billion is from Products and Systems Integration performance obligations that are not yet satisfied, of which \$1.5 billion is expected to be recognized in the next twelve months. The remaining amounts will generally be satisfied over time as systems are implemented. A total of \$4.1 billion is from Software and Services performance obligations that are not yet satisfied as of December 31, 2019. The determination of Software and Services performance obligations that are not satisfied takes into account a contract term that may be limited by the customer's ability to terminate for convenience. Where termination for convenience exists in the Company's Services contracts, its disclosure of the remaining performance obligations that are unsatisfied assumes the contract term is limited until renewal. The Company expects to recognize \$1.3 billion from unsatisfied Software and Services performance obligations over the next twelve months, with the remaining performance obligations to be recognized over time as services are performed and software is implemented.

Payment terms on system contracts are typically tied to implementation milestones associated with progress on contracts, while revenue recognition is over time based on a cost-to-cost method of measuring performance. The Company may recognize a contract asset or contract liability, depending on whether revenue has been recognized in excess of billings or billings in excess of revenue. Services contracts are typically billed in advance, generating Contract liabilities until the Company has performed the services. The Company does not record a financing component to contracts when it expects, at contract inception, that the period between the transfer of a promised good or service and related payment terms are less than a year.

Contract Balances

(in millions)	2019	2018
Accounts receivable, net	\$ 1,412	\$ 1,293
Contract assets	1,046	1,012
Contract liabilities	1,449	1,263
Non-current contract liabilities	274	214

Revenue recognized during the year ended December 31, 2019 which was previously included in Contract liabilities as of January 1, 2019 is \$854 million, compared to \$836 million of revenue recognized during the year ended December 31, 2018 which was previously included in Contract liabilities as of January 1, 2018. Revenue of \$50 million was reversed during the year ended December 31, 2019 related to performance obligations satisfied, or partially satisfied, in previous periods, primarily driven by changes in the estimates of progress on system contracts, compared to \$15 million during the year ended December 31, 2018.

There have been no material impairment losses recognized on contract assets during the year ended December 31, 2019.

Contract Cost Balances

(in millions)	2019	2018
Current contract cost assets	24	30
Non-current contract cost assets	107	98

Contract cost assets represent incremental costs to obtain a contract, primarily related to the Company's sales incentive plans, and certain costs to fulfill contracts. Contract cost assets are amortized into expense over a period that follows the passage of control to the customer over time. Incremental costs to obtain a contract with the Company's sales incentive plans are accounted for under a portfolio approach, with amortization ranging from one to four years to approximate the recognition of revenues over time. Where incremental costs to obtain a contract will be recognized in one year or less, the Company applies a practical expedient around expensing amounts as incurred. Amortization of contract cost assets was \$42 million for the year ended December 31, 2019, compared to \$44 million as of the year ended December 31, 2018.

3. Leases

The Company leases certain office, factory and warehouse space, land and other equipment, principally under non-cancelable operating leases.

The Company determines if an arrangement is a lease at inception of the contract. The Company's key considerations in determining whether a contract is or contains a lease include establishing whether the supplier has the ability to use other assets to fulfill its service or whether the terms of the agreement enable the Company to control the use of a dedicated asset during the contract term. In the majority of the Company's contracts where it must identify whether a lease is present, it is readily determinable that the Company controls the use of the assets and obtains substantially all of the economic benefit during the term of the contract. In those contracts where identification is not readily determinable, the Company has determined that the supplier has either the ability to use another asset to provide the service or the terms of the contract give the supplier the right to operate the asset at its discretion during the term of the contract.

ROU assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at the commencement date. The Company's lease payments are typically fixed or contain fixed escalators. The Company has elected to not separate lease and non-lease components for all of its current lease categories and therefore, all consideration is included in lease payments. For the Company's leases consisting of land and other equipment (i.e. "communication network sites"), future payments are subject to variability due to changes in indices or rates. The Company values its ROU assets and lease liabilities based on the index or rate in effect at lease commencement. Future changes in the indices or rates are accounted for as variable lease costs. Other variable lease costs include items that are not fixed at lease commencement including property taxes, insurance, and operating charges that vary based on usage. ROU assets also include lease payments made in advance and are net of lease incentives.

As the majority of the Company's leases do not provide an implicit rate, the Company uses its incremental borrowing rates based on the information available at the commencement date in determining the present value of future payments. The Company's incremental borrowing rates are based on the term of the lease, the economic environment of the lease, and the effect of collateralization.

The Company's lease terms range from one to twenty-one years and may include options to extend the lease by one to ten years or terminate the lease after the initial non-cancelable term. The Company does not include options in the determination of

the lease term for the majority of leases as sufficient economic factors do not exist that would compel it to continue to use the underlying asset beyond the initial non-cancelable term. However, for the Company's communication network site leases that are necessary to provide services to customers under managed service arrangements, the Company includes options in the lease term to the extent of the customer contracts to which those leases relate.

The components of lease expense are as follows:

<i>(in millions)</i>	<i>December 31, 2019</i>
Lease expense:	
Operating lease cost	\$ 133
Finance lease cost	
Amortization of right-of-use assets	12
Interest on lease liabilities	2
Total finance lease cost	<u>14</u>
Short-term lease cost	<u>4</u>
Variable cost	35
Sublease income	(4)
Net lease expense	<u>\$ 182</u>

Rental expense, net of sublease income, for the year ended December 31, 2019, 2018 and 2017 were \$133 million, \$108 million and \$93 million, respectively.

Lease assets and liabilities consist of the following:

<i>(in millions)</i>	<i>Statement Line Classification</i>	<i>December 31, 2019</i>
Assets:		
Operating lease assets	Operating lease assets	\$ 554
Finance lease assets	Property, plant, and equipment, net	41
		<u>\$ 595</u>
Current liabilities:		
Operating lease liabilities	Accrued liabilities	\$ 122
Finance lease liabilities	Current portion of long-term debt	13
		<u>\$ 135</u>
Non-current liabilities:		
Operating lease liabilities	Operating lease liabilities	\$ 497
Finance lease liabilities	Long-term debt	16
		<u>\$ 513</u>

Other information related to leases is as follows:

<i>(in millions)</i>	<i>December 31, 2019</i>
Supplemental cash flow information:	
Net cash used for operating activities related to operating leases	\$ 140
Net cash used for operating activities related to finance leases	2
Net cash used for financing activities related to finance leases	14
Assets obtained in exchange for lease liabilities:	
Operating leases	\$ 86

(in millions)

December 31, 2019

Weighted average remaining lease terms (years):	
Operating leases	7
Finance leases	2
Weighted average discount rate:	
Operating leases	3.61%
Finance leases	4.28%

Future lease payments as of December 31, 2019 are as follows:

(in millions)	Operating Leases	Finance Leases	Total
2020	\$ 143	\$ 14	\$ 157
2021	129	12	141
2022	114	5	119
2023	62	1	63
2024	55	—	55
Thereafter	210	—	210
Total lease payments	\$ 713	\$ 32	\$ 745
Less: Interest	94	3	97
Present value of lease liabilities	\$ 619	\$ 29	\$ 648

4. Other Financial Data

Statement of Operations Information

Other Charges (Income)

Other charges (income) included in Operating earnings consist of the following:

Years ended December 31 (in millions)	2019	2018	2017
Other charges (income):			
Intangibles amortization (Note 15)	\$ 208	\$ 188	\$ 151
Reorganization of businesses (Note 14)	40	61	33
Loss (gain) on legal settlements	3	3	(1)
Asset impairments	—	1	10
Environmental reserve expense	—	57	—
Gain on the recovery of long-term receivables	—	—	(47)
Operating lease ROU asset impairment	5	—	—
Acquisition-related transaction fees	3	24	1
Other	1	—	—
	\$ 260	\$ 334	\$ 147

During 2018, the Company recorded an environmental reserve charge of \$57 million due to: (i) changing the expected timeline of the remediation activities to 30 years and (ii) additional costs for further remediation efforts, increasing the reserve to \$107 million.

During the year ended December 31, 2017, the Company recognized a net gain of \$47 million related to the recovery, through legal procedures to seize and liquidate assets, of long-term receivables owed to the Company by a former customer of its legacy Networks business. The net gain of \$47 million was based on \$57 million of proceeds received, net of \$10 million of fees owed to third parties for their involvement in the recovery.

Other Income (Expense)

Interest expense, net, and Other both included in Other income (expense) consist of the following:

<i>Years ended December 31 (in millions)</i>	2019	2018	2017
Interest expense, net:			
Interest expense	\$ (237)	\$ (240)	\$ (215)
Interest income	17	18	14
	<u>\$ (220)</u>	<u>\$ (222)</u>	<u>\$ (201)</u>
Other:			
Net periodic pension and postretirement benefit (Note 8)	\$ 78	\$ 75	\$ 46
Non-U.S. pension settlement loss (Note 8)	—	—	(48)
Losses from the extinguishment of long-term debt (Note 5)	(50)	—	—
Gain from the extinguishment of 2.00% senior convertible notes (Note 5)	4	6	—
Investment impairments	(18)	(5)	—
Foreign currency loss	(22)	(24)	(31)
Gain (loss) on derivative instruments	(8)	(14)	15
Gains on equity method investments	3	1	1
Fair value adjustments to equity investments	(3)	11	—
U.S. pension settlement (Note 8)	(359)	—	—
Other	10	3	7
	<u>\$ (365)</u>	<u>\$ 53</u>	<u>\$ (10)</u>

Earnings Per Common Share

Basic and diluted earnings per common share from net earnings attributable to Motorola Solutions, Inc. are computed as follows:

<i>Years ended December 31</i>	<i>Amounts attributable to Motorola Solutions, Inc. common stockholders</i>		
	<i>Net Earnings (loss)</i>		
	2019	2018	2017
Basic earnings per common share:			
Earnings (loss)	\$ 868	\$ 966	\$ (155)
Weighted average common shares outstanding	166.6	162.4	162.9
Per share amount	<u>\$ 5.21</u>	<u>\$ 5.95</u>	<u>\$ (0.95)</u>
Diluted earnings per common share:			
Earnings (loss)	\$ 868	\$ 966	\$ (155)
Weighted average common shares outstanding	166.6	162.4	162.9
Add effect of dilutive securities:			
Share-based awards	4.7	4.2	—
2.00% senior convertible notes	4.3	5.4	—
1.75% senior convertible notes	—	—	—
Diluted weighted average common shares outstanding	<u>175.6</u>	<u>172.0</u>	<u>162.9</u>
Per share amount	<u>\$ 4.95</u>	<u>\$ 5.62</u>	<u>\$ (0.95)</u>

In the computation of diluted earnings per common share for the year ended December 31, 2019, the assumed exercise of 0.3 million options, including 0.1 million subject to market-based contingent option agreements, were excluded because their inclusion would have been antidilutive. In the computation of diluted earnings per common share for the year ended December 31, 2018, the assumed exercise of 0.8 million options, including 0.6 million subject to market-based contingent option agreements, were excluded because their inclusion would have been antidilutive. In the computation of diluted earnings per common share for the year ended December 31, 2017, the Company recorded a net loss and, accordingly, the basic and diluted weighted average shares outstanding are equal because any increase to the basic shares would be antidilutive, including the assumed exercise 8.7 million stock options and the assumed vesting of 1.4 million RSUs, and 3.1 million shares related to the 2.00% senior convertible notes.

On September 5, 2019, the Company issued \$1.0 billion of 1.75% senior convertible notes which mature on September 15, 2024 ("New Senior Convertible Notes"). The notes are convertible based on a conversion rate of 4.9140 per \$1,000 principal amount (which is equal to an initial conversion price of \$203.50 per share). In the event of conversion, the Company intends to settle the principal amount of the New Senior Convertible Notes in cash. Because of the Company's intention to settle the par value of the New Senior Convertible Notes in cash, Motorola Solutions does not reflect any shares underlying the New Senior Convertible Notes in its diluted weighted average shares outstanding until the average stock price per share for the period exceeds the conversion price. Only the number of shares that would be issuable (under the treasury stock method of accounting for share dilution) will be included, which is based upon the amount by which the average stock price exceeds the conversion price of \$203.50. For the period ended December 31, 2019, there was no dilutive effect of the New Senior Convertible Notes on diluted earnings per share attributable to Motorola Solutions, Inc. as the average stock price for the period outstanding was below the conversion price. See further discussion in Note 5.

Balance Sheet Information

Accounts Receivable, Net

Accounts receivable, net, consists of the following:

<i>December 31</i>	2019	2018
Accounts receivable	\$ 1,475	\$ 1,344
Less allowance for doubtful accounts	(63)	(51)
	<u>\$ 1,412</u>	<u>\$ 1,293</u>

Inventories, Net

Inventories, net, consist of the following:

<i>December 31</i>	2019	2018
Finished goods	\$ 209	\$ 206
Work-in-process and production materials	374	293
	<u>583</u>	<u>499</u>
Less inventory reserves	(136)	(143)
	<u>\$ 447</u>	<u>\$ 356</u>

Other Current Assets

Other current assets consist of the following:

<i>December 31</i>	2019	2018
Current contract cost assets (Note 2)	\$ 24	\$ 30
Tax-related deposits	77	138
Other	171	186
	<u>\$ 272</u>	<u>\$ 354</u>

Property, Plant and Equipment, Net

Property, plant and equipment, net, consist of the following:

<i>December 31</i>	2019	2018
Land	\$ 15	\$ 10
Leasehold improvements	410	362
Machinery and equipment	2,051	1,886
	<u>2,476</u>	<u>2,258</u>
Less accumulated depreciation	(1,484)	(1,363)
	<u>\$ 992</u>	<u>\$ 895</u>

Depreciation expense for the years ended December 31, 2019, 2018, and 2017 was \$186 million, \$172 million and \$192 million, respectively.

Investments

Investments consist of the following:

<i>December 31</i>	2019	2018
Corporate bonds	\$ —	\$ 1
Common stock	25	19
Strategic investments, at cost	40	62
Company-owned life insurance policies	74	75
Equity method investments	20	12
	<u>\$ 159</u>	<u>\$ 169</u>

The Company's common stock portfolio reflects investments in publicly-traded companies within the communications services sector and is valued utilizing active market prices for similar instruments. During the year ended December 31, 2019, the Company recognized \$3 million in Other income (expense) related to a decrease in the fair value of the investments.

Strategic investments include investments in non-public technology-driven startup companies. Strategic investments do not have a readily determinable fair value and are recorded at cost, less any impairment, and adjusted for changes resulting from observable, orderly transactions for identical or similar securities. The Company did not recognize any significant adjustments to the recorded cost basis during the year ended December 31, 2019.

Gains on the sale of investments and businesses were \$5 million, \$16 million and \$3 million for the years ended 2019, 2018, 2017, respectively. During the year ended December 31, 2019, the Company received \$6 million in cash for the sale of \$3 million of net assets related to a two-way communications rental business, resulting in the gain on sale of a business of \$3 million. During the year ended December 31, 2019, the Company recorded investment impairment charges of \$18 million, compared to \$5 million during the year ended December 31, 2018, representing other-than-temporary declines in the value of the Company's strategic equity investment portfolio. There were no investment impairments recorded during the year ended December 31, 2017. Investment impairment charges are included in Other within Other income (expense) in the Company's Consolidated Statements of Operations.

Other Assets

Other assets consist of the following:

<i>December 31</i>	2019	2018
Defined benefit plan assets (Note 8)	\$ 223	\$ 135
Tax receivable	—	39
Non-current contract cost assets (Note 2)	107	98
Other	92	72
	<u>\$ 422</u>	<u>\$ 344</u>

Accrued Liabilities

Accrued liabilities consist of the following:

<i>December 31</i>	2019	2018
Compensation	347	324
Tax liabilities (Note 7)	95	111
Dividend payable	110	93
Trade liabilities	161	185
Operating lease liabilities (Note 3)	122	—
Other	521	497
	<u>\$ 1,356</u>	<u>\$ 1,210</u>

Other Liabilities

Other liabilities consist of the following:

<i>December 31</i>	2019	2018
Defined benefit plans (Note 8)	\$ 1,524	\$ 1,557
Non-current contract liabilities (Note 2)	274	214
Unrecognized tax benefits (Note 7)	53	51
Deferred income taxes (Note 7)	184	201
Other	241	277
	<u>\$ 2,276</u>	<u>\$ 2,300</u>

Stockholders' Equity Information

Share Repurchase Program: Through a series of actions, the board of directors has authorized the Company to repurchase in the aggregate up to \$14.0 billion of its outstanding shares of common stock (the "share repurchase program"). The share repurchase program does not have an expiration date. As of December 31, 2019, the Company had used approximately \$12.7 billion of the share repurchase authority, including transaction costs, to repurchase shares, leaving \$1.3 billion of authority available for future repurchases.

The Company's share repurchases, including transaction costs, for 2019, 2018, and 2017 can be summarized as follows:

<i>Year</i>	<i>Shares Repurchased (in millions)</i>	<i>Average Price</i>	<i>Aggregate Amount (in millions)</i>
2019	2.3	\$ 137.35	\$ 315
2018	1.2	112.42	132
2017	5.7	85.32	483

Payment of Dividends: On November 14, 2019, the Company announced that its board of directors approved an increase in the quarterly cash dividend from \$0.57 per share to \$0.64 per share of common stock. During the years ended December 31, 2019, 2018, and 2017 the Company paid \$379 million, \$337 million, and \$307 million, respectively, in cash dividends to holders of its common stock. On January 15, 2020, we paid an additional \$109 million in cash dividends to holders of our common stock.

Accumulated Other Comprehensive Loss

The following table displays the changes in Accumulated other comprehensive loss, including amounts reclassified into income, and the affected line items in the Consolidated Statements of Operations during the years ended December 31, 2019, 2018, and 2017:

	Years ended December 31		
	2019	2018	2017
Foreign Currency Translation Adjustments:			
Balance at beginning of period	\$ (444)	\$ (353)	\$ (494)
Other comprehensive income (loss) before reclassification adjustment	35	(94)	133
Tax benefit (expense)	(1)	3	8
Other comprehensive income (loss), net of tax	<u>34</u>	<u>(91)</u>	<u>141</u>
Balance at end of period	<u>\$ (410)</u>	<u>\$ (444)</u>	<u>\$ (353)</u>
Available-for-Sale Securities:			
Balance at beginning of period	\$ —	\$ 6	\$ —
Other comprehensive income (loss) before reclassification adjustment	—	(8)	8
Tax benefit (expense)	—	2	(2)
Other comprehensive income (loss), net of tax	<u>—</u>	<u>(6)</u>	<u>6</u>
Balance at end of period	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 6</u>
Defined Benefit Plans:			
Balance at beginning of period	\$ (2,321)	\$ (2,215)	\$ (1,823)
Other comprehensive income (loss) before reclassification adjustment	337	(200)	(260)
Tax benefit (expense)	(85)	46	(213)
Other comprehensive income (loss) before reclassification adjustment, net of tax	<u>252</u>	<u>(154)</u>	<u>(473)</u>
Reclassification adjustment - Actuarial net losses into Other income (expense)	65	76	65
Reclassification adjustment - Prior service benefits into Other income (expense)	(15)	(15)	(18)
Reclassification adjustment - Non-U.S. pension settlement loss into Other income (expense)	—	—	48
Tax benefit	<u>(11)</u>	<u>(13)</u>	<u>(14)</u>
Reclassification adjustments into Net earnings, net of tax	<u>39</u>	<u>48</u>	<u>81</u>
Other comprehensive income (loss), net of tax	<u>291</u>	<u>(106)</u>	<u>(392)</u>
Balance at end of period	<u>\$ (2,030)</u>	<u>\$ (2,321)</u>	<u>\$ (2,215)</u>
Total Accumulated other comprehensive loss	<u>\$ (2,440)</u>	<u>\$ (2,765)</u>	<u>\$ (2,562)</u>

During the year ended December 31, 2017, the Company reclassified \$270 million of stranded tax effects out of Accumulated other comprehensive loss and into Retained earnings. The stranded tax effects remained a component of Accumulated other comprehensive loss as a result of the remeasurement of our deferred tax assets related to our U.S. Pension Plans through the statement of operations, to the U.S. federal tax rate of 21%. As a result, stranded tax effects within Accumulated other comprehensive loss which would not be realized at the established historical tax rates have been adjusted through equity.

5. Debt and Credit Facilities

Long-Term Debt

<i>December 31</i>	2019	2018
2.0% senior convertible notes due 2020	\$ —	\$ 800
Term Loan due 2021	—	399
3.5% senior notes due 2021	—	397
3.75% senior notes due 2022	550	748
3.5% senior notes due 2023	597	596
4.0% senior notes due 2024	593	591
1.75% senior convertible notes due 2024	988	—
6.5% debentures due 2025	72	118
7.5% debentures due 2025	254	346
4.6% senior notes due 2028	691	690
6.5% debentures due 2028	24	36
4.6% senior notes due 2029	804	—
6.625% senior notes due 2037	37	54
5.5% senior notes due 2044	396	396
5.22% debentures due 2097	91	91
Other long-term debt	35	62
	5,132	5,324
Adjustments for unamortized gains on interest rate swap terminations	(3)	(4)
Less: current portion	(16)	(31)
Long-term debt	\$ 5,113	\$ 5,289

In February of 2018, the Company issued \$500 million of 4.60% senior notes due 2028. The Company recognized net proceeds of \$497 million after debt issuance costs and debt discounts. These proceeds were then used to make a \$500 million contribution to the Company's U.S. pension plan. In October of 2018, the Company issued an additional \$200 million on the outstanding 4.6% senior notes bringing the total outstanding principal to \$700 million. The Company recognized net proceeds of \$196 million after debt issuance costs and debt discounts.

To complete the acquisition of Avigilon during the quarter ended March 31, 2018, the Company entered into a term loan for \$400 million with a maturity date of March 26, 2021 (the "Term Loan"). The interest on the Term Loan was variable, indexed to the London Inter-bank Offered Rate ("LIBOR"), and paid monthly. The weighted average borrowing rate for amounts outstanding during the year ended December 31, 2019 was 3.68%. The Company repaid all amounts borrowed under the Term Loan during the year ended December 31, 2019.

In May of 2019, the Company issued \$650 million of 4.60% senior notes due 2029. The Company received proceeds of \$645 million after debt issuance costs and debt discounts. These proceeds were then used to repurchase \$614 million in principal amount of its outstanding long-term debt for a purchase price of \$654 million, excluding approximately \$3 million of accrued interest. After accelerating the amortization of debt issuance costs and debt discounts, the Company recognized a loss of approximately \$43 million related to this repurchase in Other within Other income (expense) in the Consolidated Statements of Operations.

In August of 2019, the Company issued a follow-on \$150 million to the outstanding 4.60% senior notes due 2029 bringing the total outstanding principal to \$800 million. The Company recognized net proceeds of \$159 million after debt premiums and debt issuance costs. These proceeds were then used to repurchase the remaining \$150 million principal amount of the 3.5% senior notes due 2021 for a purchase price of \$155 million, excluding approximately \$2 million of accrued interest. After accelerating the amortization of debt issuance costs, the Company recognized a loss of approximately \$7 million related to this repurchase in Other, net within Other income (expense) in the Consolidated Statements of Operations.

In 2015, the Company entered into an agreement with Silver Lake Partners to issue \$1.0 billion of 2.00% senior convertible notes which were scheduled to mature in September 2020 ("Senior Convertible Notes"). The notes became fully convertible as of August 25, 2017. The notes were convertible based on a conversion rate that may be adjusted for dividends declared and automatically adjusts the exercise price. In October of 2018, the Company settled \$200 million in principal amount of the Senior Convertible Notes for aggregate consideration of \$369 million in cash, inclusive of the conversion premium.

During the third quarter of 2019, the remaining notes were convertible based on a conversion rate of rate of 14.9186, adjusted for dividends declared, per \$1,000 principal amount (equal to a conversion price of \$67.03 per share). On September 5, 2019, the Company entered into an agreement with Silver Lake Partners to settle the remaining \$800 million in principal amount of the Senior Convertible Notes in two installments: (i) \$200 million of notes were repurchased during the third quarter for an

aggregate consideration of \$526 million in cash, inclusive of the conversion premium and (ii) \$600 million of principal paid in cash on October 7, 2019, and 5.5 million shares of common stock delivered on September 5, 2019 to settle the conversion premium. The Company recognized a gain of \$4 million from the extinguishment of the 2.00% senior convertible notes in Other, net within other income (expense) in the Consolidated Statement of Operations.

On September 5, 2019, the Company entered into an agreement with Silver Lake Partners to issue \$1.0 billion of 1.75% senior convertible notes which mature in September 2024 ("New Senior Convertible Notes"). Interest on these notes is payable semiannually. The notes are convertible anytime on or after two years from their issuance date, except in certain limited circumstances. The notes are convertible based on a conversion rate of 4.9140 per \$1,000 principal amount (which is equal to an initial conversion price of \$203.50 per share). In the event of conversion, the Company intends to settle the principal amount of the New Senior Convertible Notes in cash. The Company recorded a debt liability associated with the New Senior Convertible Notes by determining the fair value of an equivalent debt instrument without a conversion option. Using a discount rate of 2.45%, which was determined based on a review of relevant market data, the Company calculated the debt liability to be \$986 million, indicating a \$14 million discount to be amortized over the expected life of the debt instrument. The remaining proceeds of \$14 million were allocated to the conversion option and accordingly, increased Additional paid-in capital.

During the year ended December 31, 2019, the Company established an unsecured commercial paper program, backed by the revolving credit facility, under which we may issue unsecured commercial paper notes up to a maximum aggregate principal amount of \$2.2 billion outstanding at any one time. At maturity, the notes are paid back in full including the interest component. The notes are not redeemable prior to maturity. As of December 31, 2019, the Company had no outstanding debt under the commercial paper program. During the year ended December 31, 2019, the average borrowing rate was 2.54%.

Aggregate requirements for long-term debt maturities during the next five years are as follows: 2020—\$16 million; 2021—\$4 million; 2022—\$562 million; 2023—\$603 million; and 2024—\$1.6 billion.

Credit Facilities

As of December 31, 2019, the Company had a \$2.2 billion syndicated, unsecured revolving credit facility scheduled to mature in April 2022, which can be used for borrowing and letters of credit (the "2017 Motorola Solutions Credit Agreement"). As of March 31, 2018, the Company borrowed \$400 million under the facility to complete the Avigilon acquisition. The entire \$400 million was re-paid during the year ended December 31, 2018. The 2017 Motorola Solutions Credit Agreement includes a \$500 million letter of credit sub-limit with \$450 million of fronting commitments. Borrowings under the facility bear interest at the prime rate plus the applicable margin, or at a spread above the London Inter-bank Offered Rate ("LIBOR"), at the Company's option. An annual facility fee is payable on the undrawn amount of the credit line. The interest rate and facility fee are subject to adjustment if the Company's credit rating changes. The Company must comply with certain customary covenants including a maximum leverage ratio, as defined in the 2017 Motorola Solutions Credit Agreement. The Company was in compliance with its financial covenants as of December 31, 2019. There were no borrowings outstanding or letters of credit issued under the revolving credit facility as of December 31, 2019.

6. Risk Management

Foreign Currency Risk

At December 31, 2019, the Company had outstanding foreign exchange contracts with notional amounts totaling \$1.1 billion, compared to \$819 million outstanding at December 31, 2018. The Company does not believe these financial instruments should subject it to undue risk due to foreign exchange movements because gains and losses on these contracts should generally offset gains and losses on the underlying assets, liabilities and transactions.

The following table shows the Company's five largest net notional amounts of the positions to buy or sell foreign currency as of December 31, 2019 and the corresponding positions as of December 31, 2018:

<i>Net Buy (Sell) by Currency</i>	<i>Notional Amount</i>	
	2019	2018
Euro	\$ 134	\$ 89
British pound	107	139
Australian dollar	(123)	(105)
Chinese renminbi	(79)	(55)
Brazilian real	(47)	(41)

Net Investment Hedges

The Company uses foreign exchange forward contracts with contract terms of 12 to 15 months to hedge against the effect of the British pound and the Euro exchange rate fluctuations against the U.S. dollar on a portion of its net investment in certain European operations. The Company recognizes changes in the fair value of the net investment hedges as a component of foreign currency translation adjustments within other comprehensive income to offset a portion of the change in translated value of the net investment being hedged, until the investment is sold or liquidated. The Company has elected to exclude the difference between the spot rate and the forward rate of the forward contract from its assessment of hedge effectiveness. The

effect of the excluded components will be amortized on a straight-line basis and recognized through interest expense. As of December 31, 2019, the Company had €94 million of net investment hedges in certain Euro functional subsidiaries and £100 million of net investment hedges in certain British pound functional subsidiaries. During the year ended December 31, 2019, the Company amortized \$6 million of income from the excluded components through interest expense.

Counterparty Risk

The use of derivative financial instruments exposes the Company to counterparty credit risk in the event of non-performance by counterparties. However, the Company's risk is limited to the fair value of the instruments when the derivative is in an asset position. The Company actively monitors its exposure to credit risk. As of December 31, 2019, all of the counterparties have investment grade credit ratings. As of December 31, 2019, the credit risk with all counterparties was approximately \$4 million.

Derivative Financial Instruments

The following tables summarize the fair values and location in the Consolidated Balance Sheet of all derivative financial instruments held by the Company at December 31, 2019 and 2018:

	Fair Values of Derivative Instruments			
	Assets		Liabilities	
	Fair Value	Balance Sheet Location	Fair Value	Balance Sheet Location
December 31, 2019				
Derivatives designated as hedging instruments:				
Foreign exchange contracts	\$ 3	Other assets	\$ —	Accrued liabilities
Derivatives not designated as hedging instruments:				
Foreign exchange contracts	\$ 1	Other assets	\$ 5	Accrued liabilities

	Fair Values of Derivative Instruments			
	Assets		Liabilities	
	Fair Value	Balance Sheet Location	Fair Value	Balance Sheet Location
December 31, 2018				
Derivatives not designated as hedging instruments:				
Foreign exchange contracts	\$ 5	Other assets	\$ 4	Accrued liabilities

The following table summarizes the effect of derivatives designated as hedging instruments, for the years ended December 31, 2019, 2018 and 2017:

Gain (Loss) on Derivative Instruments	December 31			Financial Statement Location
	2019	2018	2017	
Foreign exchange contracts	\$ 8	\$ —	\$ (3)	Other comprehensive income (loss)

The following table summarizes the effect of derivatives not designated as hedging instruments, for the years ended December 31, 2019, 2018 and 2017:

Gain (Loss) on Derivative Instruments	December 31			Financial Statement Location
	2019	2018	2017	
Foreign exchange contracts	(8)	(14)	15	Other income (expense)

7. Income Taxes

Components of Income Tax Expense

Components of earnings before income taxes are as follows:

Years ended December 31	2019	2018	2017
United States	\$ 714	\$ 980	\$ 959
Other nations	287	122	117
	<u>\$ 1,001</u>	<u>\$ 1,102</u>	<u>\$ 1,076</u>

Components of income tax expense (benefit) are as follows:

Years ended December 31	2019	2018	2017
United States	\$ 94	\$ 16	\$ 43
Other nations	93	88	75
States (U.S.)	27	20	9
Current income tax expense	<u>214</u>	<u>124</u>	<u>127</u>
United States	(61)	39	1,078
Other nations	(22)	(18)	(8)
States (U.S.)	(1)	(12)	30
Deferred income tax expense (benefit)	<u>(84)</u>	<u>9</u>	<u>1,100</u>
Total income tax expense	<u>\$ 130</u>	<u>\$ 133</u>	<u>\$ 1,227</u>

Differences between income tax expense computed at the U.S. federal statutory tax rate of 21% and income tax expense as reflected in the Consolidated Statements of Operations are as follows:

Years ended December 31	2019		2018		2017	
Income tax expense at statutory rate	\$ 210	21.0 %	\$ 231	21.0 %	\$ 377	35.0 %
State income taxes, net of federal benefit	32	3.2 %	11	1.0 %	39	3.6 %
U.S. tax on undistributed non-U.S. earnings	6	0.6 %	6	0.5 %	20	1.9 %
Non-U.S. tax expense (benefit) on non-U.S. earnings	4	0.4 %	7	0.6 %	(28)	(2.6)%
U.S. tax reform	—	— %	(79)	(7.2)%	874	81.2 %
Section 199 deduction	—	— %	—	— %	(18)	(1.7)%
Loss on the sale of investment	—	— %	—	— %	(21)	(2.0)%
Reserve for uncertain tax positions	(3)	(0.3)%	2	0.2 %	3	0.3 %
Other provisions	(3)	(0.3)%	8	0.7 %	7	0.7 %
Research credits	(10)	(1.0)%	(9)	(0.8)%	(4)	(0.4)%
Stock compensation	(27)	(2.7)%	(30)	(2.7)%	(14)	(1.3)%
Valuation allowances	(79)	(7.9)%	(14)	(1.3)%	(8)	(0.7)%
	<u>\$ 130</u>	<u>13.0 %</u>	<u>\$ 133</u>	<u>12.0 %</u>	<u>\$ 1,227</u>	<u>114.0 %</u>

The effective tax rate for 2019 is below the current U.S. federal statutory rate of 21% primarily due to the partial release of the valuation allowance recorded on the U.S. foreign tax credit carryforward and the recognition of excess tax benefits of share-based compensation.

Deferred tax balances that were recorded within Accumulated other comprehensive loss in the Company's Consolidated Balance Sheet, rather than Income tax expense, are the result of retirement benefit adjustments, currency translation adjustments, and fair value adjustments to available-for-sale securities. The adjustments were charges of \$97 million for the year ended December 31, 2019, charges of \$38 million for the year ended December 31, 2018 and benefits of \$49 million for the years ended December 31, 2017.

The Company evaluates its permanent reinvestment assertions with respect to foreign earnings at each reporting period and generally, except for certain earnings that the Company intends to reinvest indefinitely due to the capital requirements of the foreign subsidiaries or due to local country restrictions, accrues for the U.S. federal and foreign income tax applicable to the earnings. As a result of the 2017 U.S. Tax Cuts and Jobs Act ("the Tax Act"), dividends from foreign subsidiaries are now exempt or the earnings have been previously subject to U.S. tax. As a result, the tax accrual for undistributed foreign earnings is limited

primarily to foreign withholding taxes and tax on inherent capital gains that would result from distribution of foreign earnings which are not permanently reinvested, and such earnings may be distributed without an additional charge.

Undistributed foreign earnings that the Company intends to reinvest indefinitely, aggregate to \$1.7 billion at December 31, 2019. It is impracticable to determine the exact amount of unrecognized deferred tax liabilities on such earnings; however, due to the above-mentioned changes made under the Tax Act, the Company believes that the additional U.S. or foreign income tax charge with respect to such earnings, if distributed, would be immaterial.

Under the Tax Act, the Company is now subjected to the global intangible low-taxed income ("GILTI") provision which requires an incremental U.S. tax on foreign income. The Company is allowed to make an accounting policy election of either recognizing deferred taxes for temporary differences expected to reverse as GILTI in future years or recognizing such taxes as a current period expense when incurred. The Company has elected to treat the tax effect of GILTI as a current period expense when incurred. As such, there are no deferred tax assets or liabilities with respect to the GILTI provisions.

Gross deferred tax assets were \$2.0 billion for both December 31, 2019 and December 31, 2018. Deferred tax assets, net of valuation allowances, were \$1.6 billion at December 31, 2019 and December 31, 2018. Gross deferred tax liabilities were \$854 million and \$771 million at December 31, 2019 and 2018, respectively.

Significant components of deferred tax assets (liabilities) are as follows:

<i>December 31</i>	2019	2018
Inventory	\$ 45	\$ 28
Accrued liabilities and allowances	65	84
Employee benefits	392	402
Capitalized items	(129)	(68)
Tax basis differences on investments	2	(2)
Depreciation tax basis differences on fixed assets	68	47
Undistributed non-U.S. earnings	(27)	(26)
Tax attribute carryforwards	471	613
Business reorganization	10	10
Warranty and customer liabilities	33	19
Deferred revenue and costs	165	147
Valuation allowances	(349)	(461)
Operating lease assets	(125)	—
Operating lease liabilities	139	—
Other	(1)	(9)
	<u>\$ 759</u>	<u>\$ 784</u>

At December 31, 2019, 2018, and 2017 the Company had valuation allowances of \$349 million, \$461 million and \$604 million, respectively, against its deferred tax assets, including \$85 million, \$86 million and \$90 million, respectively, relating to deferred tax assets for non-U.S. subsidiaries. The Company's U.S. valuation allowance decreased \$111 million during 2019 primarily due to a change in the Company's ability to utilize U.S. foreign tax credits and the expiration of tax attributes. The Company's U.S. valuation allowance decreased \$139 million during 2018 as a result of changes to the 2017 Tax Act enactment-date provision amounts and foreign tax credits expiring in 2018. The Company's U.S. valuation increased \$481 million during 2017 primarily related to the new limitations imposed on the utilization of foreign tax credits under the Tax Act. The Company believes that the remaining deferred tax assets are more-likely-than-not to be realizable based on estimates of future taxable income and the implementation of tax planning strategies.

Tax attribute carryforwards are as follows:

<i>December 31, 2019</i>	<i>Gross Tax Loss</i>	<i>Tax Effected</i>	<i>Expiration Period</i>
United States:			
U.S. tax losses	\$ 73	\$ 15	2022-2036
Foreign tax credits	—	300	2020-2023
General business credits	—	1	2026-2037
State tax losses	—	28	2019-2030
State tax credits	—	20	2019-2031
Non-U.S. subsidiaries:			
Japan tax losses	104	32	2020-2027
Germany tax losses	10	3	Unlimited
United Kingdom tax losses	84	14	Unlimited
Singapore tax losses	17	3	Unlimited
Canada tax losses	16	4	2034-2038
Other subsidiaries tax losses	102	17	Various
Spain tax credits	—	24	2020-2028
Other subsidiaries tax credits	—	10	Various
		\$ 471	

The Company had unrecognized tax benefits of \$70 million and \$76 million at December 31, 2019 and December 31, 2018, respectively, of which approximately \$66 million and \$30 million, if recognized, would have affected the effective tax rate for 2019 and 2018, respectively.

A roll-forward of unrecognized tax benefits is as follows:

	2019	2018
Balance at January 1	\$ 76	\$ 76
Additions based on tax positions related to current year	4	4
Additions for tax positions of prior years	3	1
Reductions for tax positions of prior years	(8)	—
Settlements and agreements	(1)	(2)
Lapse of statute of limitations	(4)	(3)
Balance at December 31	\$ 70	\$ 76

The Company recorded \$53 million and \$51 million of unrecognized tax benefits in other liabilities at December 31, 2019 and December 31, 2018, respectively.

The Internal Revenue Service ("IRS") is currently examining the Company's 2014 and 2015 tax years. The Company also has several state and non-U.S. audits pending. A summary of open tax years by major jurisdiction is presented below:

<i>Jurisdiction</i>	<i>Tax Years</i>
United States	2014-2019
Australia	2015-2019
Canada	2015-2019
Germany	2014-2019
India	1997-2019
Israel	2016-2019
Poland	2015-2019
Malaysia	2012-2019
United Kingdom	2018-2019

Although the final resolution of the Company's global tax disputes is uncertain, based on current information, in the opinion of the Company's management, the ultimate disposition of these matters will not have a material adverse effect on the Company's consolidated financial position or liquidity. However, an unfavorable resolution of the Company's global tax disputes could have a material adverse effect on the Company's results of operations in the periods, and as of the dates, on which the matters are ultimately resolved.

Based on the potential outcome of the Company's global tax examinations, the expiration of the statute of limitations for specific jurisdictions, or the continued ability to satisfy tax incentive obligations, it is reasonably possible that the unrecognized tax benefits will change within the next twelve months. The associated net tax impact on the effective tax rate, exclusive of valuation allowance changes, is estimated to be in the range of a \$7 million tax charge to a \$27 million tax benefit, with cash payments not to exceed \$20 million.

At December 31, 2019, the Company had \$29 million accrued for interest and \$16 million accrued for penalties on unrecognized tax benefits. At December 31, 2018, the Company had \$30 million and \$17 million accrued for interest and penalties, respectively, on unrecognized tax benefits. The Company's policy is to classify the interest and penalty as a component of interest expense and other expense, respectively.

8. Retirement Benefits

Pension and Postretirement Health Care Benefits Plans

U.S. Pension Benefit Plans

The Company's non-contributory U.S. defined benefit plan (the "U.S. Pension Plan") provides benefits to U.S. employees hired prior to January 1, 2005, who became eligible after one year of service. The Company also has an additional non-contributory supplemental retirement benefit plan, the Motorola Supplemental Pension Plan ("MSPP"), which provided supplemental benefits to individuals by replacing benefits that are lost by such individuals under the retirement formula due to application of the limitations imposed by the Internal Revenue Code. In December 2008, the Company amended the U.S. Pension Plan and MSPP (together the "U.S. Pension Plans") such that, effective March 1, 2009: (i) no participant shall accrue any benefit or additional benefit on or after March 1, 2009, and (ii) no compensation increases earned by a participant on or after March 1, 2009 shall be used to compute any accrued benefit.

In December 2019, the Company completed a voluntary lump-sum election window offered to certain participants of the U.S. Pension Plan. The aggregate dollar amount of lump-sum elections by approximately 6,300 participants was \$836 million, and accordingly, this amount was paid out of plan assets prior to December 31, 2019. These actions resulted in a reduction of our projected benefit obligation, absent of actuarial losses experienced from decreases in interest rates, of \$1.0 billion and a settlement loss of \$359 million recorded within "Other charges" on the Consolidated Statement of Operations.

Postretirement Health Care Benefits Plan

Certain health care benefits are available to eligible domestic employees hired prior to January 1, 2002 and meeting certain age and service requirements upon termination of employment (the "Postretirement Health Care Benefits Plan"). As of January 1, 2005, the Postretirement Health Care Benefits Plan was closed to new participants. After a series of amendments, all eligible retirees under the age of 65 will be provided an annual subsidy per household, versus per individual, toward the purchase of their own health care coverage from private insurance companies and for the reimbursement of eligible health care expenses. All eligible retirees over the age of 65 are entitled to one fixed-rate subsidy capped at \$560 per participant.

These series of amendments to the Postretirement Health Care Benefits Plan resulted in a reduction in the postretirement benefit obligation. A substantial portion of the decrease related to prior service credits and will be amortized as a credit to the Consolidated Statements of Operations over approximately five years, or the period in which the remaining employees eligible for the plan qualify for benefits under the plan.

Non U.S. Pension Benefit Plans

The Company also provides defined benefit plans which cover non-U.S. employees in certain jurisdictions, principally the U.K. and Germany (the "Non-U.S. Pension Benefit Plans"). Other pension plans outside of the U.S. are not material to the Company either individually or in the aggregate.

In June 2015, the Company amended its Non-U.S. defined benefit plan within the United Kingdom by closing future benefit accruals to all participants effective December 31, 2015.

During the years ended December 31, 2017, the Company offered lump-sum settlements to certain participants in the Non-U.S. defined benefit plan within the United Kingdom. The lump-sum settlements were targeted to certain participants who had accrued a pension benefit, but had not yet started receiving pension benefit payments. As a result of the actions taken, the Company recorded settlement losses of \$48 million in 2017, respectively, which are recorded within Other income (expense) within the Consolidated Statement of Operations.

During 2019, the Motorola Solutions United Kingdom defined benefit plan trustees decided to exercise their discretion on early retirement benefit reductions. This action resulted in a reduction of the projected benefit obligation of approximately \$83 million related to prior service credits that will be amortized as a credit to the Consolidated Statements of Operations over approximately twenty-nine years, or the period in which the remaining employees eligible for the plan qualify for benefits under the plan.

Net Periodic Cost (Benefit)

The net periodic cost (benefit) for pension and Postretirement Health Care Benefits plans was as follows:

Years ended December 31	U.S. Pension Benefit Plans			Non U.S. Pension Benefit Plans			Postretirement Health Care Benefits Plan		
	2019	2018	2017	2019	2018	2017	2019	2018	2017
Service cost	\$ —	\$ —	\$ —	\$ 2	\$ 3	\$ 3	\$ —	\$ —	\$ —
Interest cost	202	186	185	36	38	40	3	2	3
Expected return on plan assets	(275)	(270)	(229)	(85)	(92)	(92)	(10)	(10)	(10)
Amortization of:									
Unrecognized net loss	46	57	44	15	15	16	4	4	5
Unrecognized prior service benefit	—	—	—	—	—	—	(15)	(15)	(18)
Settlement loss	359	—	—	—	—	48	—	—	—
Net periodic cost (benefit)	\$ 332	\$ (27)	\$ —	\$ (32)	\$ (36)	\$ 15	\$ (18)	\$ (19)	\$ (20)

The status of the Company's plans is as follows:

	U.S. Pension Benefit Plans		Non U.S. Pension Benefit Plans		Postretirement Health Care Benefits Plan	
	2019	2018	2019	2018	2019	2018
Change in benefit obligation:						
Benefit obligation at January 1	\$ 4,864	\$ 5,235	\$ 1,654	\$ 1,844	\$ 72	\$ 85
Service cost	—	—	2	3	—	—
Interest cost	202	186	36	38	3	2
Plan amendments	—	—	(83)	10	—	—
Actuarial loss (gain)	609	(452)	207	(97)	4	(8)
Foreign exchange valuation adjustment	—	—	44	(98)	—	—
Benefit payments	(948)	(105)	(46)	(46)	(6)	(7)
Benefit obligation at December 31	\$ 4,727	\$ 4,864	\$ 1,814	\$ 1,654	\$ 73	\$ 72
Change in plan assets:						
Fair value at January 1	\$ 3,673	\$ 3,614	\$ 1,438	\$ 1,590	\$ 133	\$ 151
Return on plan assets	873	(339)	188	(28)	33	(12)
Company contributions	3	503	8	8	—	—
Foreign exchange valuation adjustment	—	—	53	(88)	—	—
Benefit payments	(948)	(105)	(46)	(44)	(6)	(6)
Fair value at December 31	\$ 3,601	\$ 3,673	\$ 1,641	\$ 1,438	\$ 160	\$ 133
Funded status of the plan	\$ (1,126)	\$ (1,191)	\$ (173)	\$ (216)	\$ 87	\$ 61
Unrecognized net loss	1,935	2,329	648	543	42	74
Unrecognized prior service benefit	—	—	(84)	11	(20)	(35)
Prepaid pension cost	\$ 809	\$ 1,138	\$ 391	\$ 338	\$ 109	\$ 100
Components of prepaid (accrued) pension cost:						
Current benefit liability	\$ (3)	\$ (3)	\$ —	\$ —	\$ —	\$ —
Non-current benefit liability	(1,123)	(1,188)	(299)	(265)	—	—
Non-current benefit asset	—	—	126	49	87	61
Deferred income taxes	463	561	60	55	9	10
Accumulated other comprehensive loss	1,472	1,768	504	499	13	29
Prepaid pension cost	\$ 809	\$ 1,138	\$ 391	\$ 338	\$ 109	\$ 100

The benefit obligation and plan assets for the Company's U.S. Pension Benefit Plan and Postretirement Health Care Benefit Plan are measured as of December 31, 2019. The Company utilizes a five-year, market-related asset value method of recognizing asset related gains and losses.

Under relevant accounting rules, when almost all of the plan participants are considered inactive, the amortization period for certain unrecognized gains and losses changes from the average remaining service period to the average remaining lifetime of the participants. As such, the Company amortizes gains and losses over periods ranging from ten to thirty-one years. Prior service costs will be amortized over periods ranging from two to five years. Benefits under all pension plans are valued based on the projected unit credit cost method.

The net periodic cost for 2020 will include amortization of the unrecognized net loss for the U.S. Pension Benefit Plans and Non U.S. Pension Benefit Plans, currently included in Accumulated other comprehensive loss, of \$58 million and \$12 million, respectively. It is estimated that the 2020 net periodic expense for the Postretirement Health Care Benefits Plan will include amortization of net periodic benefits of \$11 million, comprised of unrecognized net losses and prior service benefits, currently included in Accumulated other comprehensive loss.

Actuarial Assumptions

Certain actuarial assumptions such as the discount rate and the long-term rate of return on plan assets have a significant effect on the amounts reported for net periodic cost and the benefit obligation. The assumed discount rates reflect the prevailing market rates of a universe of high-quality, non-callable, corporate bonds currently available that, if the obligation were settled at the measurement date, would provide the necessary future cash flows to pay the benefit obligation when due. The long-term rates of return on plan assets represent an estimate of long-term returns on an investment portfolio consisting of a mixture of equities, fixed income, cash and other investments similar to the actual investment mix. In determining the long-term return on plan assets, the Company considers long-term rates of return on the asset classes (both historical and forecasted) in which the Company expects the plan funds to be invested.

The Company uses a full yield curve approach to estimate interest and service cost components of net periodic cost (benefit) for defined pension benefit pension and other post-retirement benefit plans. The full yield curve approach requires the application of the specific spot rate along the yield curve used in the determination of the projected benefit obligation to the relevant projected cash flows.

Weighted average actuarial assumptions used to determine costs for the plans at the beginning of the fiscal year were as follows:

	U.S. Pension Benefit Plans		Non U.S. Pension Benefit Plans		Postretirement Health Care Benefits Plan	
	2019	2018	2019	2018	2019	2018
Discount rate	4.25%	3.57%	2.37%	2.08%	3.85%	3.16%
Investment return assumption	6.85%	6.95%	5.23%	5.18%	6.90%	7.00%

Weighted average actuarial assumptions used to determine benefit obligations for the plans were as follows:

	U.S. Pension Benefit Plans		Non U.S. Pension Benefit Plans		Postretirement Health Care Benefits Plan	
	2019	2018	2019	2018	2019	2018
Discount rate	3.32%	4.47%	1.82%	2.67%	3.15%	4.29%
Future compensation increase rate	n/a	n/a	0.52%	0.52%	n/a	n/a

The accumulated benefit obligations for the plans were as follows:

December 31	U.S. Pension Benefit Plans		Non U.S. Pension Benefit Plans	
	2019	2018	2019	2018
Accumulated benefit obligation	\$ 4,727	\$ 4,864	\$ 1,809	\$ 1,649

The Company used "Mortality Improvement Scale MP-2018" to calculate the 2019 U.S. projected benefit obligations and the "Mortality Improvement Scale MP-2017" to calculate the 2018 U.S. projected benefit obligations.

Investment Policy

The individual plans have adopted an investment policy designed to meet or exceed the expected rate of return on plan assets assumption. To achieve this, the plans retain professional advisors and investment managers that invest plan assets into various classes including, but not limited to, equity and fixed income securities, cash, cash equivalents, hedge funds, infrastructure/utilities, insurance contracts, leveraged loan funds and real estate. The Company uses long-term historical actual return experience with consideration of the expected investment mix of the plans' assets, as well as future estimates of long-term investment returns, to develop its expected rate of return assumption used in calculating the net periodic cost. The individual plans have target mixes for these asset classes, which are readjusted periodically when an asset class weighting deviates from the target mix, with the goal of achieving the required return at a reasonable risk level.

The weighted-average asset allocations by asset categories for all pension and the Postretirement Health Care Benefits plans were as follows:

<i>December 31</i>	<i>All Pension Benefit Plans</i>		<i>Postretirement Health Care Benefits Plan</i>	
	2019	2018	2019	2018
Target Mix:				
Equity securities	25%	30%	28%	32%
Fixed income securities	56%	51%	52%	49%
Cash and other investments	19%	19%	20%	19%
Actual Mix:				
Equity securities	24%	28%	29%	31%
Fixed income securities	57%	50%	54%	48%
Cash and other investments	19%	22%	17%	21%

Within the equity securities asset class, the investment policy provides for investments in a broad range of publicly-traded securities including both domestic and foreign equities. Within the fixed income securities asset class, the investment policy provides for investments in a broad range of publicly-traded debt securities including: U.S. treasury issues, corporate debt securities, mortgage and asset-backed securities, as well as foreign debt securities. In the cash and other investments asset class, investments may include, but are not limited to: cash, cash equivalents, commodities, hedge funds, infrastructure/utilities, insurance contracts, leveraged loan funds and real estate.

Cash Funding

The Company made \$3 million and \$503 million of contributions to its U.S. Pension Benefit Plans during 2019 and 2018, respectively. The Company contributed \$8 million to its Non U.S. Pension Benefit Plans during 2019 and 2018. The Company made no contributions to its Postretirement Health Care Benefits Plan in 2019 or 2018.

Expected Future Benefit Payments

The following benefit payments are expected to be paid:

<i>Year</i>	<i>U.S. Pension Benefit Plans</i>	<i>Non U.S. Pension Benefit Plans</i>	<i>Postretirement Health Care Benefits Plan</i>
2020	\$ 133	\$ 48	\$ 7
2021	150	48	6
2022	169	49	6
2023	184	51	5
2024	201	52	5
2025-2029	1,261	276	22

Other Benefit Plans

Split-Dollar Life Insurance Arrangements

The Company maintains a number of endorsement split-dollar life insurance policies on now-retired officers under a frozen plan. The Company had purchased the life insurance policies to insure the lives of employees and then entered into a separate agreement with the employees that split the policy benefits between the Company and the employee. Motorola Solutions owns the policies, controls all rights of ownership, and may terminate the insurance policies. To effect the split-dollar arrangement, Motorola Solutions endorsed a portion of the death benefits to the employee and upon the death of the employee, the employee's beneficiary typically receives the designated portion of the death benefits directly from the insurance company and the Company receives the remainder of the death benefits. It is currently expected that minimal cash payments will be required to fund these policies.

The net periodic pension cost for these split-dollar life insurance arrangements was \$5 million for the years ended December 31, 2019, 2018 and 2017. The Company has recorded a liability representing the actuarial present value of the future death benefits as of the employees' expected retirement date of \$67 million and \$61 million as of December 31, 2019 and December 31, 2018, respectively.

Deferred Compensation Plan

The Company maintains a deferred compensation plan ("the Plan") for certain eligible participants. Under the Plan, participants may elect to defer base salary and cash incentive compensation in excess of 401(k) plan limitations. Participants under the Plan may choose to invest their deferred amounts in the same investment alternatives available under the Company's 401(k) plan. The Plan also allows for Company matching contributions for the following: (i) the first 4% of compensation deferred under the Plan, subject to a maximum of \$50,000 for board officers, (ii) lost matching amounts that would have been made under the 401(k) plan if participants had not participated in the Plan, and (iii) discretionary amounts as approved by the Compensation and Leadership Committee of the board of directors.

Defined Contribution Plan

The Company has various defined contribution plans, in which all eligible employees may participate. In the U.S., the 401(k) plan is a contributory plan. Matching contributions are based upon the amount of the employees' contributions. The Company's expenses for material defined contribution plans for the years ended December 31, 2019, 2018 and 2017 were \$32 million, \$31 million and \$28 million, respectively.

Under the 401(k) plan, the Company may make an additional discretionary matching contribution to eligible employees. For the years ended December 31, 2019, 2018, and 2017 the Company made no discretionary contributions.

9. Share-Based Compensation and Other Incentive Plans

The Company grants options and stock appreciation rights to acquire shares of common stock to certain employees and to existing option holders of acquired companies in connection with the merging of option plans following an acquisition. Each option and stock appreciation right granted has an exercise price of no less than 100% of the fair market value of the common stock on the date of the grant. The awards have a contractual life of five to ten years and vest over two to three years. In conjunction with a change in control, stock options and stock appreciation rights assumed or replaced with comparable stock options or stock appreciation rights only become exercisable if the holder is also involuntarily terminated (for a reason other than cause) or resigns for good reason within 24 months of a change in control.

Restricted stock ("RS") grants consist of shares or the rights to shares of the Company's common stock which are awarded to certain employees. The grants are restricted in such that they are subject to vesting conditions; however, restricted stock holders have voting rights, and the rights to earn dividends on unvested shares.

Restricted stock unit ("RSU") grants consist of shares or the rights to shares of the Company's common stock which are awarded to certain employees and non-employee directors. The grants are restricted such that they are subject to substantial risk of forfeiture and to restrictions on their sale or other transfer by the employee. In conjunction with a change in control, shares of RSUs assumed or replaced with comparable shares of RSUs will only have the restrictions lapse if the holder is also involuntarily terminated (for a reason other than cause) or resigns for good reason within 24 months of a change in control.

Performance-based stock options ("performance options"), market stock units ("MSUs"), and performance stock units ("PSUs") have been granted to certain Company executive officers. Performance options have a three-year performance period and are granted as a target number of units subject to adjustment based on company performance. Each performance option granted has an exercise price of no less than 100% of the fair market value of the common stock on the date of the grant. The awards have a contractual life of ten years. Shares ultimately issued for performance option awards granted are based on the actual total shareholder return ("TSR") compared to the S&P 500 over the three-year performance period based on a payout factor that corresponds to actual TSR results as established at the date of grant. Vesting occurs on the third anniversary of the grant date. Under the terms of the MSUs, vesting is conditioned upon continuous employment until the vesting date and the payout factor is at least 60% of the share price on the award date. The payout factor is the share price on vesting date divided by share price on award date, with a maximum of 200%. The share price used in the payout factor is calculated using an average of the closing prices on the grant or vesting date, and the 30 calendar days immediately preceding the grant or vesting date. Vesting occurs ratably over three years. PSUs have been granted as a portion of the Long Range Incentive Plan ("LRIP") awards issued to certain Company executive officers. The PSUs have a three-year performance period and were granted at a target number of units subject to adjustment based on company performance. The number of PSUs earned will be based on the actual total shareholder return ("TSR") compared to the S&P 500 over the three-year performance period.

On August 25, 2015, in conjunction with the issuance of the Senior Convertible Notes, and on March 9, 2017, the Company approved grants of performance-contingent stock options ("PCSOs") to certain executive officers which were fully vested as of December 31, 2019. The August 25, 2015 awards have a seven-year term and a per share exercise price of \$68.50. The March 9, 2017 awards have a five-and-a-half-year term and a per share exercise price of \$81.37.

The employee stock purchase plan allows eligible participants to purchase shares of the Company's common stock through payroll deductions of up to 20% of eligible compensation on an after-tax basis. Plan participants cannot purchase more than \$25,000 of stock in any calendar year. The price an employee pays per share is 85% of the lower of the fair market value of the Company's stock on the close of the first trading day or last trading day of the purchase period. The plan has two purchase periods, the first from October 1 through March 31 and the second from April 1 through September 30. For the years ended December 31, 2019, 2018 and 2017, employees purchased 0.6 million, 0.8 million and 0.8 million shares, respectively, at purchase prices of \$108.96 and \$120.12, \$72.96 and \$88.84, and \$63.96 and \$72.11, respectively.

Significant Assumptions Used in the Estimate of Fair Value

The Company calculates the value of each employee stock option, estimated on the date of grant, using the Black-Scholes option pricing model. The weighted-average estimated fair value of employee stock options granted during 2019, 2018 and 2017 was \$29.14, \$23.31 and \$15.16, respectively, using the following weighted-average assumptions:

	2019	2018	2017
Expected volatility	23.8%	24.7%	24.0%
Risk-free interest rate	2.3%	2.7%	2.1%
Dividend yield	2.5%	2.4%	3.5%
Expected life (years)	6.0	5.9	5.9

The Company calculates the value of each performance option, MSU, PSU, and PCSO using a Monte Carlo simulation option pricing model, estimated on the date of grant. The fair values of performance options, MSUs, and PSUs granted during 2019 were \$46.15, \$138.00 and \$203.61, respectively. The fair values of performance options and MSUs granted during 2018 were \$42.19 and \$125.33, respectively. The fair value of performance options, MSUs, and PCSOs granted during 2017 was \$21.47, \$85.74 and \$7.76, respectively. The following assumptions were used for the calculations.

	2019 Performance Options	2018 Performance Options	2017 Performance Options
Expected volatility of common stock	22.4%	25.0%	24.1%
Expected volatility of the S&P 500	25.1%	25.3%	25.6%
Risk-free interest rate	2.3%	2.7%	2.4%
Dividend yield	2.7%	3.1%	3.7%
Expected life (years)	6.5	6.5	6.5

	2019 Market Stock Units	2018 Market Stock Units	2017 Market Stock Units
Expected volatility of common stock	22.4%	25.0%	24.1%
Risk-free interest rate	2.2%	2.4%	1.7%
Dividend yield	2.0%	2.2%	2.9%

	2019 PSUs
Expected volatility of common stock	20.6%
Expected volatility of the S&P 500	25.0%
Risk-free interest rate	2.2%
Dividend yield	1.6%
Expected life (years)	3

	2017 PCSOs	2015 PCSOs
Expected volatility	24.1%	26.0%
Risk-free interest rate	1.8%	1.5%
Dividend yield	3.0%	3.1%
Expected life (years)	3.5	5

The Company uses the implied volatility for traded options on the Company's stock as the expected volatility assumption in the valuation of stock options, performance options, MSUs, PSUs, and PCSOs. The selection of the implied volatility approach was based upon the availability of actively-traded options on the Company's stock and the Company's assessment that implied volatility is more representative of future stock price trends than historical volatility. At the conclusion of each three-year PSU and performance option cycle, the Company uses the historical volatility as the expected volatility to calculate the actual TSR compared to the S&P 500.

The risk-free interest rate assumption is based upon the average daily closing rates during the year for U.S. Treasury notes that have a life which approximates the expected life of the grant. The dividend yield assumption is based on the Company's future expectation of dividend payouts. The expected life represents the average of the contractual term of the options and the weighted average vesting period for all option tranches.

The Company has applied forfeiture rates, estimated based on historical data, of 10% to the stock option fair values calculated by the Black-Scholes option pricing model and 15% to RSUs. These estimated forfeiture rates are applied to grants based on their remaining vesting term and may be revised in subsequent periods if actual forfeitures differ from these estimates.

The following table summarizes information about the total stock options outstanding and exercisable under all stock option plans, at December 31, 2019 (in thousands, except exercise price and years):

Exercise price range	Options Outstanding			Options Exercisable		
	No. of options	Wtd. avg. Exercise Price	Wtd. avg. contractual life (in yrs.)	No. of options	Wtd. avg. Exercise Price	Wtd. avg. contractual life (in yrs.)
Under \$50	1,192	\$ 38	1	1,186	\$ 39	1
\$51-\$60	646	54	3	646	54	3
\$61-\$70	1,610	68	3	1,610	68	3
\$71-\$80	489	72	6	480	71	6
\$81-\$90	433	82	7	70	83	7
\$91-\$100	8	93	7	5	93	8
\$101 and over	773	126	9	53	114	8
	<u>5,151</u>			<u>4,050</u>		

As of December 31, 2019, the weighted average contractual life for options outstanding and exercisable was four and three years, respectively.

Current Year Activity

Total share-based compensation activity was as follows (in thousands, except exercise price):

	Stock Options		Restricted Stock Units		Restricted Stock	
	No. of Options Outstanding	Wtd. Avg. Exercise Price of Shares	No. of Non-Vested Awards	Wtd. Avg. Grant Date Fair Value	No. of Non-Vested Awards	Wtd. Avg. Grant Date Fair Value
Balance as of January 1, 2019	3,411	\$ 57	1,097	\$ 84	—	\$ —
Granted	266	137	591	132	440	119
Releases/Exercised	(650)	56	(566)	82	—	—
Forfeited/Canceled	(44)	107	(75)	104	—	—
Balance as of December 31, 2019	<u>2,983</u>	\$ 63	<u>1,047</u>	\$ 111	<u>440</u>	\$ 119
Awards exercisable	2,460	52	—	—	—	—

	Performance Options*		Market Stock Units		Performance Stock Units	
	No. of Options Outstanding	Wtd. Avg. Exercise Price of Shares	No. of Non-Vested Awards	Wtd. Avg. Grant Date Fair Value	No. of Non-Vested Awards	Wtd. Avg. Grant Date Fair Value
Balance as of January 1, 2019	2,159	\$ 74	122	\$ 102	—	\$ —
Granted	158	139	53	138	84	204
Releases/Exercised	(512)	74	(105)	91	(57)	137
Adjustment for payout factor	363	71	42	86	—	—
Balance as of December 31, 2019	<u>2,168</u>	<u>\$ 78</u>	<u>112</u>	<u>\$ 123</u>	<u>27</u>	<u>\$ 204</u>
Awards exercisable	1,590	69	—	—	—	—

* Inclusive of PCSO awards

At December 31, 2019 and 2018, 7.2 million and 8.6 million shares, respectively, were available for future share-based award grants under the current share-based compensation plan, covering all equity awards to employees and non-employee directors.

Total Share-Based Compensation Expense

Compensation expense for the Company's share-based compensation plans was as follows:

Years ended December 31	2019	2018	2017
Share-based compensation expense included in:			
Costs of sales	\$ 14	\$ 11	\$ 9
Selling, general and administrative expenses	62	45	43
Research and development expenditures	42	17	14
Share-based compensation expense included in Operating earnings	<u>118</u>	<u>73</u>	<u>66</u>
Tax benefit	22	18	22
Share-based compensation expense, net of tax	<u>\$ 96</u>	<u>\$ 55</u>	<u>\$ 44</u>
Decrease in basic earnings per share	\$ (0.57)	\$ (0.34)	\$ (0.27)
Decrease in diluted earnings per share	<u>\$ (0.55)</u>	<u>\$ (0.32)</u>	<u>\$ (0.27)</u>

At December 31, 2019, the Company had unrecognized compensation expense related to all share based awards of \$122 million, net of estimated forfeitures, expected to be recognized over the weighted average period of approximately three years and \$5 million of unrecognized compensation expense related to the employee stock purchase plan that will be recognized over the remaining purchase period. The aggregate fair value of outstanding share based awards as of December 31, 2019 was \$264 million.

Cash received from stock option exercises and the employee stock purchase plan was \$114 million, \$168 million, and \$82 million for the years ended December 31, 2019, 2018, and 2017, respectively. The total intrinsic value of options exercised during the years ended December 31, 2019, 2018, and 2017 was \$113 million, \$125 million, and \$31 million, respectively. The aggregate intrinsic value for options outstanding and exercisable as of December 31, 2019 was \$471 million and \$415 million, respectively, based on a December 31, 2019 stock price of \$160.96 per share.

Motorola Solutions Incentive Plans

The Company's incentive plans provide eligible employees with an annual payment, calculated as a percentage of an employee's eligible earnings, in the year after the close of the current calendar year if specified business goals and individual performance targets are met. The expense for awards under these incentive plans for the years ended December 31, 2019, 2018 and 2017 was \$146 million, \$143 million and \$122 million, respectively.

Long-Range Incentive Plan

The Long-Range Incentive Plan ("LRIP") rewards elected officers for the Company's achievement of specified business goals during the period, based on a single performance objective measured over a three-year period. The expense for LRIP for the years ended December 31, 2019, 2018 and 2017 was \$21 million, \$31 million and \$9 million, respectively.

10. Fair Value Measurements

The Company holds certain fixed income securities, equity securities and derivatives, which are recognized and disclosed at fair value in the financial statements. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants as of the measurement date and is measured using the fair value hierarchy. This hierarchy prescribes valuation techniques based on whether the inputs to each measurement are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company's assumptions about current market conditions. The prescribed fair value hierarchy and related valuation methodologies are as follows:

Level 1 — Quoted prices for identical instruments in active markets.

Level 2 — Quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-derived valuations, in which all significant inputs are observable, in active markets.

Level 3 — Valuations derived from valuation techniques, in which one or more significant inputs are unobservable.

Investments and Derivatives

The fair values of the Company's financial assets and liabilities by level in the fair value hierarchy as of December 31, 2019 and December 31, 2018 were as follows:

<i>December 31, 2019</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Total</i>
Assets:			
Foreign exchange derivative contracts	\$ —	\$ 4	\$ 4
Common stock and equivalents	25	—	25
Liabilities:			
Foreign exchange derivative contracts	\$ —	\$ 5	\$ 5

<i>December 31, 2018</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Total</i>
Assets:			
Foreign exchange derivative contracts	\$ —	\$ 5	\$ 5
Available-for-sale securities:			
Corporate bonds	1	—	1
Common stock and equivalents	19	—	19
Liabilities:			
Foreign exchange derivative contracts	\$ —	\$ 4	\$ 4

Pension and Postretirement Health Care Benefits Plan Assets

The fair values of the various pension and postretirement health care benefits plans' assets by level in the fair value hierarchy as of December 31, 2019 and 2018 were as follows:

U.S. Pension Benefit Plans

<i>December 31, 2019</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Total</i>
Equities	\$ 12	\$ —	\$ 12
Commingled funds	1,320	555	1,875
Government fixed income securities	—	529	529
Corporate fixed income securities	—	959	959
Short-term investment funds	179	—	179
Total investment securities	\$ 1,511	\$ 2,043	\$ 3,554
Accrued income receivable			20
Cash			27
Fair value plan assets			\$ 3,601

<i>December 31, 2018</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Total</i>
Equities	\$ 10	\$ —	\$ 10
Commingled funds	2,074	—	2,074
Government fixed income securities	13	340	353
Corporate fixed income securities	—	964	964
Short-term investment funds	243	—	243
Total investment securities	\$ 2,340	\$ 1,304	\$ 3,644
Accrued income receivable			16
Cash			13
Fair value plan assets			\$ 3,673

Non-U.S. Pension Benefit Plans

<i>December 31, 2019</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Total</i>
Equities	\$ 69	\$ —	\$ 69
Commingled funds	217	181	398
Government fixed income securities	4	899	903
Short-term investment funds	170	—	170
Total investment securities	\$ 460	\$ 1,080	\$ 1,540
Cash			4
Accrued income receivable			48
Insurance contracts			49
Fair value plan assets			\$ 1,641

<i>December 31, 2018</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Total</i>
Equities	\$ 140	\$ —	\$ 140
Commingled funds	476	16	492
Government fixed income securities	4	647	651
Short-term investment funds	60	—	60
Total investment securities	\$ 680	\$ 663	\$ 1,343
Cash			3
Accrued income receivable			42
Insurance contracts			50
Fair value plan assets			\$ 1,438

Postretirement Health Care Benefits Plan

<i>December 31, 2019</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Total</i>
Commingled funds	\$ 59	\$ 25	\$ 84
Government fixed income securities	—	24	24
Corporate fixed income securities	—	43	43
Short-term investment funds	8	—	8
Total investment securities	\$ 67	\$ 92	\$ 159
Accrued income receivable			\$ 1
Fair value plan assets			\$ 160

<i>December 31, 2018</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Total</i>
Commingled funds	74	—	74
Government fixed income securities	—	12	12
Corporate fixed income securities	—	34	34
Short-term investment funds	9	—	9
Total investment securities	\$ 83	\$ 46	\$ 129
Cash			4
Fair value plan assets			\$ 133

The following is a description of the categories of investments:

Equities — A diversified portfolio of corporate common stock and preferred stock.

Commingled funds — A diversified portfolio of assets that includes corporate common stock, preferred stock, emerging market and high-yield fixed income securities among others.

Government fixed income securities — Securities issued by municipal, domestic and foreign government agencies, index-linked government bonds as well as interest rate derivatives.

Corporate fixed income securities — A diversified portfolio of primarily investment grade bonds issued by corporations.

Short-term investment funds — Investments in money market accounts and derivatives with a liquidity of less than 90 days.

Level 1 investments include securities which are valued at the closing price reported on the active market in which the individual securities are traded. Level 2 investments consist principally of securities which are valued using independent third party pricing sources. A variety of inputs are utilized by the independent pricing sources including market based inputs, binding quotes, indicative quotes, and ongoing redemption and subscription activity. Inputs may be weighted differently for any security, and not all inputs are used for each security evaluation.

At December 31, 2019, the Company had \$322 million of investments in money market prime and government funds (Level 1) classified as Cash and cash equivalents in its Consolidated Balance Sheet, compared to \$734 million at December 31, 2018. The money market funds had quoted market prices that are approximately at par.

Using quoted market prices and market interest rates, the Company determined that the fair value of long-term debt at December 31, 2019 was \$5.5 billion (Level 2), compared to a face value of \$5.1 billion. Since considerable judgment is required in interpreting market information, the fair value of the long-term debt is not necessarily indicative of the amount which could be realized in a current market exchange.

All other financial instruments are carried at cost, which is not materially different from the instruments' fair values.

11. Long-term Financing and Sales of Receivables

Long-term Financing

Long-term receivables consist of receivables with payment terms greater than twelve months, long-term loans and lease receivables under sales-type leases. Long-term receivables consist of the following:

<i>December 31</i>	2019	2018
Long-term receivables, gross	\$ 62	\$ 33
Less allowance for losses	(2)	(2)
Long-term receivables	\$ 60	\$ 31
Less current portion	(19)	(7)
Non-current long-term receivables	\$ 41	\$ 24

The current portion of long-term receivables is included in Accounts receivable, net and the non-current portion of long-term receivables is included in Other assets in the Company's Consolidated Balance Sheet. The Company recognized Interest income on long-term receivables of \$1 million for each of the years ended December 31, 2019, 2018 and 2017.

Certain purchasers of the Company's products and services may request that the Company provide long-term financing (defined as financing with a term greater than one year) in connection with the sale of products and services. These requests may include all or a portion of the purchase price of the products and services. The Company's obligation to provide long-term financing may be conditioned on the issuance of a letter of credit in favor of the Company by a reputable bank to support the purchaser's credit or a pre-existing commitment from a reputable bank to purchase the long-term receivables from the Company.

The Company had outstanding commitments to provide long-term financing to third-parties totaling \$78 million at December 31, 2019, compared to \$62 million at December 31, 2018.

Sales of Receivables

From time to time, the Company sells accounts receivable and long-term receivables to third-parties under one-time arrangements.

The following table summarizes the proceeds received from sales of accounts receivable and long-term receivables for the years ended December 31, 2019, 2018 and 2017.

Years ended December 31	2019	2018	2017
Accounts receivable sales proceeds	\$ 34	\$ 77	\$ 193
Long-term receivables sales proceeds	265	270	284
Total proceeds from receivable sales	\$ 299	\$ 347	\$ 477

The Company may or may not retain the obligation to service the sold accounts receivable and long-term receivables.

At December 31, 2019, the Company had retained servicing obligations for \$984 million of long-term receivables, compared to \$970 million of long-term receivables at December 31, 2018. Servicing obligations are limited to collection activities of sold accounts receivables and long-term receivables.

Credit Quality of Long-Term Receivables and Allowance for Credit Losses

An aging analysis of financing receivables at December 31, 2019 and December 31, 2018 is as follows:

December 31, 2019	Total Long-term Receivable	Current Billed Due	Past Due Under 90 Days	Past Due Over 90 Days
Municipal leases secured tax exempt	\$ 31	\$ 1	\$ 1	\$ —
Commercial loans and leases secured	31	3	—	5
Long-term receivables, including current portion	\$ 62	\$ 4	\$ 1	\$ 5

December 31, 2018	Total Long-term Receivable	Current Billed Due	Past Due Under 90 Days	Past Due Over 90 Days
Municipal leases secured tax exempt	\$ 22	\$ 1	\$ —	\$ —
Commercial loans and leases secured	11	—	—	2
Long-term receivables, including current portion	\$ 33	\$ 1	\$ —	\$ 2

The Company uses an internally developed credit risk rating system for establishing customer credit limits. This system is aligned with and comparable to the rating systems utilized by independent rating agencies.

The Company's policy for valuing the allowance for credit losses is to review all customer financing receivables for collectability on an individual receivable basis. For those receivables where collection risk is probable, the Company calculates the value of impairment based on the net present value of expected future cash flows from the customer.

12. Commitments and Contingencies

Purchase Obligations

During the normal course of business, in order to manage manufacturing lead times and help ensure adequate component supply, the Company enters into agreements with contract manufacturers and suppliers that either allow it to procure inventory based upon criteria as defined by the Company or establish the parameters defining the Company's requirements. In addition, we have entered into software license agreements which are firm commitments and are not cancelable.

As of December 31, 2019, the Company had entered into firm, non-cancelable, and unconditional commitments under such arrangements through 2024. The Company expects to make total payments of \$142 million under these arrangements as follows: \$95 million in 2020, \$32 million in 2021, \$8 million in 2022, \$5 million in 2022, and \$2 million in 2024.

The Company outsources certain corporate functions, such as benefit administration and information technology-related services, under various contracts, the longest of which is expected to expire in 2023. The remaining payments under these contracts are approximately \$48 million over the remaining life of the contracts. However, these contracts can be terminated. Termination would result in a penalty substantially less than the remaining annual contract payments. The Company would also be required to find another source for these services, including the possibility of performing them in-house.

Legal Matters

The Company is a defendant in various lawsuits, claims, and actions that arise in the normal course of business. While the outcome of these matters is currently not determinable, the Company does not expect the ultimate disposition of these matters to have a material adverse effect on the Company's consolidated financial position or liquidity. However, an unfavorable resolution could have a material adverse effect on the Company's results of operations in the periods in which the matters are ultimately resolved, or in the periods in which more information is obtained that changes management's opinion of the ultimate disposition.

Indemnifications

The Company is a party to a variety of agreements pursuant to which it is obligated to indemnify the other party with respect to certain matters. In indemnification cases, payment by the Company is conditioned on the other party making a claim pursuant to the procedures specified in the particular contract, which procedures typically allow the Company to challenge the other party's claims. In some instances, the Company may have recourse against third parties for certain payments made by the Company.

Some of these obligations arise as a result of divestitures of the Company's assets or businesses and require the Company to indemnify the other party against losses arising from breaches of representations and warranties and covenants and, in some cases, the settlement of pending obligations. The Company's obligations under divestiture agreements for indemnification based on breaches of representations and warranties are generally limited in terms of duration and to amounts not in excess of a percentage of the contract value. The Company had no accruals for any such obligations at December 31, 2019.

In addition, the Company may provide indemnifications for losses that result from the breach of general warranties contained in certain commercial and intellectual property agreements. Historically, the Company has not made significant payments under these agreements.

13. Information by Segment and Geographic Region

The Company conducts its business globally and manages it through the following two segments:

Products and Systems Integration: The Products and Systems Integration segment offers an extensive portfolio of infrastructure, devices, accessories, video security devices and infrastructure, and the implementation and integration of such systems, devices, and applications, including the Company's: (i) "ASTRO" products, which meet the Association of Public Safety Communications Officials Project 25 standard, (ii) "Dimetra" products which meet the European Telecommunications Standards Institute Terrestrial Trunked Radio "TETRA" standard, (iii) Professional and Commercial Radio ("PCR") products, (iv) broadband technology products, such as Long-Term Evolution ("LTE"), and (v) video security solutions, including video cameras. The primary customers of the Products and Systems Integration segment are government, public safety and first-responder agencies, municipalities, and commercial and industrial customers who operate private communications networks and video security solutions and typically managing a mobile workforce. In 2019, the segment's net sales were \$5.3 billion, representing 68% of the Company's consolidated net sales.

Software and Services: The Software and Services segment provides a broad range of solution offerings for government, public safety and commercial customers. Software includes a public safety and enterprise command center software suite, unified communications applications, and video software solutions, delivered both on-premise and "as a service." Services includes a continuum of service offerings beginning with repair, technical support and maintenance. More advanced platforms include monitoring, software updates and cybersecurity services. Managed services range from partial to full operation of customer or Motorola Solutions-owned networks. In 2019, the segment's net sales were \$2.6 billion, representing 32% of the Company's consolidated net sales.

For the years ended December 31, 2019, 2018 and 2017, no single customer accounted for more than 10% of the Company's net sales.

Segment Information

The following table summarizes Net sales and Operating earnings by segment:

Years ended December 31	Net Sales			Operating Earnings		
	2019	2018	2017	2019	2018	2017
Products and Systems Integration	\$ 5,329	\$ 5,100	\$ 4,513	\$ 994	\$ 854	\$ 969
Software and Services	2,558	2,243	1,867	587	401	315
	<u>\$ 7,887</u>	<u>\$ 7,343</u>	<u>\$ 6,380</u>	<u>1,581</u>	<u>1,255</u>	<u>1,284</u>
Total other expense				(580)	(153)	(208)
Net earnings before income taxes				<u>\$ 1,001</u>	<u>\$ 1,102</u>	<u>\$ 1,076</u>

The following table summarizes the Company's capital expenditures and depreciation expense by segment.

Years ended December 31	Capital Expenditures			Depreciation Expense		
	2019	2018	2017	2019	2018	2017
Products and Systems Integration	\$ 98	\$ 72	\$ 113	\$ 82	\$ 71	\$ 69
Software and Services	150	125	114	104	101	123
	\$ 248	\$ 197	\$ 227	\$ 186	\$ 172	\$ 192

The Company's "chief operating decision maker" does not review or allocate resources based on segment assets.

Geographic Area Information

Years ended December 31	Net Sales			Assets		
	2019	2018	2017	2019	2018	2017
United States	\$ 5,006	\$ 4,361	\$ 3,725	\$ 6,749	\$ 5,441	\$ 5,138
United Kingdom	692	638	558	2,460	2,284	2,329
Canada	270	303	251	1,040	1,014	97
Other, net of eliminations	1,919	2,041	1,846	393	670	644
	\$ 7,887	\$ 7,343	\$ 6,380	\$ 10,642	\$ 9,409	\$ 8,208

Net sales attributed to geographic area are predominately based on the ultimate destination of the Company's products and services.

14. Reorganization of Businesses

The Company maintains a formal Involuntary Severance Plan (the "Severance Plan"), which permits the Company to offer eligible employees severance benefits based on years of service and employment grade level in the event that employment is involuntarily terminated as a result of a reduction-in-force or restructuring. The Company recognizes termination benefits based on formulas per the Severance Plan at the point in time that future settlement is probable and can be reasonably estimated based on estimates prepared at the time a restructuring plan is approved by management. Exit costs consist of future minimum lease payments on vacated facilities and other contractual terminations. At each reporting date, the Company evaluates its accruals for employee separation and exit costs to ensure the accruals are still appropriate. In certain circumstances, accruals are no longer needed because of efficiencies in carrying out the plans or because employees previously identified for separation resigned from the Company and did not receive severance, or were redeployed due to circumstances not foreseen when the original plans were approved. In these cases, the Company reverses accruals through the Consolidated Statements of Operations where the original charges were recorded when it is determined they are no longer needed.

During 2019, 2018, and 2017 the Company continued to implement various productivity improvement plans aimed at achieving long-term, sustainable profitability by driving efficiencies and reducing operating costs. As a result, the Company communicated its plan to close one of its manufacturing facilities in Europe during the fourth quarter of 2018 resulting in a charge of \$44 million and impacting 165 employees, primarily within the Products and Systems Integration segment. The remainder of the initiatives impacted both of the Company's segments and affected employees located in all geographic regions.

2019 Charges

During 2019, the Company recorded net reorganization of business charges of \$57 million, including \$17 million of charges in Costs of sales and \$40 million of charges in Other charges in the Company's Consolidated Statements of Operations. Included in the \$57 million were charges of \$64 million for employee separation costs, \$5 million for exit costs, partially offset by \$12 million of reversals of accruals no longer needed.

The following table displays the net charges incurred by segment:

Year ended December 31	2019
Products and Systems Integration	\$ 45
Software and Services	12
	\$ 57

The following table displays a rollforward of the reorganization of businesses accruals established January 1, 2019 to December 31, 2019:

	<i>Accruals at January 1</i>	<i>Additional Charges</i>	<i>Adjustments</i>	<i>Amount Used</i>	<i>Accruals at December 31</i>
Reorganization costs	84	69	(12)	(63)	78

Employee Separation Costs

At January 1, 2019, the Company had an accrual of \$84 million for employee separation costs. The 2019 additional charges of \$69 million include severance costs for approximately 700 employees, of which 200 were direct employees and 500 were indirect employees. The adjustments of \$12 million reflect reversals of accruals no longer needed. The \$63 million used in 2019 reflects cash payments to severed employees. The remaining accrual of \$78 million, which is included in Accrued liabilities in the Company's Consolidated Balance Sheet at December 31, 2019, is expected to be paid, primarily within one year to: (i) severed employees who have already begun to receive payments and (ii) approximately 100 employees to be separated in 2020.

As of January 1, 2019, accruals for exit costs are included in Operating lease liabilities with an offsetting impairment to the Company's ROU assets (see Note 3).

2018 Charges

During 2018, the Company recorded net reorganization of business charges of \$120 million, including \$59 million of charges in Costs of sales and \$61 million of charges under Other charges in the Company's Consolidated Statements of Operations. Included in the aggregate \$120 million were charges of \$122 million for employee separation costs and \$16 million for exit costs, partially offset by \$18 million of reversals of accruals no longer needed.

The following table displays the net charges incurred by segment:

<i>Year ended December 31</i>	2018
Products and Systems Integration	\$ 101
Software and Services	19
	<u>\$ 120</u>

The following table displays a rollforward of the reorganization of businesses accruals established for exit costs and employee separation costs from January 1, 2018 to December 31, 2018:

	<i>Accruals at January 1</i>	<i>Additional Charges</i>	<i>Adjustments</i>	<i>Amount Used</i>	<i>Accruals at December 31</i>
Exit costs	\$ 9	\$ 16	\$ —	\$ (4)	\$ 21
Employee separation costs	41	122	(18)	(61)	84
	<u>\$ 50</u>	<u>\$ 138</u>	<u>\$ (18)</u>	<u>\$ (65)</u>	<u>\$ 105</u>

Exit Costs

At January 1, 2018, the Company had \$9 million accrual for exit costs. There were \$16 million of additional charges in 2018. The \$4 million used in 2018 reflects cash payments. The remaining accrual of \$21 million, which the current portion was included in Accrued liabilities and the non-current portion was included in Other liabilities in the Company's Consolidated Balance Sheet at December 31, 2018, primarily represented future cash payments for lease obligations.

Employee Separation Costs

At January 1, 2018, the Company had an accrual of \$41 million for employee separation costs. The additional 2018 charges of \$122 million represent severance costs for approximately an additional 1,200 employees, of which 500 were direct employees and 700 were indirect employees. The adjustments of \$18 million reflect reversals of accruals no longer needed. The \$61 million used in 2018 reflects cash payments to severed employees. The remaining accrual of \$84 million was included in Accrued liabilities in the Company's Consolidated Balance Sheet at December 31, 2018.

2017 Charges

During 2017, the Company recorded net reorganization of business charges of \$42 million, including \$9 million of charges in Costs of sales and \$33 million of charges in Other charges in the Company's Consolidated Statements of Operations. Included in the aggregate \$42 million are charges of \$43 million for employee separation costs and \$8 million of charges for exit costs, partially offset by \$9 million of reversals for accruals no longer needed.

The following table displays the net charges incurred by segment:

<i>Year ended December 31</i>	2017	
Products and Systems integration	\$	32
Software and Services		10
	\$	42

The following table displays a rollforward of the reorganization of businesses accruals established for exit costs and employee separation costs from January 1, 2017 to December 31, 2017:

	<i>Accruals at January 1</i>	<i>Additional Charges</i>	<i>Adjustments</i>	<i>Amount Used</i>	<i>Accruals at December 31</i>
Exit costs	\$ 7	\$ 8	\$ —	\$ (6)	\$ 9
Employee separation costs	94	43	(9)	(87)	41
	\$ 101	\$ 51	\$ (9)	\$ (93)	\$ 50

Exit Costs

At January 1, 2017, the Company had \$7 million accrual for exit costs. There were \$8 million of additional charges in 2017. The \$6 million used in 2017 reflects cash payments. The remaining accrual of \$9 million, which the current portion was included in Accrued liabilities and the non-current portion was included in Other liabilities in the Company's Consolidated Balance Sheet at December 31, 2017, primarily represented future cash payments for lease obligations.

Employee Separation Costs

At January 1, 2017, the Company had an accrual of \$94 million for employee separation costs. The additional 2017 charges of \$43 million represent severance costs for approximately an additional 400 employees, of which 100 were direct employees and 300 were indirect employees. The adjustments of \$9 million reflect of reversals of accruals no longer needed. The \$87 million used in 2017 reflects cash payments to these severed employees. The remaining accrual of \$41 million was included in Accrued liabilities in the Company's Consolidated Balance Sheet at December 31, 2017.

15. Intangible Assets and Goodwill

The Company accounts for acquisitions using purchase accounting with the results of operations for each acquiree included in the Company's consolidated financial statements for the period subsequent to the date of acquisition.

Recent Acquisitions

On October 16, 2019, the Company acquired a data solutions business for vehicle location information for a purchase price of \$85 million in cash, net of cash acquired. The acquisition enhances the Company's video security platform by adding data to the Company's existing license plate recognition ("LPR") database within the Software and Services segment. The Company recognized \$54 million of goodwill, \$28 million of identifiable intangible assets, and \$3 million of net assets. The goodwill is deductible for tax purposes. The identifiable intangible assets were classified as \$22 million of customer relationships and \$6 million of developed technology and will be amortized over a period of sixteen years and five years, respectively. The purchase accounting is not yet complete and as such the final allocation between income tax accounts and goodwill may be subject to change.

On July 11, 2019, the Company acquired WatchGuard, Inc. ("WatchGuard"), a provider of in-car and body-worn video solutions for \$271 million, inclusive of share-based compensation withheld at a fair value of \$16 million that will be expensed over an average service period of two years. The acquisition was settled with \$250 million, net of cash acquired. The acquisition expands the Company's video security platform. The business is part of both the Products and Systems Integration and Software and Services segments. The Company recognized \$156 million of goodwill, \$63 million of identifiable intangible assets, and \$31 million of net assets. The goodwill is not deductible for tax purposes. The identifiable intangible assets were classified as \$33 million of customer relationships and \$30 million of completed technology that will be amortized over a period of thirteen years and seven years, respectively. The purchase accounting is not yet complete and as such the final allocation between deferred income tax accounts and goodwill may be subject to change.

On March 11, 2019, the Company acquired Avtec, Inc. ("Avtec"), a provider of dispatch communication equipment for U.S. public safety and commercial customers for a purchase price of \$136 million in cash, net of cash acquired. This acquisition expands the Company's commercial portfolio with new capabilities, allowing it to offer an enhanced platform for customers to communicate, coordinate resources, and secure their facilities. The business is part of both the Products and Systems Integration and Software and Services segments. The Company recognized \$68 million of goodwill, \$64 million of identifiable intangible assets, and \$4 million of net assets. The goodwill is deductible for tax purposes. The identifiable intangible assets were classified as \$43 million of completed technology and \$21 million of customer relationship intangibles and will be amortized over a period of fifteen years. The purchase accounting has been completed as of the third quarter of 2019.

On January 7, 2019, the Company announced that it acquired VaaS International Holdings ("VaaS"), a company that is a global provider of data and image analytics for vehicle location for \$445 million, inclusive of share-based compensation withheld at a fair value of \$38 million that will be expensed over an average service period of one year. The acquisition was settled with \$231 million of cash, net of cash acquired, and 1.4 million of shares issued at a fair value of \$160 million for a purchase price of \$391 million to be utilized in the purchase price allocation. The business is part of both the Products and Systems Integration and Software and Services segments. The Company recognized \$261 million of goodwill, \$141 million of identifiable intangible assets, and \$11 million of net liabilities. The goodwill is not deductible for tax purposes. The identifiable intangible assets were classified as \$99 million of completed technology that will be amortized over a period of ten years and \$42 million of customer relationship intangibles that will be amortized over a period of fifteen years. The purchase accounting is not yet complete and as such the final allocation between deferred income tax accounts and goodwill may be subject to change.

On March 28, 2018, the Company completed the acquisition of Avigilon Corporation, a provider of advanced security and video solutions including video analytics, network video management hardware and software, video cameras and access control solutions. The business is part of both the Product and Systems Integration segment and the Software and Services segment. The purchase price of \$974 million, consisted of cash payments of \$980 million for outstanding common stock, restricted stock units and employee held stock options, net of cash acquired of \$107 million, debt assumed of \$75 million and transaction costs of \$26 million. The Company recognized \$498 million of identifiable intangible assets, \$434 million of goodwill, and \$42 million of net assets. Acquired intangible assets consist of \$110 million of customer relationships, \$380 million of developed technology and \$8 million of trade names and will have useful lives of two to twenty years. The fair values of all intangible assets were estimated using the income approach. Customer relationships and developed technology were valued under the excess earnings method which assumes that the value of an intangible asset is equal to the present value of the incremental after-tax cash flows attributable specifically to the intangible asset. Trade names were valued under the relief from royalty method, which assumes value to the extent that the acquired company is relieved of the obligation to pay royalties for the benefits received from them. The goodwill is not deductible for tax purposes.

On March 7, 2018, the Company completed the acquisition of Plant Holdings, Inc., the parent company of Airbus DS Communications for a purchase price of \$237 million, net of cash acquired. This acquisition expands the Company's software portfolio in the command center with additional solutions for Next Generation 9-1-1. The business is part of the Software and Services segment. As of December 31, 2018, the Company recognized \$151 million of goodwill, \$80 million of identifiable intangible assets and \$6 million of net assets. During 2019, the Company recorded an adjustment related to the allocation between goodwill and deferred income taxes of approximately \$9 million, bringing the total goodwill acquired to \$160 million. The goodwill is not deductible for tax purposes. The identifiable intangible assets were classified as \$41 million of customer-related intangibles, \$27 million of completed technology and \$12 million of trade names. The identifiable intangible assets will be amortized over a period of ten to twenty years.

On August 28, 2017, the Company completed the acquisition of Kodiak Networks, a provider of broadband push-to-talk for commercial customers, for a purchase price of \$225 million. The business is part of the Software and Services segment. As a result of the acquisition, the Company recognized \$191 million of goodwill, \$44 million of identifiable intangible assets and \$10 million of acquired liabilities. The identifiable intangible assets were classified as \$25 million of customer-related intangibles and \$19 million of completed technology and will be amortized over a period of thirteen to sixteen years.

On March 13, 2017, the Company completed the acquisition of Interexport, a managed service provider for communications systems to public safety and commercial customers in Chile, for a purchase price of \$98 billion Chilean pesos, or approximately \$147 million U.S. dollars based on cash payments of \$55 million, net of cash acquired, and assumed liabilities of \$92 million, primarily related to capital leases. As a result of the acquisition, the Company recognized \$61 million of identifiable intangible assets, \$70 million of acquired property, plant and equipment and \$16 million of net other tangible assets. The estimated identifiable intangible assets were classified as \$56 million of customer-related intangibles and \$5 million of other intangibles and will be amortized over a period of seven years. The business is part of the Software and Services segment.

The results of operations for these acquisitions have been included in the Company's Consolidated Statements of Operations subsequent to the acquisition date. The pro forma effects of these acquisitions are not significant individually or in the aggregate.

Intangible Assets

Amortized intangible assets are comprised of the following:

December 31	2019		2018	
	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Intangible assets:				
Completed technology	\$ 738	\$ 148	\$ 558	\$ 92
Patents	2	2	2	2
Customer-related	1,222	518	1,085	364
Other intangibles	75	42	74	31
	\$ 2,037	\$ 710	\$ 1,719	\$ 489

Amortization expense on intangible assets, which is included within Other charges in the Consolidated Statements of Operations, was \$208 million, \$188 million, and \$151 million for the years ended December 31, 2019, 2018, and 2017, respectively. As of December 31, 2019, future amortization expense is estimated to be \$212 million in 2020, \$210 million in 2021, \$207 million in 2022, \$107 million in 2023, and \$82 million in 2024.

Amortized intangible assets, excluding goodwill, were comprised of the following by segment:

	2019		2018	
	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Products and Systems Integration	\$ 652	\$ 82	\$ 510	\$ 38
Software and Services	1,385	628	1,209	451
	\$ 2,037	\$ 710	\$ 1,719	\$ 489

Goodwill

The following table displays a rollforward of the carrying amount of goodwill, net of impairment losses, by segment from January 1, 2018 to December 31, 2019:

	Products and Systems Integration	Software and Services	Total
Balance as of January 1, 2018	\$ 362	\$ 576	\$ 938
Goodwill acquired	360	225	585
Purchase accounting adjustments	—	1	1
Foreign currency translation	—	(10)	(10)
Balance as of December 31, 2018	\$ 722	\$ 792	\$ 1,514
Goodwill acquired	251	288	539
Purchase accounting adjustments	—	9	9
Foreign currency translation	—	5	5
Balance as of December 31, 2019	\$ 973	\$ 1,094	\$ 2,067

The Company conducts its annual assessment of goodwill for impairment in the fourth quarter of each year. The goodwill impairment assessment is performed at the reporting unit level which is an operating segment or one level below an operating segment.

The Company performed a qualitative assessment to determine whether it was more-likely-than-not that the fair value of each reporting unit was less than its carrying amount for the fiscal years 2019, 2018, and 2017. In performing this qualitative assessment the Company assessed relevant events and circumstances including macroeconomic conditions, industry and market conditions, cost factors, overall financial performance, changes in share price, and entity-specific events. For fiscal years 2019, 2018, and 2017, the Company concluded it was more-likely-than-not that the fair value of each reporting unit exceeded its carrying value. Therefore, the two-step goodwill impairment test was not required and there was no impairment of goodwill.

16. Valuation and Qualifying Accounts

The following table presents the valuation and qualifying account activity for the years ended December 31, 2019, 2018, and 2017:

	<i>Balance at January 1</i>	<i>Charged to Earnings</i>	<i>Used</i>	<i>Adjustments*</i>	<i>Balance at December 31</i>
2019					
Allowance for doubtful accounts	\$ 51	\$ 39	\$ (26)	\$ (1)	\$ 63
2018					
Allowance for doubtful accounts	45	37	(30)	(1)	51
2017					
Allowance for doubtful accounts	44	16	(16)	1	45

* Adjustments include translation adjustments

17. Quarterly and Other Financial Data (unaudited)

	2019				2018			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Operating Results								
Net sales	\$ 1,657	\$ 1,860	\$ 1,994	\$ 2,377	\$ 1,468	\$ 1,760	\$ 1,862	\$ 2,254
Costs of sales	884	929	987	1,157	799	938	961	1,166
Gross margin	\$ 773	\$ 931	\$ 1,007	\$ 1,220	\$ 669	\$ 822	\$ 901	\$ 1,088
Selling, general and administrative expenses	327	351	359	368	279	316	323	337
Research and development expenditures	162	170	172	182	152	162	158	165
Other charges	55	61	63	80	67	71	126	70
Operating earnings	\$ 229	\$ 349	\$ 413	\$ 590	\$ 171	\$ 273	\$ 294	\$ 516
Net earnings*	161	207	267	244	117	180	247	423
Per Share Data (in dollars)								
Net earnings*:								
Basic earnings per common share	\$ 0.92	\$ 1.25	\$ 1.60	\$ 1.43	\$ 0.73	\$ 1.11	\$ 1.52	\$ 2.58
Diluted earnings per common share	0.86	1.18	1.61	1.39	0.69	1.05	1.43	2.44
Dividends declared	\$ 0.57	\$ 0.57	\$ 0.57	\$ 0.64	\$ 0.52	\$ 0.52	\$ 0.52	\$ 0.57
Dividends paid	0.57	0.57	0.57	0.57	0.52	0.52	0.52	0.52
Stock prices								
High	\$ 144.94	\$ 169.30	\$ 182.28	\$ 176.95	\$ 110.29	\$ 118.37	\$ 130.34	\$ 133.97
Low	\$ 110.61	\$ 139.21	\$ 160.81	\$ 154.02	\$ 89.18	\$ 103.18	\$ 114.95	\$ 108.25

* Amounts attributable to Motorola Solutions, Inc. common shareholders.

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

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures.

Under the supervision and with the participation of our senior management, including our chief executive officer and chief financial officer, we conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), as of December 31, 2019, the end of the period covered by this annual report (the "Evaluation Date"). Based on this evaluation, our chief executive officer and chief financial officer concluded as of the Evaluation Date that our disclosure controls and procedures were effective such that the information relating to Motorola Solutions, including our consolidated subsidiaries, required to be disclosed in our Securities and Exchange Commission ("SEC") reports: (i) is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and (ii) is accumulated and communicated to Motorola Solutions' management, including our chief executive officer and chief financial officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Report on Internal Control Over Financial Reporting.

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined in Rule 13a-15(f) of the Exchange Act. Under the supervision and with the participation of our senior management, including our chief executive officer and chief financial officer, we assessed the effectiveness of our internal control over financial reporting as of December 31, 2019, using the criteria set forth in the *Internal Control-Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on this assessment, management has concluded that our internal control over financial reporting is effective as of December 31, 2019.

The Company's independent registered public accounting firm, PricewaterhouseCoopers LLP, has issued a report on the Company's internal control over financial reporting. The report on the audit of internal control over financial reporting appears in this Form 10-K.

Changes in Internal Control Over Financial Reporting.

Effective January 1, 2019, we adopted the new lease accounting standard ASU No. 2016-02. We have implemented new accounting processes related to lease accounting and related disclosures, including related control activities. There have been no changes in our internal control over financial reporting that occurred during the quarter ended December 31, 2019, 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 response to this Item required by Item 401 of Regulation S-K, with respect to directors, incorporates by reference the information under the caption "Our Board - Who We Are" of Motorola Solutions' Proxy Statement for the 2020 Annual Meeting of Shareholders (the "Proxy Statement") and, with respect to executive officers, is contained in Part I hereof under the caption "Executive Officers of the Registrant" and, with respect to the audit committee, incorporates by reference the information under the caption "Committees of the Board" and "Audit Committee Matters - Report of Audit Committee" of the Proxy Statement.

The response to this Item also incorporates by reference the information under the caption "Important Dates for the 2021 Annual Meeting - Recommending a Director Candidate to the Governance and Nominating Committee" of the Proxy Statement.

Motorola Solutions has adopted a code of ethics, the Motorola Solutions Code of Business Conduct (the "Code"), that applies to all employees, including the Company's principal executive officer, principal financial officer and controller (principal accounting officer). The Code is posted on Motorola Solutions' Internet website, www.motorolasolutions.com/investors, and is available free of charge, upon request to Investor Relations, Motorola Solutions, Inc., Corporate Offices, 500 W. Monroe Street, Chicago, Illinois 60661, E-mail: investors@motorolasolutions.com. Any amendment to, or waiver from, the Code applicable to executive officers will be posted on our Internet website within four business days following the date of the amendment or waiver. Motorola Solutions' Code of Business Conduct applies to all of the Company's employees worldwide, without exception, and describes employee responsibilities to the various stakeholders involved in our business. The Code goes beyond the legal minimums by implementing the values we share as employees of Motorola Solutions—our key beliefs—uncompromising integrity and constant respect for people. The Code places special responsibility on managers and prohibits retaliation for reporting issues.

Item 11. Executive Compensation

The response to this Item incorporates by reference the information under the captions "How We Determine Director Compensation," "How Our Directors Are Compensated," "Compensation Discussion and Analysis," "Compensation and Leadership Committee Report," "Compensation and Leadership Committee Interlocks and Insider Participation," and under "Named Executive Officer Compensation," the following subsections: "2019 Summary Compensation Table," "Grants of Plan-Based Awards in 2019," "Outstanding Equity Awards at 2019 Fiscal Year-End," "Option Exercises and Stock Vested in 2019," "Nonqualified Deferred Compensation in 2019," "Retirement Plans," "Pension Benefits in 2019," "Employment Contracts," and "Termination of Employment and Change in Control Arrangements." of the Proxy Statement.

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

The response to this Item incorporates by reference the information under the captions "Equity Compensation Plan Information" and "Security Ownership Information" of the Proxy Statement.

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

The response to this Item incorporates by reference the relevant information under the caption "Related Person Transaction Policy and Procedures" and "Independence" of the Proxy Statement.

Item 14. Principal Accounting Fees and Services

The response to this Item incorporates by reference the information under the caption "Audit Committee Matters - Independent Registered Public Accounting Firm Fees" and "Audit Committee Matters - Audit Committee Pre-Approval Policies" of the Proxy Statement.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) 1. **Financial Statements**

See Part II, Item 8 hereof.

2. **Financial Statement Schedules**

All schedules omitted are inapplicable or the information required is shown in the consolidated financial statements or notes thereto.

3. **Exhibits**

Exhibit numbers 10.6 through 10.56, listed in the attached Exhibit Index, are management contracts or compensatory plans or arrangements required to be filed as exhibits to this form by Item 15(b) hereof.

- 2.1 Arrangement Agreement, dated February 1, 2018, between Motorola Solutions, Inc., Motorola Solutions Canada Holdings Inc. and Avigilon Corporation (incorporated by reference to Exhibit 2.1 to Motorola Solutions' Current Report on Form 8-K filed on March 28, 2018 (File 1-17221)).
- 3.1 (a) Restated Certificate of Incorporation of Motorola, Inc., as amended through May 5, 2009 (incorporated by reference to Exhibit 3(i)(b) to Motorola, Inc.'s Quarterly Report on Form 10-Q for the fiscal quarter ended July 4, 2009 (File No. 1-7221)).
- 3.1 (b) Certificate of Amendment to the Restated Certificate of Incorporation of Motorola, Inc., effective January 4, 2011, as filed with the Secretary of State of the State of Delaware (incorporated by reference to Exhibit 3.1 to Motorola Solutions' Current Report on Form 8-K filed on January 10, 2011 (File No. 1-7221)).
- 3.1 (c) Certificate of Ownership and Merger merging Motorola Name Change Corporation into Motorola, Inc., effective January 4, 2011, as filed with the Secretary of State of the State of Delaware (incorporated by reference to Exhibit 3.2 to Motorola Solutions' Current Report on Form 8-K filed on January 10, 2011 (File No. 1-7221)).
- 3.2 Amended and Restated Bylaws of Motorola Solutions, Inc. as of November 13, 2014 (incorporated by reference to Exhibit 3.1 to Motorola Solutions' Current Report on Form 8-K filed on November 14, 2014 (File No. 1-7221)).
- 4.1 (a) Senior Indenture, dated as of May 1, 1995, between The Bank of New York Mellon Trust Company, N.A. (as successor Trustee to JPMorgan Chase Bank (as successor in interest to Bank One Trust Company) and BNY Midwest Trust Company (as successor in interest to Harris Trust and Savings Bank) and Motorola, Inc. (incorporated by reference to Exhibit 4(d) of the Registrant's Registration Statement on Form S-3 dated September 25, 1995 (Registration No. 33-62911)).
- 4.1 (b) Instrument of Resignation, Appointment and Acceptance, dated as of January 22, 2001, among Motorola, Inc., Bank One Trust Company, N.A. and BNY Midwest Trust Company (as successor in interest to Harris Trust and Savings Bank) (incorporated by reference to Exhibit 4.2(b) to Motorola, Inc.'s Annual Report on Form 10-K for the fiscal year ended December 31, 2000 (File No. 1-7221)).
- 4.1 (c) Indenture dated as of August 19, 2014 between Motorola Solutions, Inc. and The Bank of New York Mellon Trust Company, N.A., as trustee. (incorporated by reference to Exhibit 4.1 to Motorola Solutions' Current Report on Form 8-K filed on August 19, 2014 (File No. 1-7221)).
- 4.1 (d) Indenture dated as of August 25, 2015 between Motorola Solutions, Inc. and The Bank of New York Mellon Trust Company, N.A., as Trustee, related to 2% Convertible Senior Notes Due 2020 (incorporated by reference to Exhibit 10.1 to Motorola Solutions' Current Report on Form 8-K filed on August 26, 2015 (File No. 1-7221)).
- 4.1 (e) Indenture dated as of September 5, 2019 between Motorola Solutions, Inc. and The Bank of New York Mellon Trust Company, N.A., as Trustee, related to the 1.75% Convertible Senior Notes Due 2024 (incorporated by reference to Exhibit 10.2 to Motorola Solutions' Current Report on Form 8-K filed on September 5, 2019 (File No. 1-7221)).

Certain instruments defining the rights of holders of long-term debt of Motorola, Inc. and of all its subsidiaries for which consolidated or unconsolidated financial statements are required to be filed are being omitted pursuant to paragraph (b)(4)(iii)(A) of item 601 of Regulation S-K. Motorola Solutions agrees to furnish a copy of any such instrument to the Commission upon request.

*4.1 (f) Description of Securities

- 10.1 Amended and Restated Master Separation and Distribution Agreement among Motorola Mobility Holdings, Inc. (f/k/a Motorola SpinCo Holdings Corporation), Motorola Mobility, Inc. and Motorola, Inc. effective as of July 31, 2010 (incorporated by reference to Exhibit 2.1 to Amendment No. 1 to the Form 10 Registration Statement filed on August 31, 2010 by Motorola Mobility Holdings, Inc. (formerly Motorola SpinCo Holdings Corporation) (File No. 1-34805)).
- 10.2 Amended and Restated Intellectual Property License Agreement between Motorola Mobility, Inc. and Motorola, Inc. effective as of July 31, 2010 (incorporated by reference to Exhibit 10.2 to Amendment No. 1 to the Form 10 Registration Statement filed on August 31, 2010 by Motorola Mobility Holdings, Inc. (formerly Motorola SpinCo Holdings Corporation) (File No. 1-34805)).
- 10.3 Amended and Restated Exclusive License Agreement between Motorola Trademark Holdings, LLC and Motorola, Inc. effective as of July 30, 2010 (incorporated by reference to Exhibit 10.3 to Amendment No. 3 to the Form 10 Registration Statement filed on November 12, 2010 by Motorola Mobility Holdings, Inc. (File No. 1-34805)).

- 10.4 Tax Sharing Agreement among Motorola Mobility Holdings, Inc. (f/k/a Motorola SpinCo Holdings Corporation), Motorola Mobility, Inc. and Motorola, Inc. effective as of July 31, 2010 (incorporated by reference to Exhibit 10.4 to Amendment No. 1 to the Form 10 Registration Statement filed on August 31, 2010 by Motorola Mobility Holdings, Inc. (formerly Motorola SpinCo Holdings Corporation) (File No. 1-34805)).
- 10.5 Amended and Restated Employee Matters Agreement among Motorola Mobility Holdings, Inc. (f/k/a Motorola SpinCo Holdings Corporation), Motorola Mobility, Inc. and Motorola, Inc. effective as of July 31, 2010 (incorporated by reference to Exhibit 10.7 to Amendment No. 2 to the Form 10 Registration Statement filed on October 8, 2010 by Motorola Mobility Holdings, Inc. (formerly Motorola SpinCo Holdings Corporation) (File No. 1-34805)).
- 10.6 Motorola Solutions Omnibus Incentive Plan of 2015, effective May 18, 2015 (an amendment and restatement of the Motorola Solutions Omnibus Incentive Plan of 2006) (incorporated by reference to Exhibit 10.1 to Motorola Solutions' Current Report on Form 8-K filed on May 21, 2015 (file No. 1-7221)).
- 10.7 March 9, 2017 Form of Motorola Solutions, Inc. Terms and Conditions Related to Employee Performance-Contingent Stock Options (non-CEO) (incorporated by reference to Exhibit 10.8 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended April 1, 2017 (File No. 1-7221)).
- 10.8 Form of Motorola Solutions, Inc. Performance Option Award Agreement for grants to Section 16 Officers on or after February 14, 2019 (incorporated by reference to Exhibit 10.2 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended March 30, 2019 (File No. 1-7221)).
- 10.9 Form of Motorola Solutions, Inc. Performance Option Award Agreement for grants to Section 16 Officers from March 9, 2015 to February 13, 2019 (incorporated by reference to Exhibit 10.1 to Motorola Solutions' Current Report on Form 8-K filed on March 11, 2015 (File No. 1-7221)).
- 10.10 Form of Motorola Solutions, Inc. Terms and Conditions Related to Employee Performance-Contingent Stock Options (non-CEO) (incorporated by reference to Exhibit 10.3 to Motorola Solutions' Current Report on Form 8-K filed on August 26, 2015 (File No. 1-7221)).
- 10.11 Form of Motorola Solutions, Inc. Award Document-Terms and Conditions Related to Employee Nonqualified Stock Options for grants to Section 16 Officers on or after May 6, 2013 (incorporated by reference to Exhibit 10.2 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended June 29, 2013 (File No. 1-7221)).
- 10.12 Form of Motorola Solutions, Inc. Award Document-Terms and Conditions Related to Employee Nonqualified Stock Options relating to the Motorola Solutions Omnibus Incentive Plan of 2015 for grants on or after February 15, 2018 incorporated by reference to Exhibit 10.4 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2018 (File No. 1-7221)).
- 10.13 Form of Motorola Solutions, Inc. Award Document-Terms and Conditions Related to Employee Nonqualified Stock Options relating to the Motorola Solutions Omnibus Incentive Plan of 2015 for grants from March 9, 2017 to February 14, 2018 (incorporated by reference to Exhibit 10.6 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended April 1, 2017 (File No. 1-7221)).
- 10.14 Form of Motorola Solutions Inc. Award Document-Terms and Conditions Related to Employee Nonqualified Stock Options relating to the Motorola Solutions Omnibus Incentive Plan of 2006 for grants from February 3, 2014 to March 8, 2017 (incorporated by reference to Exhibit 10.9 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2013 (File No. 1-7221)).
- 10.15 Form of Motorola Solutions Inc. Award Document-Terms and Conditions Related to Employee Nonqualified Stock Options relating to the Motorola Solutions Omnibus Incentive Plan of 2006 for grants from January 4, 2011 to February 2, 2014 (incorporated by reference to Exhibit 10.11 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (File No. 1-7221)).
- 10.16 Form of Motorola, Inc. Award Document-Terms and Conditions Related to Employee Nonqualified Stock Options relating to the Motorola Solutions Omnibus Incentive Plan of 2006 for grants from August 1, 2009 to January 3, 2011 (incorporated by reference to Exhibit 10.1 to Motorola Inc.'s Quarterly Report on Form 10-Q for the fiscal quarter ended July 4, 2009 (File No. 1-7221)).
- 10.17 Form of Motorola Solutions, Inc. Stock Option Consideration Agreement for grants on or after March 9, 2017 (incorporated by reference to Exhibit 10.7 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended April 1, 2017 (File No. 1-7221)).
- 10.18 Form of Motorola Solutions Stock Option Consideration Agreement for grants from February 3, 2014 to March 8, 2017 (incorporated by reference to Exhibit 10.14 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2013 (File No. 1-7221)).
- 10.19 Form of Motorola Solutions Stock Option Consideration Agreement for grants from January 4, 2011 to February 2, 2014 (incorporated by reference to Exhibit 10.15 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (File No. 1-7221)).
- 10.20 Form of Motorola, Inc. Stock Option Consideration Agreement for grants from May 6, 2008 to January 3, 2011 (incorporated by reference to Exhibit 10.56 to Motorola Inc.'s Quarterly Report on Form 10-Q for the fiscal quarter ended March 29, 2008 (File No. 1-7221)).
- 10.21 Form of Motorola Solutions, Inc. Market Stock Unit Agreement for grants to Section 16 Officers on or after March 9, 2017 (incorporated by reference to Exhibit 10.2 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended April 1, 2017 (File No. 1-7221)).
- 10.22 Form of Motorola Solutions, Inc. Market Stock Unit Agreement for grants to Section 16 Officers from March 9, 2015 to March 8, 2017 (incorporated by reference to Exhibit 10.2 to Motorola Solutions' Current Report on Form 8-K filed on March 11, 2015 (File No. 1-7221)).

- 10.23 Form of Motorola Solutions, Inc. Restricted Stock Unit Agreement relating to the Motorola Solutions Omnibus Incentive Plan of 2015 for grants to Section 16 Officers on or after March 9, 2017 (incorporated by reference to Exhibit 10.5 to Motorola Solutions' Quarterly Report on Form 10-Q filed for the fiscal quarter ended April 1, 2017 (File No. 1-7221)).
- 10.24 Form of Motorola Solutions, Inc. Restricted Stock Unit Agreement relating to the Motorola Solutions Omnibus Incentive Plan of 2006 for grants to Section 16 Officers from May 6, 2013 to March 8, 2017 (incorporated by reference to Exhibit 10.1 to Motorola Inc's Quarterly Report on Form 10-Q for the fiscal quarter ended June 29, 2013 (File No. 1-7221)).
- 10.25 Form of Motorola Solutions, Inc. Restricted Stock Unit Agreement relating to the Motorola Solutions Omnibus Incentive Plan of 2015 for grants to Appointed Vice Presidents and Elected Officers on or after February 15, 2018 (incorporated by reference to Exhibit 10.2 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2018 (File No. 1-7221)).
- 10.26 Form of Motorola Solutions, Inc. Restricted Stock Unit Agreement relating to the Motorola Solutions Omnibus Incentive Plan of 2015 for grants to Appointed Vice Presidents and Elected Officers from March 9, 2017 to February 14, 2018 (incorporated by reference to Exhibit 10.3 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended April 1, 2017 (File No. 1-7221)).
- 10.27 Form of Motorola Solutions, Inc. Restricted Stock Unit Agreement relating to the Motorola Solutions Omnibus Incentive Plan of 2006 for grants to Appointed Vice Presidents and Elected Officers from February 3, 2014 to March 8, 2017 (incorporated by reference to Exhibit 10.19 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2013 (File No. 1-7221)).
- 10.28 Form of Motorola Solutions, Inc. Restricted Stock Unit Agreement relating to the Motorola Solutions Omnibus Incentive Plan of 2015 for grants to Employees on or after February 15, 2018 (incorporated by reference to Exhibit 10.3 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2018 (File No. 1-7221)).
- 10.29 Form of Motorola Solutions, Inc. Restricted Stock Unit Agreement relating to the Motorola Solutions Omnibus Incentive Plan of 2015 for grants to Employees from March 9, 2017 to February 14, 2018 (incorporated by reference to Exhibit 10.4 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended April 1, 2017 (File No. 1-7221)).
- 10.30 Form of Motorola Solutions, Inc. Performance Stock Unit Award Agreement for grants to Section 16 Officers on or after May 13, 2019 (incorporated by reference to Exhibit 10.1 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended June 29, 2019 (File No. 1-7221)).
- 10.31 Form of Motorola Solutions, Inc. Performance Stock Unit Award Agreement for grants to Gregory Q. Brown on or after May 13, 2019 incorporated by reference to Exhibit 10.2 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended June 29, 2019 (File No. 1-7221)).
- 10.32 Motorola Solutions, Inc. Amended Award Document-Terms and Conditions Related to Employee Nonqualified Stock Options and Addendum A to Motorola Solutions, Inc. Award Document-Terms and Conditions Related to Employee Stock Appreciation Rights, relating to the Motorola Solutions Omnibus Incentive Plan of 2006 for a grant on February 22, 2011 to Gregory Q. Brown. (incorporated by reference to exhibit 10.5 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended April 2, 2011 (File No. 1-7221)).
- 10.33 Form of Motorola Solutions Award Document-Terms and Conditions Related to Employee Nonqualified Stock Options for Gregory Q. Brown, relating to the Motorola Solutions Omnibus Incentive Plan of 2006 for grant on February 1, 2011 pursuant to the terms of the Employment Agreement dated August 27, 2008, as amended, by and between Motorola, Inc. and Gregory Q. Brown (incorporated by reference to Exhibit 10.24 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (File No. 1-7221)).
- 10.34 Form of Motorola Solutions Award Document-Terms and Conditions Related to Employee Nonqualified Stock Options for Gregory Q. Brown, relating to the Motorola Solutions Omnibus Incentive Plan of 2006 for grants on or after January 4, 2011 (incorporated by reference to Exhibit 10.25 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (File No. 1-7221)).
- 10.35 Form of Motorola, Inc. Award Document-Terms and Conditions Related to Employee Nonqualified Stock Options for Gregory Q. Brown, relating to the Motorola Solutions Omnibus Incentive Plan of 2006 for grants from May 7, 2009 to January 3, 2011 (incorporated by reference to Exhibit 10.13 to Motorola, Inc.'s Quarterly Report on Form 10-Q for the fiscal quarter ended April 4, 2009 (File No. 1-7221)).
- 10.36 Form of Motorola Solutions, Inc. Performance Option Award Agreement for grants to Gregory Q. Brown on or after March 9, 2015 (incorporated by reference to Exhibit 10.3 to Motorola Solutions' Current Report on Form 8-K filed on March 11, 2015 (File No. 1-7221)).
- 10.37 Form of Motorola Solutions, Inc. Terms and Conditions Related to Employee Performance-Contingent Stock Options (CEO) (incorporated by reference to Exhibit 10.4 to Motorola Solutions' Current Report on Form 8-K filed on August 26, 2015 (File No. 1-7221)).
- 10.38 Form of Motorola Solutions Stock Option Consideration Agreement for Gregory Q. Brown for grants on or after January 4, 2011 under the Motorola Solutions Omnibus Incentive Plan of 2006 (incorporated by reference to Exhibit 10.27 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2010)(File No. 1-7221)).
- 10.39 Form of Motorola, Inc. Stock Option Consideration Agreement for Gregory Q. Brown for grants from May 7, 2009 to January 3, 2011 under the Motorola Solutions Omnibus Incentive Plan of 2006 (incorporated by reference to Exhibit 10.14 to Motorola, Inc.'s Quarterly Report on Form 10-Q for the fiscal quarter ended April 4, 2009 (File No. 1-7221)).

- 10.40 Form of Motorola Solutions, Inc. Restricted Stock Unit Award Agreement for Gregory Q. Brown under the Motorola Solutions Omnibus Incentive Plan of 2006 for grants on or after January 4, 2011 (incorporated by reference to Exhibit 10.32 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (File No. 1-7221)).
- 10.41 Form of Motorola Solutions, Inc. Market Stock Unit Agreement for grants to Gregory Q. Brown on or after March 9, 2015 (incorporated by reference to Exhibit 10.4 to Motorola Solutions' Current Report on Form 8-K filed on March 11, 2015 (File No. 1-7221)).
- 10.42 Form of Motorola Solutions Deferred Stock Units Agreement between Motorola Solutions, Inc. and its non-employee directors, relating to the deferred stock units issued in lieu of cash compensation to directors under the Motorola Solutions Omnibus Incentive Plan of 2006, for acquisitions on or after January 1, 2012 (incorporated by reference to Exhibit 10.37 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2011 (File No. 1-7221)).
- 10.43 Form of Motorola Solutions Deferred Stock Units Agreement between Motorola Solutions, Inc. and its non-employee directors, relating to the deferred stock units issued in lieu of cash compensation to directors under the Motorola Solutions Omnibus Incentive Plan of 2006, for acquisitions on or after January 4, 2011 (incorporated by reference to Exhibit 10.37 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (File No. 1-7221)).
- 10.44 Form of Motorola Solutions Deferred Stock Units Award between Motorola Solutions, Inc. and its non-employee directors under the Motorola Solutions Omnibus Incentive Plan of 2006 or any successor plan for grants on or after January 1, 2012 (incorporated by reference to Exhibit 10.40 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2011 (File No. 1-7221)).
- 10.45 Form of Motorola Solutions Deferred Stock Units Award between Motorola Solutions, Inc. and its non-employee directors under the Motorola Solutions Omnibus Incentive Plan of 2006 or any successor plan for grants from January 4, 2011 to December 31, 2011 (incorporated by reference to Exhibit 10.39 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (File No. 1-7221)).
- 10.46 Motorola Solutions Executive Officer Short Term Incentive Plan dated January 17, 2013 (effective January 1, 2013) (incorporated by reference to Exhibit 10.50 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2012 (File No. 1-7221)).
- 10.47 Motorola Solutions Executive Officer Short Term Incentive Plan Term Sheet (incorporated by reference to Exhibit 10.51 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2012 (File No. 1-7221)).
- 10.48 Motorola Solutions Long Range Incentive Plan (LRIP), as Amended and Restated February 11, 2015, applicable to 2017-2019 and 2018-2020 cycles (incorporated by reference to Exhibit 10.5 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended April 4, 2015 (File No. 1-7221)).
- 10.49 2017-2019 Performance Measures under the Motorola Solutions Long Range Incentive Plan (LRIP), as approved on February 16, 2017 (incorporated by reference to Exhibit No. 10.1 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended on April 1, 2017 (File No. 1-7221)).
- 10.50 2018-2020 Performance Measures under the Motorola Solutions Long Range Incentive Plan (LRIP), as approved on February 15, 2018 (incorporated by reference to Exhibit 10.1 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2018 (File No. 1-7221)).
- 10.51 Motorola Solutions Long Range Incentive Plan (LRIP), as Amended and Restated May 13, 2019 (incorporated by reference to Exhibit 10.3 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended June 29, 2019 (File No. 1-7221)).
- 10.52 2019-2021 Performance Measures under the Motorola Solutions Long Range Incentive Plan (LRIP), as approved on February 14, 2019 (incorporated by reference to Exhibit 10.1 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended March 30, 2019 (File No. 1-7221)).
- 10.53 Motorola Solutions Management Deferred Compensation Plan (As Amended and Restated Effective as of June 1, 2013) (incorporated by reference to Exhibit 10.1 to Motorola Solutions' Current Report on Form 8-K filed on June 5, 2013 (File No. 1-7221)).
- 10.54 Motorola Solutions Management Deferred Compensation Plan, as amended and restated effective as of December 1, 2010, as amended January 4, 2011 (incorporated by reference to Exhibit 10.57 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (File No. 1-7221)).
- 10.55 Motorola Solutions, Inc. 2011 Senior Officer Change in Control Severance Plan, as amended and restated November 13, 2014 (incorporated by reference to Exhibit No. 10.54 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2014 (File No. 1-7221)).
- 10.56 Motorola Solutions, Inc. 2011 Executive Severance Plan, as amended and restated November 13, 2014 (incorporated by reference to Exhibit No. 10.55 to Motorola Solutions' Annual Report on Form 10-K for the fiscal year ended December 31, 2014 (File No. 1-7221)).
- 10.57 Arrangement for directors' fees for non-employee directors (description incorporated by reference from the information under the caption "How the Directors are Compensated" of Motorola Solutions' Proxy Statement for the Annual Meeting of Stockholders held on May 13, 2019 ("Motorola Solutions' Proxy Statement")).
- 10.58 Description of Insurance covering non-employee directors and their spouses (including a description incorporated by reference from the information under the caption "Director Retirement Plan and Insurance Coverage" of the Motorola Solutions' Proxy Statement filed March 27, 2017, and incorporated by reference to Exhibit 10.2 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended on July 1, 2017 (File No. 1-7221)).

- 10.59 Employment Agreement dated August 27, 2008 by and between Motorola, Inc. and Gregory Q. Brown (incorporated by reference to Exhibit 10.1 to Motorola, Inc.'s Current Report on Form 8-K filed on August 29, 2008 (File No. 1-7221)).
- 10.60 Amendment made on December 15, 2008 to the Employment Agreement dated August 27, 2008 by and between Motorola, Inc. and Gregory Q. Brown (incorporated by reference to Exhibit No. 10.50 to Motorola, Inc.'s Annual Report on Form 10-K for the fiscal year ended December 31, 2008 (File No. 1-7221)).
- 10.61 Second Amendment, dated May 28, 2010, to the Employment Agreement dated August 27, 2008, as amended, by and between Motorola, Inc. and Gregory Q. Brown (incorporated by reference to Exhibit 10.1 to Motorola, Inc.'s Current Report on Form 8-K filed on May 28, 2010 (File No. 1-7221)).
- 10.62 Third Amendment, dated March 10, 2014, to the Employment Agreement dated August 27, 2008, as amended, by and between Motorola Solutions, Inc. and Gregory Q. Brown (incorporated by reference to Exhibit 10.1 to Motorola Solutions Current Report on Form 8-K filed on March 13, 2014 (File No. 1-7221)).
- 10.63 Revolving Credit Agreement dated as of April 25, 2017 among the Company, JPMorgan Chase Bank, N.A., as administrative agent, and the several lenders and agents party thereto (incorporated by reference to Exhibit 10.1 to Motorola Solutions' Current Report on Form 8-K filed on April 27, 2017 (File No. 1-7221)).
- 10.64 Definitive Purchase Agreement by and among Motorola Solutions, Inc., The Prudential Insurance Company of America, Prudential Financial, Inc., and State Street Bank and Trust Company, as Independent Fiduciary of the Motorola Solutions Pension Plan, dated as of September 22, 2014 (incorporated by reference to Exhibit 10.1 to Motorola Solutions' Quarterly Report on Form 10-Q for the fiscal quarter ended September 27, 2014 (File No. 1-7221))**
- 10.65 Revised and Amended Aircraft Time Sharing Agreement as of October 1, 2015, by and between Motorola Solutions, Inc. and Gregory Q. Brown (incorporated by reference to Exhibit 10.4 to Motorola Solutions', Quarterly Report on Form 10-Q for the fiscal quarter ended October 3, 2015 (File No. 1-7221)).
- 10.66 Investment Agreement by and among Motorola Solutions, Inc., Silver Lake Partners IV, L.P. and Silver Lake Partners IV Cayman (AIV II), L.P., dated as of August 4, 2015 (incorporated by reference to Exhibit 10.1 to Motorola Solutions' Current Report on Form 8-K filed on August 5, 2015 (file No. 1-7221)).
- 10.67 Amendment dated as of September 5, 2019, to Investment Agreement by and among Motorola Solutions, Inc., Silver Lake Partners IV, L.P., and Silver Lake Partners IV Cayman (AIV II), L.P., dated as of August 4, 2015 (incorporated by reference to Exhibit 10.4 to Motorola Solutions' Current Report on Form 8-K filed on September 5, 2019 (file No. 1-7221)).
- 10.68 Investment Agreement by and among Motorola Solutions, Inc., Silver Lake Alpine, L.P. and Silver Lake Alpine (Offshore Master) L.P., dated as of September 5, 2019 (incorporated by reference to Exhibit 10.1 to Motorola Solutions' Current Report on Form 8-K filed on September 5, 2019 (file No. 1-7221)).
- *12 Statement regarding Computation of Ratio of Earnings to Fixed Charges.
- *21 Subsidiaries of Motorola Solutions, Inc.
- 23.1 Consent of Independent Registered Public Accounting Firm, see page 106 of the Annual Report on Form 10-K of which this Exhibit Index is a part.
- 23.2 Consent of Independent Registered Public Accounting Firm, see page 107 of the Annual Report on Form 10-K of which this Exhibit Index is a part.
- *31.1 Certification of Gregory Q. Brown pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
- *31.2 Certification of Gino A. Bonanotte pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
- *32.1 Certification of Gregory Q. Brown pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
- *32.2 Certification of Gino A. Bonanotte pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
- 101.INS XBRL Instance Document
- 101.SCH XBRL Taxonomy Extension Scheme 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
- 104 Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)
- * Filed herewith
- ** Confidential treatment has been requested for portions of this agreement

(b) Exhibits:

See Item 15(a) 3 above.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-53120, 333-123879, 333-133736, 333-142845, 333-160137, and 333-204324) and Form S-3 (Nos. 333-223828 and 333-230136) of Motorola Solutions, Inc. of our report dated February 14, 2020 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP

Chicago, Illinois

February 14, 2020

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors
Motorola Solutions, Inc.:

We consent to the incorporation by reference in the registration statements on Form S-8 (Nos. 333-53120, 333-123879, 333-133736, 333-142845, 333-160137, and 333-204324) and Form S-3 (Nos. 333-223828 and 333-230136) of Motorola Solutions, Inc. of our report dated February 15, 2019, with respect to the consolidated balance sheet of Motorola Solutions, Inc. as of December 31, 2018, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the years in the two-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements), which report appears in the December 31, 2019 annual report on Form 10-K of Motorola Solutions, Inc.

Our report refers to a change to the revenue recognition accounting principle as a result of the adoption of ASU 2014-09, "Revenue from Customers with Contracts."

KPMG LLP

Chicago, Illinois
February 14, 2020

