

AGILENT TECHNOLOGIES INC  
Form 10-K  
December 20, 2018  
UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

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Form 10-K

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(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the fiscal year ended October 31, 2018

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: 001-15405

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Agilent Technologies, Inc.

(Exact name of registrant as specified in its charter)

Delaware 77-0518772

State or other jurisdiction of I.R.S. Employer

Incorporation or organization Identification No.

Address of principal executive offices: 5301 Stevens Creek Blvd., Santa Clara, California 95051

Registrant's telephone number, including area code: (408) 345-8886

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

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

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

None

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

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

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

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

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

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

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

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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 x

The aggregate market value of the registrant's common equity held by non-affiliates as of April 30, 2018, was approximately \$16.0 billion. Shares of stock held by officers, directors and 5 percent or more stockholders have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of December 10, 2018, there were 318,533,054 outstanding shares of common stock, par value \$0.01 per share.

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DOCUMENTS INCORPORATED BY REFERENCE

Document Description	10-K Part
Portions of the Proxy Statement for the Annual Meeting of Stockholders (the "Proxy Statement") to be held on March 20, 2019, and to be filed pursuant to Regulation 14A within 120 days after registrant's fiscal year ended October 31, 2018 are incorporated by reference into Part III of this Report	III

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### Forward-Looking Statements

This report contains forward-looking statements including, without limitation, statements regarding trends, seasonality and growth in, and drivers of, the markets we sell into, our strategic direction, new product and service introductions and future products and services, adoption of our products, the ability of our products to meet market and customer needs, improving our customers' experience, future financial results, our operating margin, mix, our investments, including in manufacturing infrastructure and research and development, our ability to identify and enable synergies across our businesses, our focus on balanced capital allocation, competition, our contributions to our pension and other defined benefit plans, impairment of goodwill and other intangible assets, the effect of the U.S. Tax Cuts and Jobs Act of 2017 and U.S. and other tariffs, the impact of foreign currency movements, our hedging programs and other actions to offset the effects of tariffs and foreign currency movements, our future effective tax rate and tax valuation allowance, earnings from our foreign subsidiaries, repatriation of our earnings from foreign jurisdictions, the impact of local government regulations on our ability to pay vendors or conduct operations, our liquidity position, our ability to generate cash from operations, the potential impact of adopting new accounting pronouncements, indemnification, the use of contract manufacturers, our sourcing and third-party package delivery services, source and supply of materials used in our products, our sales, our purchase commitments, our capital expenditures, the integration of our acquisitions and other transactions, write down of investments values or loans and convertible notes, our stock repurchase program, our declared dividends, and the existence of economic instability, that involve risks and uncertainties. Our actual results could differ materially from the results contemplated by these forward-looking statements due to various factors, including those discussed in Part I Item 1A and elsewhere in this Form 10-K.

## PART I

### Item 1. Business

#### Overview

Agilent Technologies Inc. ("we", "Agilent" or the "company"), incorporated in Delaware in May 1999, is a global leader in life sciences, diagnostics and applied chemical markets, providing application focused solutions that include instruments, software, services and consumables for the entire laboratory workflow.

In 2018, we re-organized our operating segments and moved the microfluidics business from our life sciences and applied markets operating segment to our diagnostics and genomics operating segment. Following this re-organization and for the year ended October 31, 2018, we continue to have three business segments comprised of the life sciences and applied markets business, diagnostics and genomics business and the Agilent CrossLab business. All historical financial segment information for the life sciences and applied markets segment and the diagnostics and genomics segment has been recast to reflect this reorganization in our financial statements.

Our life sciences and applied markets business provides application-focused solutions that include instruments and software that enable customers to identify, quantify and analyze the physical and biological properties of substances and products, as well as enable customers in the clinical and life sciences research areas to interrogate samples at the molecular and cellular level. Our diagnostics and genomics business is comprised of six areas of activity providing solutions that include reagents, instruments, software and consumables which enable customers in the clinical and life sciences research areas to interrogate samples at the cellular and molecular level. The Agilent CrossLab business spans the entire lab with its extensive consumables and services portfolio, which is designed to improve customer outcomes. In addition, we conduct centralized order fulfillment and supply chain operations for our businesses through the order fulfillment and supply chain organization ("OFS"). OFS provides resources for manufacturing, engineering and strategic sourcing to our respective businesses. Each of our businesses, together with OFS and

Agilent Technologies Research Laboratories, is supported by our global infrastructure organization, which provides shared services in the areas of finance, information technology, legal, certain procurement services, workplace services and human resources.

We sell our products primarily through direct sales, but we also utilize distributors, resellers, manufacturer's representatives and electronic commerce. As of October 31, 2018, we employed approximately 14,800 people worldwide. Our primary research and development and manufacturing sites are in California, Colorado, Delaware, Massachusetts and Texas in the U.S. and in Australia, China, Denmark, Germany, Italy, Japan, Malaysia, Singapore and the United Kingdom.

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### Life Sciences and Applied Markets Business

Our life sciences and applied markets business provides application-focused solutions that include instruments and software that enable customers to identify, quantify and analyze the physical and biological properties of substances and products, as well as enable customers in the clinical and life sciences research areas to interrogate samples at the molecular and cellular level. Key product categories include: liquid chromatography ("LC") systems and components; liquid chromatography mass spectrometry ("LCMS") systems; gas chromatography ("GC") systems and components; gas chromatography mass spectrometry ("GCMS") systems; inductively coupled plasma mass spectrometry ("ICP-MS") instruments; atomic absorption ("AA") instruments; microwave plasma-atomic emission spectrometry ("MP-AES") instruments; inductively coupled plasma optical emission spectrometry ("ICP-OES") instruments; raman spectroscopy; cell analysis plate based assays; flow cytometer; real-time cell analyzer; laboratory software for sample tracking, information management and analytics; laboratory automation and robotic systems; dissolution testing; vacuum pumps and measurement technologies.

We employed approximately 4,500 people as of October 31, 2018 in our life sciences and applied markets business.

### Life Sciences and Applied Markets

Our life sciences and applied markets business focuses primarily on the following five markets:

**The Pharmaceutical, Biotechnology, CRO & CMO Market.** This market consists of "for-profit" companies who participate across the pharmaceutical value chain in the areas of therapeutic research, discovery & development, clinical trials, manufacturing and quality assurance and quality control. One sub-segment of this market is core and emerging pharmaceutical companies ("pharma"). A second sub-segment includes biotechnology companies ("biotech"), contract research organizations ("CROs") and contract manufacturing organizations ("CMOs"). Biotech companies and, to a somewhat lesser extent, CROs and CMOs typically participate in specific points in the pharmaceutical industry value chain. Additionally, due to the relatively low drug efficacy within oncology, pharma companies are partnering with diagnostic companies to bring validated tests to the market with their new drugs.

**The Academic and Government Market.** This market consists primarily of "not-for-profit" organizations and includes academic institutions, large government institutes and privately funded organizations. The academic and government market plays an influential role in technology adoption and therapeutic developments for pharmaceutical and molecular diagnostics companies. After decades of investment in basic biomedical research by government funding bodies, the focus has widened to include translational research - multidisciplinary scientific efforts directed at accelerating therapy development.

**The Chemical & Energy Market.** The natural gas and petroleum refining markets use our products to measure and control the quality of their finished products and to verify the environmental safety of their operations. Petroleum refiners use our measurement solutions to analyze crude oil composition, perform raw material analysis, verify and improve refining processes and ensure the overall quality of gasoline, fuels, lubricants and other products. Our solutions are also used in the development, manufacturing and quality control of fine chemicals and other industrial applications such as materials analysis.

**The Environmental & Forensics Market.** Our instruments, software and workflow solutions are used by the environmental market for applications such as laboratory and field analysis of chemical pollutants in air, water, soil and solid waste. Environmental industry customers include all levels of government, the industrial and manufacturing sectors, engineering and consulting companies, commercial testing laboratories and colleges and universities. Drug testing and forensics laboratories use our instruments, software and workflow solutions for applications such as analyzing evidence associated with crime, screening athletes for performance enhancing drugs, analyzing samples for recreational drugs, or detecting and identifying biological and chemical warfare agents. Some of our instruments are used in mobile laboratories as well. Customers include local, state, federal, and international law enforcement agencies and health laboratories.

The Food Market. Our instruments, software, and workflow solutions are used throughout the food production chain, including incoming inspection, new product development, quality control and assurance, and packaging. For example, our mass spectrometer portfolio is used to analyze contaminants and residual pesticides in food. There is also a significant food safety market involved in analyzing food for pathogen contamination, accurate verification of species type and evidence of genetically modified content.

#### Life Sciences and Applied Markets Products and Applications

Our products fall into eight main areas of work: liquid chromatography, gas chromatography, mass spectrometry, spectroscopy, software and informatics, lab automation and robotics, vacuum technology and cell analysis.

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Our key products and applications include the following technologies:

### Liquid Chromatography

A liquid chromatograph ("LC") or a high performance liquid chromatograph ("HPLC") is used to separate molecules of a liquid mixture to determine the quantity and identity of the molecules present. The Agilent LC portfolio is modular in construction and can be configured as analytical and preparative systems. These systems can be stepwise upgraded to highly sophisticated, automated workflow solutions such as method development, multi method/walk-up, high-capacity/high-throughput or multi dimensional LC and can be extended to application based analyzers e.g. for bio-molecular separations, chiral analysis or size exclusion chromatography. As a leader in liquid chromatography, we continue to expand our application space with new HPLC columns, new services and diagnostics offerings and ongoing instrument and software product enhancements.

### Gas Chromatography

Agilent is the world's leading provider of gas chromatographs, both laboratory and portable models. GC's are used to separate any gas, liquid or solid that can be vaporized and then detect the molecules present to determine their identity and quantity. Agilent provides custom or standard analyzers configured for specific chemical analysis applications, such as detailed speciation of a complex hydrocarbon stream, calculation of gas calorific values in the field, or analysis of a new bio-fuel formulation. We also offer related software, accessories and consumable products for these and other similar instruments.

### Mass Spectrometry

A mass spectrometer ("MS") identifies and quantifies chemicals based on a chemical's molecular mass and characteristic patterns of fragment ion masses that result when a molecule is broken apart. Liquid chromatography is commonly used to separate compounds and introduce them to the MS system. The combined use of LC and MS is frequently used both to identify and quantify chemical compounds. Mass spectrometry is an important tool in analyzing small molecules and can also be used to characterize and quantify proteins and other biological entities. Agilent's LCMS portfolio includes instruments built around four main analyzer types - single quadrupole, triple quadrupole, time-of-flight ("TOF") and quadrupole time-of-flight ("QTOF"). We significantly expanded our mass spectrometry portfolio in recent years with a focus on improving performance, sensitivity, and ease of use.

### Spectroscopy

Spectroscopy is a technique for analyzing the individual chemical components of substances based on the absorption or emission of electromagnetic radiation of specific wavelengths of light. Our spectroscopy instruments include AA spectrometers, microwave plasma-atomic emission spectrometers ("MP-AES"), ICP-OES, ICP-MS, fluorescence spectrophotometers, ultraviolet- visible ("UV-Vis") spectrophotometers, Fourier Transform infrared ("FT-IR") spectrophotometers, near-infrared ("NIR") spectrophotometers, Raman spectrometers and sample automation products. We also offer related software, accessories and consumable products for these and other similar instruments.

### Software and Informatics

We provide software for instrument control, data acquisition, data analysis, laboratory content and business process management, and informatics. Our software facilitates the compliant use of instruments in pharmaceutical quality assurance/quality control environments. With our OpenLab Laboratory Software Suite, Agilent has a scalable, open software platform that enables customers to capture, analyze, and share scientific data throughout the lab and across the enterprise.

### Lab Automation and Robotics



We offer a comprehensive suite of workflow solutions to our life science customers with the addition of automated liquid handling and robotics that range from standalone instrumentation to bench-top automation solutions. These solutions strengthen our offering of automated sample preparation solutions across a broad range of applications.

#### Vacuum Technology

Our vacuum technologies products are used to create, control, measure and test vacuum environments in life science, industrial and scientific applications where ultra-clean, high-vacuum environments are needed. Vacuum technologies' customers are typically OEMs that manufacture equipment for these applications, or government and research organizations that require vacuum solutions in their facilities. Products include a wide range of high and ultra-high vacuum pumps (diffusion, turbomolecular and ion getter), intermediate vacuum pumps (rotary vane, sorption and dry scroll), vacuum instrumentation (vacuum control

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instruments, sensor gauges and meters) and vacuum components (valves, flanges and other mechanical hardware). These products also include helium mass spectrometry and helium-sensing leak detection instruments used to identify and measure leaks in hermetic or vacuum environments. In addition to product sales, we also offer a wide range of services including an exchange and rebuild program, assistance with the design and integration of vacuum systems, applications support and training in basic and advanced vacuum technologies.

### Cell Analysis

Our cell analysis tools are used to study cell signaling pathways, general cell function and behavior through metabolic profile analysis, real-time cellular impedance measurements, and traditional cytometry techniques. Characterizing cellular behavior and function is an increasingly critical step in understanding normal behavior versus diseased states, advancements of those diseases, and response to therapies, providing researchers with a more targeted approach for drug discovery and ultimately more effective therapeutics. Cell analysis customers are typically academic institutions and pharma and bio-pharma companies.

### Life Sciences and Applied Markets Customers

We had approximately 24,000 customers for our life sciences and applied markets business in fiscal 2018. No single customer represented a material amount of the net revenue of the life sciences and applied markets business. A significant number of our life sciences and applied markets customers are also customers of our Agilent CrossLab business.

The life sciences and applied markets business is susceptible to seasonality in its orders and revenues primarily related to U.S. and foreign government budgets, chemical and energy and environmental customers and large pharmaceutical company budgets. Historically, the result is that our first and fourth fiscal quarters tend to deliver the strongest profits for this group. However, general economic trends, new product introductions and competition might overshadow this trend in any given year.

### Life Sciences and Applied Markets Sales, Marketing and Support

The life sciences and applied markets channels focus on the therapeutics and human disease research customer base (pharma, biotech, CRO, CMO and generics), clinical customer base (high complexity clinical testing labs) and on emerging life sciences opportunities in life science research institutes. We deploy a multi-channel approach, marketing products to our customers through direct sales, electronic commerce, resellers, manufacturers' representatives and distributors. We primarily use direct sales to market our solutions to our pharmaceutical, biopharmaceutical and clinical accounts. Sales agents supplement direct sales by providing broader geographic coverage and coverage of smaller accounts. Our active reseller program augments our ability to provide more complete solutions to our customers. We sell our consumable products through distributors, electronic commerce and direct sales.

Our products typically come with standard warranties, and extended warranties are available for additional cost.

### Life Sciences and Applied Markets Manufacturing

Our manufacturing supports our diverse product range and customer centric focus. We assemble highly configurable products to individual customer orders and make standard products to stock. We employ advanced manufacturing techniques and supply chain management systems to reduce costs and manufacturing cycle times. Our manufacturing process then converts these designs into standard as well as custom products for shipment to customers. We selectively use third parties to provide some supply chain processes for manufacturing, warehousing and logistics. We have manufacturing facilities in California, Delaware and Massachusetts in the U.S. Outside of the U.S., we have manufacturing facilities in Germany, Malaysia and Singapore. We have FDA registered sites in California, Germany and Singapore.

### Life Sciences and Applied Markets Competition

The markets for analytical instruments in which we compete are characterized by evolving industry standards and intense competition. Our principal competitors in the life sciences and applied markets arena include: Danaher Corporation, PerkinElmer Inc., Shimadzu Corporation, Thermo Fisher Scientific Inc. and Waters Corporation. Agilent

competes on the basis of product performance, reliability, support quality, applications expertise, global channel coverage and price.

#### Diagnostics and Genomics Business

Our diagnostics and genomics business includes the genomics, nucleic acid contract manufacturing and research and development, pathology, companion diagnostics, reagent partnership and biomolecular analysis businesses.

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Our diagnostics and genomics business is comprised of six areas of activity providing active pharmaceutical ingredients ("APIs") for oligo-based therapeutics as well as solutions that include reagents, instruments, software and consumables, which enable customers in the clinical and life sciences research areas to interrogate samples at the cellular and molecular level. First, our genomics business includes arrays for DNA mutation detection, genotyping, gene copy number determination, identification of gene rearrangements, DNA methylation profiling, gene expression profiling, as well as next generation sequencing ("NGS") target enrichment and genetic data management and interpretation support software. This business also includes solutions that enable clinical labs to identify DNA variants associated with genetic disease and help direct cancer therapy. Second, our nucleic acid solutions business provides equipment and expertise focused on production of synthesized oligonucleotides under pharmaceutical good manufacturing practices ("GMP") conditions for use as API in an emerging class of drugs that utilize nucleic acid molecules for disease therapy. Third, our pathology solutions business is focused on product offerings for cancer diagnostics and anatomic pathology workflows. The broad portfolio of offerings includes immunohistochemistry ("IHC"), in situ hybridization ("ISH"), hematoxylin and eosin ("H&E") staining and special staining. Fourth, we also collaborate with a number of major pharmaceutical companies to develop new potential pharmacodiagnosics, also known as companion diagnostics, which may be used to identify patients most likely to benefit from a specific targeted therapy. Fifth, the reagent partnership business is a provider of reagents used for turbidimetry and flow cytometry. Finally, our biomolecular analysis business provides complete workflow solutions, including instruments, consumables and software, for quality control analysis of nucleic acid samples. Samples are analyzed using quantitative and qualitative techniques to ensure accuracy in further genomics analysis techniques utilized in clinical and life science research applications.

We employed approximately 2,500 people as of October 31, 2018 in our diagnostics and genomics business.

### Diagnostics and Genomics Market

Within the diagnostics and genomics business, we focus primarily on the diagnostics and clinical market. A significant part of our clinical diagnostic customers are in pathology labs throughout the world. Our high-quality, automated pathology tissue staining platforms and solutions are used most heavily by the large labs located in hospitals, medical centers, and reference labs. The market is skewed towards mature economies, with most of the market in North America, Western Europe and Japan. The mix is changing, however, as emerging markets increase spending on human health.

The clinical market for genomics consists of high complexity clinical labs performing patient testing, including "for-profit" reference laboratories, hospital labs, and molecular diagnostic companies. While these labs primarily purchase in vitro diagnostics ("IVD") labeled testing kits, they often develop and validate their own molecular based tests. Analyte Specific Reagents ("ASRs") are often used by these labs.

### Diagnostics and Genomics Products

Our products fall into eight main areas of work: pathology products, specific proteins and flow reagents, companion diagnostics, target enrichment, cytogenetic research solutions and microarrays, PCR and qPCR instrumentation and molecular biology reagents, nucleic acid solutions and automated electrophoresis and microfluidics.

### Pathology

This area consists of routine clinical solutions for tissue based cancer diagnostics with solutions that comprise antibodies, reagents, instruments and software targeting both primary and advanced cancer diagnostics. Our CoverStainer and Artisan based product families target primary cancer diagnostics through hematoxylin and eosin staining as well as special stains for additional insights and detection of potentially carcinogenic tissue. In the fourth

quarter of 2013, we launched our combined IHC/ISH platform, Dako Omnis. The Dako Omnis and Autostainer based IHC solution and Instant Quality Fluorescence In Situ Hybridization ("IQFISH") technologies provide advanced tumor typing through investigation of protein and gene expression. These products also include companion diagnostic tests that are used to help identify patients most likely to benefit from a specific targeted therapy.

#### Specific Proteins and Flow Reagents

Our reagent OEM business is a provider of clinical diagnostic products within the areas of specific proteins for turbidimetry and reagents for flow cytometry. These are sold to OEM customers as customized reagent solutions supplied to top IVD companies or through retail partners.

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### Companion Diagnostics

In our companion diagnostics business, we partner with a number of major pharmaceutical companies to develop new potential pharmacodiagnosics, which may be used to identify patients most likely to benefit from a specific targeted therapy.

### Target Enrichment

Agilent continues to be a strong player in the next generation sequencing market. We provide a target enrichment portfolio composed of two main platforms, SureSelect and HaloPlex, both enabling customers to select specific target regions of the genome for sequencing. Customers can customize our products for their regions of interest using the SureDesign software, or they can choose from a wide range of catalog products, including gene panels for specific applications and Exome designs, which allow analysis of the entire coding sequences of the genome. After preparing samples with SureSelect and HaloPlex, products can be sequenced in the main next generation sequencing platforms available in the market. The technologies provide an easy sample prep workflow that can be automated with the Agilent Bravo platform for scalability. HaloPlex provides less-than-24-hours fast workflow, which makes it suitable for labs that require fast turnaround time from sample to results. These products are used for mutation detection and genotyping. Results can be easily analyzed using Agilent software solutions GeneSpring or SureCall. Our solutions also enable clinical labs to identify DNA variants associated with genetic diseases and help direct cancer therapy.

### Cytogenetic Research Solutions and Microarrays

Agilent is a leading provider of microarrays for comparative genomic hybridization (“CGH”), mostly used by customers in cytogenetic laboratories. The arrays allow customers to detect genome-wide copy number alterations, with high levels of resolution (from entire chromosomal copy number changes to specific microdeletions or duplications). The arrays are offered in many formats allowing the customers to choose from different levels of resolution and number of samples per arrays. Arrays can also be customized using the SureDesign software. In addition to the microarrays, Agilent's solution includes reagents for sample processing, hardware for reading the microarrays, and software to help users view the data in a meaningful way. In addition to the CGH portfolio, the cytogenetics solution comprises a line of oligonucleotide probes for fluorescent in situ hybridization ("FISH") called SureFISH. Over 400 probes are available in our catalog, covering most relevant regions in the genome. Cytogenetic labs can use SureFISH probes to detect specific translocations or copy number changes in samples. Additionally, Agilent provides a wide range of microarrays to the research market for different types of applications: gene expression, microRNA, methylation, splice variants, and chromatin immunoprecipitation applications. Arrays are offered as catalog designs or customizable designs, with no minimum order size and short delivery time, which differentiates us from other vendors and enables researchers the maximum flexibility in their studies. Our end-to-end solution includes reagents for sample preparation and microarray processing; hardware for sample QC and high-throughput microarray scanning; microarrays on industry-standard 1” x 3” glass slides for key applications; custom microarray design services; and GeneSpring and CytoGenomics software products for data analysis.

### PCR and qPCR Instrumentation and Molecular Biology Reagents

Polymerase chain reaction (“PCR”) is a standard laboratory method used to amplify the amount of genetic material of a given sample to enable further interrogation. Quantitative PCR (“qPCR”) or real time PCR is also a standard method used in genomic research facilities to measure the amount of a specific nucleic acid sequence within a sample. There are several applications for qPCR, among the most common are identifying the expression level of a specific gene, or calculating the amount of a specific pathogen present in a sample. Agilent offers a complete portfolio of PCR & qPCR instruments, as well as specialty enzymes for amplifying difficult sample types. In addition to PCR and qPCR

enzymes, Agilent offers a wide range of molecular biology reagents including tools for cloning and mutagenesis applications.

#### Nucleic Acid Solutions

Our Nucleic Acid Solutions division ("NASD") is a contract manufacturing and development services business with equipment and expertise focused on mid to large scale production of synthesized oligonucleotide APIs under pharmaceutical GMP conditions for an emerging class of drugs that utilize oligonucleotide molecules for disease therapy. These drugs have advanced from single strand DNA molecules to complex, highly modified molecules including antisense, aptamers, double-stranded RNA, and RNA mixtures. These advancements in the technology have greatly improved the efficacy of delivery and stability of the oligos in-vivo. NASD offers industry leading experience to efficiently advance our customer's oligo drug candidates from clinical trials to commercial launch with a common goal of patient health and safety.

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### Automated Electrophoresis and Microfluidics

Automated electrophoresis is a separation technique for bio molecules such as proteins, peptides and nucleic acids (RNA and DNA) and is used to determine the identity of a molecule by either size or charge. It is widely used as a QC tool to check sample integrity prior to subsequent analysis. Prominent examples are nucleic acid preparation products in front of polymerase chain reaction, NGS and microarrays.

### Diagnostics and Genomics Customers

We had approximately 11,000 customers for our diagnostics and genomics business in fiscal 2018. No single customer represented a material amount of the net revenue of the diagnostics and genomics business.

### Diagnostics and Genomics Sales, Marketing and Support

The diagnostics and genomics channels focus on the therapeutics and human disease research customer base (pharma, biotech, CRO, CMO and generics), clinical customer base (pathology labs and high complexity clinical testing labs) and on emerging life sciences opportunities in life science research institutes. We deploy a multi-channel approach, marketing products to our customers through direct sales, electronic commerce, resellers, manufacturers' representatives and distributors. We primarily use direct sales to market our solutions to our pharmaceutical, biopharmaceutical and clinical accounts. Sales agents supplement direct sales by providing broader geographic coverage and coverage of smaller accounts. Our active reseller program augments our ability to provide more complete solutions to our customers. We sell our consumable products through distributors, telesales, electronic commerce and direct sales. We utilize telesales for more mature product lines, as well as for reorders of reagent products.

### Diagnostics and Genomics Manufacturing

Our manufacturing supports our diverse product range and customer-centric focus. We assemble highly configurable products to individual customer orders and make standard products to stock. We employ advanced manufacturing techniques and supply chain management systems to reduce costs and manufacturing cycle times. We selectively use third parties to provide some supply chain processes for manufacturing, warehousing and logistics. We have manufacturing facilities in California, Colorado and Texas in the U.S. Outside of the U.S., we have manufacturing facilities in Denmark and Malaysia. Our FDA registered sites include California, Colorado, Texas and Denmark. We utilize just-in-time manufacturing and so typically do not maintain a high level of inventory.

### Diagnostics and Genomics Competition

The markets for diagnostics and genomics analytical products in which we compete are characterized by evolving industry standards and intense competition. Our principal competitors in the diagnostics and genomics arena include: Roche Ventana Medical Systems, Inc., a member of the Roche Group, Leica Biosystems, Inc., a division of Danaher Corporation, Abbott Laboratories, Illumina, Inc. and Affymetrix, Inc., a division of Thermo Fisher Scientific Inc. Agilent competes on the basis of product performance, reliability, support quality, applications expertise, whole solution offering, global channel coverage and price.

### Diagnostics and Genomics Government Regulation

Some of the products the diagnostics and genomics business sells are subject to regulatory approval by the FDA and other regulatory bodies throughout the world. These regulations govern a wide variety of product related activities, from quality management, design and development to labeling, manufacturing, promotion, sales and distribution. We continually invest in our manufacturing infrastructure to gain and maintain certifications necessary for the level of clearance.





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### Agilent CrossLab Business

The Agilent CrossLab business spans the entire lab with its extensive consumables and services portfolio, which is designed to improve customer outcomes. The majority of the portfolio is vendor neutral, meaning Agilent can serve and supply customers regardless of their instrument purchase choices. Solutions range from chemistries and supplies to services and software helping to connect the entire lab. Key product categories in consumables include GC and LC columns, sample preparation products, custom chemistries, and a large selection of laboratory instrument supplies. Services include startup, operational, training and compliance support, software as a service, as well as asset management and consultative services that help increase customer productivity. Custom service and consumable bundles are tailored to meet the specific application needs of various industries and to keep instruments fully operational and compliant with the respective industry requirements.

Our Agilent CrossLab business employed approximately 5,100 people as of October 31, 2018.

### Agilent CrossLab Markets

**The Pharmaceutical, Biotechnology, CRO & CMO Market.** Our services and consumable products support customers in this market that consists of “for-profit” companies who participate across the pharmaceutical value chain in the areas of therapeutic research, discovery and development, clinical trials, manufacturing and quality assurance and quality control. One sub-segment of this market is core and emerging pharmaceutical companies (“pharma”). A second sub-segment includes biotechnology companies (“biotech”), contract research organizations (“CROs”) and contract manufacturing organizations (“CMOs”). Biotech companies and, to a somewhat lesser extent, CROs and CMOs typically participate in specific points in the pharmaceutical industry value chain. Additionally, due to the relatively low drug efficacy within oncology, pharma companies are partnering with diagnostic companies to bring validated tests to the market with their new drugs.

**The Academic and Government Market.** Our services and consumable products support customers in this market that consists primarily of “not-for-profit” organizations and includes academic institutions, large government institutes and privately funded organizations. The academic and government market plays an influential role in technology adoption and therapeutic developments for pharmaceutical and molecular diagnostics companies. After decades of investment in basic biomedical research by government funding bodies, the focus has widened to include translational research - multidisciplinary scientific efforts directed at accelerating therapy development.

**The Chemical & Energy Market.** The natural gas and petroleum refining markets use our services and consumable products to support their quality control and environmental safety reviews.

**The Environmental & Forensics Market.** Our services and consumable products support the environmental industry customers that perform laboratory and field analysis of chemical pollutants in air, water, soil and solid waste. Environmental industry customers include all levels of government, the industrial and manufacturing sectors, engineering and consulting companies, commercial testing laboratories and colleges and universities. Our services and consumable products also support drug testing and forensics laboratories that are involved with analyzing evidence associated with crime, screening athletes for performance enhancing drugs, analyzing samples for recreational drugs, or detecting and identifying biological and chemical warfare agents. Customers include local, state, federal, and international law enforcement agencies and commercial testing laboratories.

**The Food Market.** Our services and consumable products support the food production chain, including incoming inspection, new product development, quality control and assurance, and packaging.

**The Diagnostics and Clinical Market.** Our services and consumable products support clinical diagnostic customers in pathology labs throughout the world. The market is skewed towards the mature economies, with most of the market in North America, Western Europe and Japan. The mix is changing, however, as emerging markets increase spending on

human health.

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### Agilent CrossLab Products and Applications

#### Chemistries and Supplies

We offer a broad range of consumable products, which support our technology platforms, including sample preparation consumables such as solid phase extraction ("SPE") and filtration products, self-manufactured GC and LC columns, chemical standards, and instrument replacement parts. Consumable products also include scientific instrument parts and supplies such as filters and fittings for GC systems; xenon lamps and cuvettes for UV-Vis-NIR, fluorescence, FT-IR and Raman spectroscopy instruments; and graphite furnace tubes, hollow cathode lamps and specialized sample introduction glassware for our AA, ICP-OES and ICP-MS products.

#### Services and Support

We offer a wide range of startup, operational, educational and compliance support services for our measurement and data handling systems. Our support services include maintenance, troubleshooting, repair and training for all of our chemical and bioanalytical instrumentation hardware and software products. Special service bundles have also been designed to meet the specific application needs of various industries. As customers continue to outsource laboratory operations and consolidate suppliers, our enterprise services consist of a broad portfolio of integrated laboratory management services including instrument services, lab supply management, asset management, procurement, informatics and scientific services.

#### Remarketed Instruments

We refurbish and resell certified pre-owned instruments to value-oriented customers who demand Agilent quality and performance at a budget conscious price.

#### Agilent CrossLab Customers

We had approximately 51,000 Agilent CrossLab customers in fiscal 2018 and no single customer represented a material amount of the net revenue of the Agilent CrossLab business. A significant number of our Agilent CrossLab customers are also customers of our life sciences and applied markets business.

The service and consumables business is mostly recurring in nature, and is not as susceptible to market seasonality and industry cycles in comparison to our instrument businesses. The vendor neutral portion of the portfolio allows the business to perform relatively independent from our instrument business.

#### Agilent CrossLab Sales, Marketing and Support

We deploy a multi-channel approach, marketing products and services to our customers through direct sales, electronic commerce, resellers, manufacturers' representatives and distributors. We primarily use direct sales to market our solutions to our large accounts. Sales agents supplement direct sales by providing broader geographic coverage and coverage of smaller accounts. Our active reseller program augments our ability to provide more complete solutions to our customers. We utilize telesales to enhance the transactional sales model of our products. All channels are supported by technical product and application specialists to meet our customer's specific requirements. We deliver our support services to customers in a variety of ways, including on-site assistance with repair or exchange of returned products, telephone support and self-diagnostic services provided over the Internet. We also offer special industry-focused service bundles that are designed to meet the specific needs of hydrocarbon processing, environmental, pharmaceutical and biopharmaceutical customers to keep instruments fully operational and compliant with the respective industry requirements. Our products typically come with standard warranties, and extended

warranties are available for additional cost.

Agilent CrossLab Manufacturing

Our primary manufacturing sites for the consumables business are in California and Delaware in the U.S., and in the Netherlands and the United Kingdom outside of the U.S. Our direct service delivery organization is regionally based operating in 30 countries.

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### Agilent CrossLab Competition

Our principal competitors in the services and consumable products arena include many of our competitors from the instrument business, such as: Danaher Corporation, PerkinElmer, Inc., Shimadzu Corporation, Thermo Fisher Scientific Inc. and Waters Corporation, as well as numerous niche consumables and service providers. Agilent competes on the basis of product performance, reliability, support quality, applications expertise, global channel coverage and price.

### Agilent Technologies Research Laboratories

Agilent Technologies Research Laboratories ("Research Labs") is our research organization based in Santa Clara, California. The Research Labs create competitive advantage through high-impact technology, driving market leadership and growth in Agilent's core businesses and expanding Agilent's footprint into adjacent markets. At the cross-roads of the organization, the Research Labs are able to identify and enable synergies across Agilent's businesses to create competitive differentiation and compelling customer value.

The technical staff have advanced degrees that cover a wide range of scientific and engineering fields, including biology, chemistry, distributed measurement, image processing, mathematics, nano/microfabrication, microfluidics, software, physics and physiology.

### Global Infrastructure Organization

We provide support to our businesses through our global infrastructure organization. This support includes services in the areas of finance, tax, treasury, legal, real estate, insurance services, workplace services, human resources, information technology services, order administration and other corporate infrastructure expenses. Generally, these organizations are managed from Santa Clara, California, with operations and services provided worldwide. As of the end of October 2018, our global infrastructure organization employed approximately 2,700 people worldwide.

### Agilent Order Fulfillment Organizations

Our order fulfillment and supply chain organization ("OFS") focuses on order fulfillment and supply chain operations in our businesses. OFS provides resources for manufacturing, engineering and strategic sourcing to our respective businesses. In general, OFS employees are dedicated to specific businesses and the associated costs are directly allocated to those businesses.

The following discussions of Research and Development, Backlog, Intellectual Property, Materials, Environmental and Acquisition and Disposal of Material Assets include information common to each of our businesses.

### Research and Development

We anticipate that we will continue to have significant R&D expenditures in order to maintain our competitive position with a continuing flow of innovative, high-quality products and services. Our research and development efforts focus on potential new products and product improvements covering a wide variety of technologies, none of which is individually significant to our operations. Our research seeks to improve on various technical competencies in software, systems and solutions, life sciences and diagnostics. In each of these research fields, we conduct research that is focused on specific product development for release in the short-term as well as other research that is intended to be the foundation for future products over a longer time-horizon. Most of our product development research is designed to improve products already in production, focus on major new product releases, and develop new product

segments for the future. We remain committed to invest significantly in research and development and have focused our development efforts on key strategic opportunities to align our business with available markets and position ourselves to capture market share.

#### Backlog

We believe that backlog is not a meaningful indicator of future business prospects for our business segments since a significant portion of our revenue for a given quarter is derived from the current quarter's orders. Therefore, we believe that backlog information is not material to an understanding of our business.

#### Intellectual Property

We generate patent and other intellectual property rights covering significant inventions and other innovations in order to create a competitive advantage. While we believe that our licenses, patents and other intellectual property rights have value, in

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general no single license, patent or other intellectual property right is in itself material. In addition, our intellectual property rights may be challenged, invalidated or circumvented or may otherwise not provide significant competitive advantage.

### Materials

Our life sciences and applied markets, diagnostics and genomics and Agilent CrossLab businesses all purchase materials from thousands of suppliers on a global basis. Some of the parts that require custom design work are not readily available from alternate suppliers due to their unique design or the length of time necessary for design work. Our long-term relationships with suppliers allow us to proactively manage technology road maps and product discontinuance plans and monitor their financial health. To address any potential disruption in our supply chain, we use a number of techniques, including qualifying multiple sources of supply and redesign of products for alternative components. In addition, while we generally attempt to keep our inventory at minimal levels, we do purchase incremental inventory as circumstances warrant to protect the supply chain.

### Environmental

Our R&D, manufacturing and distribution operations involve the use of hazardous substances and are regulated under international, federal, state and local laws governing health and safety and the environment. We apply strict standards for protection of the environment and occupational health and safety to sites inside and outside the U.S., even if not subject to regulation imposed by foreign governments. We believe that our properties and operations at our facilities comply in all material respects with applicable environmental laws and occupational health and safety laws. We are also regulated under a number of international, federal, state, and local laws regarding recycling, product packaging and product content requirements. We believe we are substantially in compliance with such environmental, product content/disposal and recycling laws.

We maintain a comprehensive Environmental Site Liability insurance policy which may cover certain clean-up costs or legal claims related to environmental contamination. This policy covers specified active, inactive and divested locations.

### Acquisition and Disposal of Material Assets

In 2018, we acquired seven businesses, for a combined purchase price of approximately \$536 million. The largest of which was Advanced Analytical Technologies, Inc. ("AATI") for approximately \$268 million in cash. These acquisitions were not material individually or in aggregate.

### Executive Officers of the Registrant

The names of our current executive officers and their ages, titles and biographies appear below:

Henrik Ancher-Jensen, 53, has served as Senior Vice President, Agilent and President, Order Fulfillment since September 2013. From September 2012 to September 2013, Mr. Ancher-Jensen served as our Vice President, Global Product Supply, Diagnostics and Genomics Group. From September 2010 to September 2012 he served as Corporate Vice President, Global Operations of Dako A/S, a Danish diagnostics company, and as Dako's Vice President, Supply Chain and Chief Information Officer from 2006 to September 2010. Prior to joining Dako, he spent more than 15 years in senior management roles and management consulting with Chr. Hansen, Deloitte Consulting and NVE.

Mark Doak, 63, has served as our Senior Vice President, Agilent and President, Agilent CrossLab Group (formerly a group within the Life Sciences & Applied Markets Group) since September 2014. From August 2008 to September 2014, Mr. Doak served as our Vice President and General Manager of the Services and Support Division. Prior to



that, he held several senior management positions across functions in marketing, quality and services.

Rodney Gonsalves, 53, has served as our Vice President, Corporate Controllershship and Chief Accounting Officer since May 2015. From September 2009 to May 2015, Mr. Gonsalves served as Vice President and operational CFO for various business groups within the Company, most recently for the Life Sciences and Applied Markets Group. Prior to that, Mr. Gonsalves served in various capacities for Agilent, including as vice president of Investor Relations, controller, corporate governance and customer financing in Agilent's Global Infrastructure Organization, and controller for the Photonics Systems Business Unit. Before joining Agilent, Mr. Gonsalves held a variety of positions in finance with Hewlett- Packard Co.

Dominique P. Grau 59, has served as our Senior Vice President, Human Resources since August 2014. From May 2012 to August 2014 Mr. Grau served as Vice President, Worldwide Human Resources. Prior to that, he served as Vice President, Compensation, Benefits and HR Services from May 2006 to May 2012. Mr. Grau had previously served in various capacities for Agilent and Hewlett-Packard Company.

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Robert W. McMahon 50, has served as our Senior Vice President since August 2018 and Chief Financial Officer since September 2018. He previously served as the Chief Financial Officer of Hologic, Inc., a medical technology company from May 2014 to August 2018. Prior to Hologic, Mr. McMahon spent 20 years with Johnson & Johnson most recently as Worldwide Vice President of Finance and Business Development for Ortho Clinical Diagnostics a division of Johnson & Johnson's Medical Device and Diagnostics Group.

Michael R. McMullen, 57, has served as Chief Executive Officer since March 2015 and as President since September 2014. From September 2014 to March 2015 he also served as Chief Operating Officer. From September 2009 to September 2014 he served as Senior Vice President, Agilent and President, Chemical Analysis Group. Prior to that, he served in various capacities for Agilent, including as our Vice President and General Manager of the Chemical Analysis Solutions Unit of the Life Sciences and Chemical Analysis Group and Country Manager for Agilent's China, Japan and Korea Life Sciences and Chemical Analysis Group. Prior to that, Mr. McMullen served as our Controller for the Hewlett Packard Company and Yokogawa Electric Joint Venture from July 1996 to March 1999. Since September 2018, Mr. McMullen has served as a member of the Board of Directors of Coherent, Inc.

Samraat S. Raha, 46, has served as our Senior Vice President, Agilent and President, Diagnostics and Genomics Group since April 2018. From May 2017 to April 2018, Mr. Raha served as our Senior Vice President, Strategy and Corporate Development. From June 2013 to January 2017 he served as Vice President, Global Marketing for Illumina, Inc. and from 2008 to 2012 he served as Vice President and General Manager, Genomic Assays / NextGen qPCR for Life Technologies, Inc.

Michael Tang, 44, has served as our Senior Vice President, General Counsel and Secretary since January 2016. From May 2015 to January 2016 he served as Vice President, Assistant General Counsel and Secretary and from November 2013 to April 2015 he served as Vice President, Assistant General Counsel and Assistant Secretary. From March 2012 to October 2013 he served as Business Development Manager in Agilent's Corporate Development group. Prior to that, Mr. Tang served in various capacities in Agilent's legal department. Before joining Agilent, Mr. Tang worked at Wilson Sonsini Goodrich & Rosati, a California law firm and Fenwick & West LLP, a California, law firm.

Jacob Thaysen, 43, has served as Senior Vice President, Agilent and President, Life Sciences and Applied Markets Group, since April 2018. From November 2014 to April 2018 he served as Senior Vice President, Agilent and President, Diagnostics and Genomics Group. From October 2013 to November 2014 he served as Vice President and General Manager of the Diagnostics and Genomics business. Prior to that he served as Vice President and General Manager of the Genomics Solutions unit from January 2013 to October 2013. Before joining Agilent, he served in various capacities at Dako A/S, a Danish diagnostics company, including as Corporate Vice President of R&D, Vice President, System Development, R&D, Vice President, Strategic Marketing and Vice President, Global Sales Operations. Prior to Dako, Mr. Thaysen worked as a management consultant and Chief Technical Officer and founder of a high-tech start-up company.

**Investor Information**

We are subject to the informational requirements of the Securities Exchange Act of 1934 ("Exchange Act"). Therefore, we file periodic reports, proxy statements and other information with the Securities and Exchange Commission ("SEC"). The SEC maintains an Internet site (<http://www.sec.gov>) that contains reports, proxy and information statements and other information regarding issuers that file electronically.

Our financial and other information can be accessed at our Investor Relations website. The address is [www.investor.agilent.com](http://www.investor.agilent.com). We make available, free of charge, copies of our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after filing such material electronically or otherwise furnishing it to the SEC.

Our Amended and Restated Bylaws, Corporate Governance Standards, the charters of our Audit and Finance Committee, our Compensation Committee, our Executive Committee and our Nominating/Corporate Governance Committee, as well as our Standards of Business Conduct (including code of ethics provisions that apply to our principal executive officer, principal financial officer, principal accounting officer and senior financial officers) are available on our website at [www.investor.agilent.com](http://www.investor.agilent.com) under “Corporate Governance”. These items are also available in print to any stockholder in the United States and Canada who requests them by calling (877) 942-4200. This information is also available by writing to the company at the address on the cover of this Annual Report on Form 10-K.

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### Item 1A. Risk Factors

Our operating results and financial condition could be harmed if the markets into which we sell our products decline or do not grow as anticipated.

Visibility into our markets is limited. Our quarterly sales and operating results are highly dependent on the volume and timing of orders received during the fiscal quarter, which are difficult to forecast and may be cancelled by our customers. In addition, our revenue and earnings forecasts for future fiscal quarters are often based on the expected seasonality of our markets. However, the markets we serve do not always experience the seasonality that we expect as customer spending policies and budget allocations, particularly for capital items, may change. Any decline in our customers' markets or in general economic conditions would likely result in a reduction in demand for our products and services. Also, if our customers' markets decline, we may not be able to collect on outstanding amounts due to us. Such declines could harm our consolidated financial position, results of operations, cash flows and stock price, and could limit our profitability. Also, in such an environment, pricing pressures could intensify. Since a significant portion of our operating expenses is relatively fixed in nature due to sales, research and development and manufacturing costs, if we were unable to respond quickly enough these pricing pressures could further reduce our operating margins.

If we do not introduce successful new products and services in a timely manner to address increased competition through frequent new product and service introductions, rapid technological changes and changing industry standards, our products and services may become obsolete, and our operating results may suffer.

We generally sell our products in industries that are characterized by increased competition through frequent new product and service introductions, rapid technological changes and changing industry standards. Without the timely introduction of new products, services and enhancements, our products and services may become technologically obsolete over time, in which case our revenue and operating results could suffer. The success of our new products and services will depend on several factors, including our ability to:

- properly identify customer needs and predict future needs;
- innovate and develop new technologies, services and applications;
- appropriately allocate our research and development spending to products and services with higher growth prospects;
- successfully commercialize new technologies in a timely manner;
- manufacture and deliver new products in sufficient volumes and on time;
- differentiate our offerings from our competitors' offerings;
- price our products competitively;
- anticipate our competitors' development of new products, services or technological innovations; and
- control product quality in our manufacturing process.

In addition, if we fail to accurately predict future customer needs and preferences or fail to produce viable technologies, we may invest in research and development of products and services that do not lead to significant revenue, which would adversely affect our profitability. Even if we successfully innovate and develop new and enhanced products and services, we may incur substantial costs in doing so, and our operating results may suffer. In addition, promising new products may fail to reach the market or realize only limited commercial success because of real or perceived concerns of our customers. Furthermore, as we collaborate with pharmaceutical customers to develop drugs such as companion diagnostics assays or providing drug components like active pharmaceutical ingredients, we face risks that those drug programs may be cancelled upon clinical trial failures.

General economic conditions may adversely affect our operating results and financial condition.

Our business is sensitive to negative changes in general economic conditions, both inside and outside the United States. Slower global economic growth and uncertainty in the markets in which we operate may adversely impact our business resulting in:

- reduced demand for our products, delays in the shipment of orders, or increases in order cancellations;
- increased risk of excess and obsolete inventories;
- increased price pressure for our products and services; and
- greater risk of impairment to the value, and a detriment to the liquidity, of our investment portfolio.

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Failure to adjust our purchases due to changing market conditions or failure to accurately estimate our customers' demand could adversely affect our income.

Our income could be harmed if we are unable to adjust our purchases to reflect market fluctuations, including those caused by the seasonal nature of the markets in which we operate. The sale of our products and services are dependent, to a large degree, on customers whose industries are subject to seasonal trends in the demand for their products. During a market upturn, we may not be able to purchase sufficient supplies or components to meet increasing product demand, which could materially affect our results. In the past we have experienced a shortage of parts for some of our products. In addition, some of the parts that require custom design are not readily available from alternate suppliers due to their unique design or the length of time necessary for design work. Should a supplier cease manufacturing such a component, we would be forced to reengineer our product. In addition to discontinuing parts, suppliers may also extend lead times, limit supplies or increase prices due to capacity constraints or other factors. In order to secure components for the production of products, we may continue to enter into non-cancelable purchase commitments with vendors, or at times make advance payments to suppliers, which could impact our ability to adjust our inventory to declining market demands. If demand for our products is less than we expect, we may experience additional excess and obsolete inventories and be forced to incur additional expenses.

Demand for some of our products and services depends on the capital spending policies of our customers, research and development budgets and on government funding policies.

Our customers include pharmaceutical companies, laboratories, universities, healthcare providers, government agencies and public and private research institutions. Many factors, including public policy spending priorities, available resources, mergers and consolidations, institutional and governmental budgetary policies and spending priorities, and product and economic cycles, have a significant effect on the capital spending policies of these entities. Fluctuations in the research and development budgets at these organizations could have a significant effect on the demand for our products and services. Research and development budgets fluctuate due to changes in available resources, consolidation, spending priorities, general economic conditions and institutional and governmental budgetary policies. The timing and amount of revenue from customers that rely on government funding or research may vary significantly due to factors that can be difficult to forecast, including changes in spending authorizations and budgetary priorities for our products and services. If demand for our products and services is adversely affected, our revenue and operating results would suffer.

Economic, political, foreign currency and other risks associated with international sales and operations could adversely affect our results of operations.

Because we sell our products worldwide, our business is subject to risks associated with doing business internationally. We anticipate that revenue from international operations will continue to represent a majority of our total revenue. International revenue and costs are subject to the risk that fluctuations in foreign currency exchange rates could adversely affect our financial results when translated into U.S. dollars for financial reporting purposes. The favorable effects of changes in foreign currency exchange rates has increased revenues by approximately 2 percentage points in the year ended October 31, 2018. When movements in foreign currency exchange rates have a positive impact on revenue it will also have a negative impact on our costs and expenses. In addition, many of our employees, contract manufacturers, suppliers, job functions, outsourcing activities and manufacturing facilities are located outside the United States. Accordingly, our future results could be harmed by a variety of factors, including:

- interruption to transportation flows for delivery of parts to us and finished goods to our customers;
- changes in a specific country's or region's political, economic or other conditions;
- changes in diplomatic and trade relationships, including new tariffs, trade protection measures, import or export licensing requirements, new or different customs duties trade embargoes and sanctions and other trade barriers;

tariffs imposed by the U.S. on goods from other countries and tariffs imposed by other countries on U.S. goods, including the tariffs recently enacted and proposed by the U.S. government on various imports from China and by the Chinese government on certain U.S. goods, the scope and duration of which, if implemented, remains uncertain;

- negative consequences from changes in tax laws;
- difficulty in staffing and managing widespread operations;
- differing labor regulations;
- differing protection of intellectual property;
- unexpected changes in regulatory requirements; and
- geopolitical uncertainty or turmoil, including terrorism and war.

We sell our products into many countries and we also source many components and materials for our products from various countries. Tariffs recently announced and implemented could have negative impact on our business, results of operations and

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financial condition. Further, additional tariffs which have been proposed or threatened and the potential escalation of a trade war and retaliatory measures could have a material adverse effect on our business, results of operations and financial condition.

We centralized most of our accounting and tax processes to two locations: India and Malaysia. These processes include general accounting, cost accounting, accounts payable, accounts receivables and tax functions. If conditions change in those countries, it may adversely affect operations, including impairing our ability to pay our suppliers and collect our receivables. Our results of operations, as well as our liquidity, may be adversely affected and possible delays may occur in reporting financial results.

In addition, although the majority of our products are priced and paid for in U.S. dollars, a significant amount of certain types of expenses, such as payroll, utilities, tax, and marketing expenses, are paid in local currencies. Our hedging programs reduce, but do not always entirely eliminate, within any given twelve-month period, the impact of currency exchange rate movements, and therefore fluctuations in exchange rates, including those caused by currency controls, could impact our business, operating results and financial condition by resulting in lower revenue or increased expenses. For expenses beyond that twelve-month period, our hedging strategy does not mitigate our exposure. In addition, our currency hedging programs involve third party financial institutions as counterparties. The weakening or failure of financial institution counterparties may adversely affect our hedging programs and our financial condition through, among other things, a reduction in available counterparties, increasingly unfavorable terms, and the failure of the counterparties to perform under hedging contracts.

Our strategic initiatives to adjust our cost structure could have long-term adverse effects on our business and we may not realize the operational or financial benefits from such actions.

We have implemented multiple strategic initiatives across our businesses to adjust our cost structure, and we may engage in similar activities in the future. These strategic initiatives and our regular ongoing cost reduction activities may distract management, could slow improvements in our products and services and limit our ability to increase production quickly if demand for our products increases. In addition, delays in implementing our strategic initiatives, unexpected costs or failure to meet targeted improvements may diminish the operational and financial benefits we realize from such actions. Any of the above circumstances could have an adverse effect on our business and operating results and financial condition.

Our business will suffer if we are not able to retain and hire key personnel.

Our future success depends partly on the continued service of our key research, engineering, sales, marketing, manufacturing, executive and administrative personnel. If we fail to retain and hire a sufficient number of these personnel, we will not be able to maintain or expand our business. The markets in which we operate are very dynamic, and our businesses continue to respond with reorganizations, workforce reductions and site closures. We believe our pay levels are very competitive within the regions that we operate. However, there is an intense competition for certain highly technical specialties in geographic areas where we continue to recruit, and it may become more difficult to hire and retain our key employees.

Our acquisitions, strategic investments and alliances, joint ventures, exiting of businesses and divestitures may result in financial results that are different than expected.

In the normal course of business, we frequently engage in discussions with third parties relating to possible acquisitions, strategic investments and alliances, joint ventures and divestitures, and generally expect to complete several transactions per year. In addition, we may decide to exit a particular business within our product portfolio. As a result of such transactions, our financial results may differ from our own or the investment community's



expectations in a given fiscal quarter, or over the long term. We may have difficulty developing, manufacturing and marketing the products of a newly acquired company in a way that enhances the performance of our combined businesses or product lines. Acquired businesses may also expose us to new risks and new markets and we may have difficulty addressing these risks in a cost effective and timely manner. Transactions such as acquisitions have resulted, and may in the future result in, unexpected significant costs and expenses. In the future, we may be required to record charges to earnings during the period if we determine there is an impairment of goodwill or intangible assets, up to the full amount of the value of the assets, or, in the case of strategic investments and alliances, consolidate results, including losses, of third parties or write down investment values or loans and convertible notes related to the strategic investment.

Integrating the operations of acquired businesses within Agilent could be a difficult, costly and time-consuming process that involves a number of risks. Acquisitions and strategic investments and alliances may require us to integrate and collaborate with a different company culture, management team, business models, business infrastructure and sales and distribution methodologies and assimilate and retain geographically dispersed, decentralized operations and personnel. Depending on the size and complexity of an acquisition, our successful integration of the entity depends on a variety of factors, including introducing new products and meeting revenue targets as expected, the retention of key employees and key customers, increased exposure to

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certain governmental regulations and compliance requirements and increased costs and use of resources. Further, the integration of acquired businesses is likely to result in our systems and internal controls becoming increasingly complex and more difficult to manage. Any difficulties in the assimilation of acquired businesses into our control system could harm our operating results or cause us to fail to meet our financial reporting obligations.

Even if we are able to successfully integrate acquired businesses within Agilent, we may not be able to realize the revenue and other synergies and growth that we anticipated from the acquisition in the time frame that we expected, and the costs of achieving these benefits may be higher than what we expected. As a result, the acquisition and integration of acquired businesses may not contribute to our earnings as expected, we may not achieve our operating margin targets when expected, or at all, and we may not achieve the other anticipated strategic and financial benefits of such transactions.

A successful divestiture depends on various factors, including our ability to effectively transfer liabilities, contracts, facilities and employees to the purchaser, identify and separate the intellectual property to be divested from the intellectual property that we wish to keep and reduce fixed costs previously associated with the divested assets or business. In addition, if customers of the divested business do not receive the same level of service from the new owners, this may adversely affect our other businesses to the extent that these customers also purchase other Agilent products. In exiting a business, we may still retain liabilities associated with the support and warranty of those businesses and other indemnification obligations. All of these efforts require varying levels of management resources, which may divert our attention from other business operations. If we do not realize the expected benefits or synergies of such transactions, our consolidated financial position, results of operations, cash flows and stock price could be negatively impacted.

If we fail to maintain an effective system of internal controls, we may not be able to accurately report our financial results, which could lead to a loss of investor confidence in our financial statements and have an adverse effect on our stock price.

Effective internal controls are necessary for us to provide reliable and accurate financial statements and to effectively prevent fraud. We devote significant resources and time to comply with the internal control over financial reporting requirements of the Sarbanes Oxley Act of 2002 and continue to enhance our controls. However, we cannot be certain that we will be able to prevent future significant deficiencies or material weaknesses. Inadequate internal controls could cause investors to lose confidence in our reported financial information, which could have a negative effect on investor confidence in our financial statements, the trading price of our stock and our access to capital.

Our customers and we are subject to various governmental regulations. Compliance with or changes in such regulations may cause us to incur significant expenses, and if we fail to maintain satisfactory compliance with certain regulations, we may be forced to recall products and cease their manufacture and distribution, and we could be subject to civil or criminal penalties.

Our customers and we are subject to various significant international, federal, state and local regulations, including but not limited to regulations in the areas of health and safety, packaging, product content, employment, labor and immigration, import/export controls, trade restrictions and anti-competition. In addition, as a global organization, we are subject to data privacy and security laws, regulations, and customer-imposed controls in numerous jurisdictions as a result of having access to and processing confidential, personal, sensitive and/or patient health data in the course of our business. The EU's General Data Protection Regulation (GDPR), which became effective in May 2018, applies to all of our activities related to products and services that we offer to EU customers and workers. The GDPR established new requirements regarding the handling of personal data and includes significant penalties for non-compliance (including possible fines of up to 4 percent of total company revenue). Other governmental authorities around the world are considering similar types of legislative and regulatory proposals concerning data protection. Each of these

privacy, security and data protection laws and regulations could impose significant limitations and increase our cost of providing our products and services where we process end user personal data and could harm our results of operations and expose us to significant fines, penalties and other damages.

We must also comply with complex foreign and U.S. laws and regulations, such as the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act, and other local laws prohibiting corrupt payments to governmental officials, anti-competition regulations and sanctions imposed by the U.S. Office of Foreign Assets Control and other similar laws and regulations. Violations of these laws and regulations could result in fines and penalties, criminal sanctions, restrictions on our business conduct and on our ability to offer our products in one or more countries, and could also materially affect our brand, our ability to attract and retain employees, our international operations, our business and our operating results. Although we have implemented policies and procedures designed to ensure compliance with these laws and regulations, there can be no assurance that our employees, contractors, or agents will not violate our policies.

These regulations are complex, change frequently and have tended to become more stringent over time. We may be required to incur significant expenses to comply with these regulations or to remedy any violations of these regulations. Any failure by us

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to comply with applicable government regulations could also result in the cessation of our operations or portions of our operations, product recalls or impositions of fines and restrictions on our ability to carry on or expand our operations. In addition, because many of our products are regulated or sold into regulated industries, we must comply with additional regulations in marketing our products. We develop, configure and market our products to meet customer needs created by these regulations. Any significant change in these regulations could reduce demand for our products, force us to modify our products to comply with new regulations or increase our costs of producing these products. If demand for our products is adversely affected or our costs increase, our operating results and business would suffer.

Our products and operations are also often subject to the rules of industrial standards bodies, like the International Standards Organization, as well as regulation by other agencies such as the FDA. We also must comply with work safety rules. If we fail to adequately address any of these regulations, our businesses could be harmed.

We are subject to extensive regulation by the FDA and certain similar foreign regulatory agencies, and failure to comply with such regulations could harm our reputation, business, financial condition and results of operations.

A number of our products are subject to regulation by the FDA and certain similar foreign regulatory agencies. In addition, a number of our products may in the future be subject to regulation by the FDA and certain similar foreign regulatory agencies. These regulations govern a wide variety of product-related activities, from quality management, design and development to labeling, manufacturing, promotion, sales and distribution. If we or any of our suppliers or distributors fail to comply with FDA and other applicable regulatory requirements or are perceived to potentially have failed to comply, we may face, among other things, warning letters, adverse publicity affecting both us and our customers; investigations or notices of non-compliance, fines, injunctions, and civil penalties; import or export restrictions; partial suspensions or total shutdown of production facilities or the imposition of operating restrictions; increased difficulty in obtaining required FDA clearances or approvals or foreign equivalents; seizures or recalls of our products or those of our customers; or the inability to sell our products. Any such FDA or other regulatory agency actions could disrupt our business and operations, lead to significant remedial costs and have a material adverse impact on our financial position and results of operations.

Some of our products are subject to particularly complex regulations such as regulations of toxic substances, and failure to comply with such regulations could harm our business.

Some of our products and related consumables are used in conjunction with chemicals whose manufacture, processing, distribution and notification requirements are regulated by the U.S. Environmental Protection Agency (“EPA”) under the Toxic Substances Control Act, and by regulatory bodies in other countries under similar laws. The Toxic Substances Control Act regulations govern, among other things, the testing, manufacture, processing and distribution of chemicals, the testing of regulated chemicals for their effects on human health and safety and the import and export of chemicals. The Toxic Substances Control Act prohibits persons from manufacturing any chemical in the United States that has not been reviewed by EPA for its effect on health and safety, and placed on an EPA inventory of chemical substances. We must ensure conformance of the manufacturing, processing, distribution of and notification about these chemicals to these laws and adapt to regulatory requirements in all applicable countries as these requirements change. If we fail to comply with the notification, record-keeping and other requirements in the manufacture or distribution of our products, then we could be subject to civil penalties, criminal prosecution and, in some cases, prohibition from distributing or marketing our products until the products or component substances are brought into compliance.

Our business may suffer if we fail to comply with government contracting laws and regulations.

We derive a portion of our revenue from direct and indirect sales to U.S., state, local, and foreign governments and their respective agencies. Such contracts are subject to various procurement laws and regulations, and contract provisions relating to their formation, administration and performance. Failure to comply with these laws, regulations or provisions in our government contracts could result in the imposition of various civil and criminal penalties, termination of contracts, forfeiture of profits, suspension of payments, or suspension from future government contracting. If our government contracts are terminated, if we are suspended from government work, or if our ability to compete for new contracts is adversely affected, our business could suffer.

Our reputation, ability to do business and financial statements may be harmed by improper conduct by any of our employees, agents or business partners.

We cannot provide assurance that our internal controls and compliance systems will always protect us from acts committed by employees, agents or business partners of ours (or of businesses we acquire or partner with) that would violate U.S. and/or non-U.S. laws, including the laws governing payments to government officials, bribery, fraud, kickbacks and false claims, pricing, sales and marketing practices, conflicts of interest, competition, export and import compliance, money laundering and data privacy.

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In particular, the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and similar anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments to government officials for the purpose of obtaining or retaining business, and we operate in many parts of the world that have experienced governmental corruption to some degree. Any such improper actions or allegations of such acts could damage our reputation and subject us to civil or criminal investigations in the United States and in other jurisdictions and related shareholder lawsuits, could lead to substantial civil and criminal, monetary and non-monetary penalties and could cause us to incur significant legal and investigatory fees. In addition, the government may seek to hold us liable as a successor for violations committed by companies in which we invest or that we acquire. We also rely on our suppliers to adhere to our supplier standards of conduct, and material violations of such standards of conduct could occur that could have a material effect on our business, reputation and financial statements.

Our retirement and post retirement pension plans are subject to financial market risks that could adversely affect our future results of operations and cash flows.

We have significant retirement and post retirement pension plan assets and obligations. The performance of the financial markets and interest rates impact our plan expenses and funding obligations. Significant decreases in market interest rates, decreases in the fair value of plan assets and investment losses on plan assets will increase our funding obligations and adversely impact our results of operations and cash flows.

The impact of consolidation and acquisitions of competitors is difficult to predict and may harm our business.

The life sciences industry is intensely competitive and has been subject to increasing consolidation. Consolidation in our industries could result in existing competitors increasing their market share through business combinations and result in stronger competitors, which could have a material adverse effect on our business, financial condition and results of operations. We may not be able to compete successfully in increasingly consolidated industries and cannot predict with certainty how industry consolidation will affect our competitors or us.

If we are unable to successfully manage the consolidation and streamlining of our manufacturing operations, we may not achieve desired efficiencies and our ability to deliver products to our customers could be disrupted.

Although we utilize manufacturing facilities throughout the world, we have been consolidating, and may continue to consolidate, our manufacturing operations to certain of our plants to achieve efficiencies and gross margin improvements. Additionally, we typically consolidate the production of products from our acquisitions into our supply chain and manufacturing processes, which are technically complex and require expertise to operate. If we are unable to establish processes to efficiently and effectively produce high quality products in the consolidated locations, we may not achieve the anticipated synergies and production may be disrupted, which could adversely affect our business and operating results.

Our operating results may suffer if our manufacturing capacity does not match the demand for our products.

Because we cannot immediately adapt our production capacity and related cost structures to rapidly changing market conditions, when demand does not meet our expectations, our manufacturing capacity may exceed our production requirements. If during an economic downturn we had excess manufacturing capacity, then our fixed costs associated with excess manufacturing capacity would adversely affect our gross margins, and operating results. If, during a general market upturn or an upturn in one of our segments, we cannot increase our manufacturing capacity to meet product demand, we may not be able to fulfill orders in a timely manner which could lead to order cancellations, contract breaches or indemnification obligations. This inability could materially and adversely limit our ability to improve our results.

Dependence on contract manufacturing and outsourcing other portions of our supply chain, including logistics and third-party package delivery services, may adversely affect our ability to bring products to market and damage our reputation. Dependence on outsourced information technology and other administrative functions may impair our ability to operate effectively.

As part of our efforts to streamline operations and to cut costs, we outsource aspects of our manufacturing processes and other functions and continue to evaluate additional outsourcing. If our contract manufacturers or other outsourcers fail to perform their obligations in a timely manner or at satisfactory quality levels, our ability to bring products to market and our reputation could suffer. For example, during a market upturn, our contract manufacturers may be unable to meet our demand requirements, which may preclude us from fulfilling our customers' orders on a timely basis. The ability of these manufacturers to perform is largely outside of our control. If one or more of the third-party package delivery providers experiences a significant disruption in services or institutes a significant price increase, we may have to seek alternative providers, our costs could increase and the delivery of our products could be prevented or delayed. Additionally, changing or replacing our contract manufacturers, logistics

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providers or other outsourcers could cause disruptions or delays. In addition, we outsource significant portions of our information technology ("IT") and other administrative functions. Since IT is critical to our operations, any failure to perform on the part of our IT providers could impair our ability to operate effectively. In addition to the risks outlined above, problems with manufacturing or IT outsourcing could result in lower revenue and unexecuted efficiencies, and impact our results of operations and our stock price.

Environmental contamination from past and ongoing operations could subject us to substantial liabilities.

Certain properties we have previously owned or leased are undergoing remediation for subsurface contaminations. Although we are indemnified for liability relating to the required remediation at some of those properties, we may be subject to liability if these indemnification obligations are not fulfilled. In other cases, we have agreed to indemnify the current owners of certain properties for liabilities related to contamination, including companies with which we have previously been affiliated such as HP, Inc., Hewlett-Packard Enterprise (formerly Hewlett-Packard Company) and Varian Medical Systems, Inc. Further, other properties we have previously owned or leased at which we have operated in the past, or for which we have otherwise contractually assumed, or provided indemnities for, certain actual or contingent environmental liabilities may or do require remediation. While we are not aware of any material liabilities associated with any potential environmental contamination at any of those properties or facilities, we may be exposed to material liability if environmental contamination at material levels is found to exist. In addition, in connection with the acquisition of certain companies, we have assumed other costs and potential or contingent liabilities for environmental matters. Any significant costs or liabilities could have an adverse effect on results of operations.

Our current and historical manufacturing processes and operations involve, or have involved, the use of certain substances regulated under various foreign, federal, state and local environment protection and health and safety laws and regulations. As a result, we may become subject to liabilities for environmental contamination and these liabilities may be substantial. Although our policy is to apply strict standards for environmental protection and health and safety at our sites inside and outside the United States, we may not be aware of all conditions that could subject us to liability. Failure to comply with these environmental protection and health and safety laws and regulations could result in civil, criminal, regulatory, administrative or contractual sanction, including fines, penalties or suspensions. If we have any violations of, or incur liabilities pursuant to these laws or regulations, our financial condition and operating results could be adversely affected.

Regulations related to "conflict minerals" may cause us to incur additional expenses and could limit the supply and increase the cost of certain metals used in manufacturing our products.

We are subject to the rules of the Securities and Exchange Commission ("SEC") which require disclosures by public companies of specified minerals, known as conflict minerals, that are necessary to the functionality or production of products manufactured or contracted to be manufactured. The rule, which requires an annual disclosure report to be filed with the SEC by May 31st of each year, requires companies to perform due diligence, disclose and report whether or not such minerals originate from the Democratic Republic of Congo or an adjoining country. There are costs associated with complying with these disclosure requirements, including for diligence in regards to the sources of any conflict minerals used in our products, in addition to the cost of remediation and other changes to products, processes, or sources of supply as a consequence of such verification activities. In addition, our ongoing implementation of these rules could adversely affect the sourcing, supply, and pricing of materials used in our products. The rule could affect sourcing at competitive prices and availability in sufficient quantities of certain minerals used in the manufacture of our products, including tin, tantalum, gold and tungsten. The number of suppliers who provide conflict-free minerals may be limited. In addition, there may be material costs associated with complying with the disclosure requirements, such as costs related to the due diligence process of determining the source of certain minerals used in our products, as well as costs of possible changes to products, processes, or sources of supply



as a consequence of such verification activities. As our supply chain is complex and we use contract manufacturers for some of our products, we may not be able to sufficiently verify the origins of the relevant minerals used in our products through the due diligence procedures that we implement, which may harm our reputation. We may also encounter challenges to satisfy those customers who require that all of the components of our products be certified as conflict-free, which could place us at a competitive disadvantage if we are unable to do so.

Third parties may claim that we are infringing their intellectual property and we could suffer significant litigation or licensing expenses or be prevented from selling products or services.

From time to time, third parties may claim that one or more of our products or services infringe their intellectual property rights. We analyze and take action in response to such claims on a case by case basis. Any dispute or litigation regarding patents or other intellectual property could be costly and time-consuming due to the complexity of our technology and the uncertainty of intellectual property litigation and could divert our management and key personnel from our business operations. A claim of intellectual property infringement could force us to enter into a costly or restrictive license agreement, which might not be available under acceptable terms or at all, could require us to redesign our products, which would be costly and time-consuming, and/or

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could subject us to significant damages or to an injunction against the development and sale of certain of our products or services. Our intellectual property portfolio may not be useful in asserting a counterclaim, or negotiating a license, in response to a claim of intellectual property infringement. In certain of our businesses, we rely on third party intellectual property licenses and we cannot ensure that these licenses will continue to be available to us in the future or can be expanded to cover new products on favorable terms or at all.

Third parties may infringe our intellectual property and we may suffer competitive injury or expend significant resources enforcing our rights.

Our success depends in large part on our proprietary technology, including technology we obtained through acquisitions. We rely on various intellectual property rights, including patents, copyrights, trademarks and trade secrets, as well as confidentiality provisions and licensing arrangements, to establish our proprietary rights. If we do not enforce our intellectual property rights successfully our competitive position may suffer which could harm our operating results.

Our pending patent, copyright and trademark registration applications, may not be allowed or competitors may challenge the validity or scope of our patents, copyrights or trademarks. In addition, our patents, copyrights, trademarks and other intellectual property rights may not provide us with a significant competitive advantage.

We may need to spend significant resources monitoring and enforcing our intellectual property rights and we may not be aware of or able to detect or prove infringement by third parties. Our competitive position may be harmed if we cannot detect infringement and enforce our intellectual property rights quickly or at all. In some circumstances, we may choose to not pursue enforcement because an infringer has a dominant intellectual property position or for other business reasons. In addition, competitors might avoid infringement by designing around our intellectual property rights or by developing non-infringing competing technologies. Intellectual property rights and our ability to enforce them may be unavailable or limited in some countries which could make it easier for competitors to capture market share and could result in lost revenues. Furthermore, some of our intellectual property is licensed to others which may allow them to compete with us using that intellectual property.

Changes in tax laws, unfavorable resolution of tax examinations, or exposure to additional tax liabilities could have a material adverse effect on our results of operations, financial condition and liquidity.

We are subject to taxes in the U.S., Singapore and various foreign jurisdictions. Governments in the jurisdictions in which we operate implement changes to tax laws and regulations periodically. Any implementation of tax laws that fundamentally change the taxation of corporations in the U.S. or Singapore could materially impact our effective tax rate and could have a significant adverse impact on our financial results.

The 2017 United States Tax Cut and Jobs Act (“Tax Act”) significantly changed the taxation of U.S. based multinational corporations. Our compliance with the Tax Act requires the use of estimates in our financial statements and exercise of significant judgment in accounting for its provisions. The implementation of the Tax Act requires interpretations and implementing regulations by the Internal Revenue Service, as well as state tax authorities. The legislation could be subject to potential amendments and technical corrections, any of which could materially lessen or increase certain adverse impacts of the legislation. As regulations and guidance evolve with respect to the Tax Act, and as we gather information and perform more analysis, our results may differ from previous estimates and may materially affect our financial position.

We are also subject to examinations of our tax returns by tax authorities in various jurisdictions around the world. We regularly assess the likelihood of adverse outcomes resulting from ongoing tax examinations to determine the adequacy of our provision for taxes. These assessments can require a high degree of judgment and estimation.

Intercompany transactions associated with the sale of inventory, services, intellectual property and cost share arrangements are complex and affect our tax liabilities. The calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations in multiple jurisdictions. There can be no assurance that the outcomes from ongoing tax examinations will not have an adverse effect on our operating results and financial condition. A difference in the ultimate resolution of tax uncertainties from what is currently estimated could have an adverse effect on our financial results and condition.

If tax incentives change or cease to be in effect, our income taxes could increase significantly.

We benefit from tax incentives extended to our foreign subsidiaries to encourage investment or employment. Several jurisdictions have granted us tax incentives which require renewal at various times in the future. The incentives are conditioned on achieving various thresholds of investments and employment, or specific types of income. Our taxes could increase if the incentives are not renewed upon expiration. If we cannot or do not wish to satisfy all or parts of the tax incentive conditions, we

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may lose the related tax incentive and could be required to refund tax incentives previously realized. As a result, our effective tax rate could be higher than it would have been had we maintained the benefits of the tax incentives.

We have outstanding debt and may incur other debt in the future, which could adversely affect our financial condition, liquidity and results of operations.

We currently have outstanding an aggregate principal amount of \$1.8 billion in senior unsecured notes. We also are party to a five-year unsecured revolving credit facility which expires in September 2019. On June 9, 2015, we increased the commitments under the existing credit facility by \$300 million and on July 14, 2017, the commitments under the existing credit facility were increased by an additional \$300 million so that the aggregate commitments under the facility now total \$1 billion. As of October 31, 2018, we had no borrowings outstanding under the credit facility. We may borrow additional amounts in the future and use the proceeds from any future borrowing for general corporate purposes, future acquisitions, expansion of our business or repurchases of our outstanding shares of common stock.

Our incurrence of this debt and increases in our aggregate levels of debt, may adversely affect our operating results and financial condition by, among other things:

- increasing our vulnerability to downturns in our business, to competitive pressures and to adverse economic and industry conditions;
- requiring the dedication of an increased portion of our expected cash flows from operations to service our indebtedness, thereby reducing the amount of expected cash flows available for other purposes, including capital expenditures, acquisitions, stock repurchases and dividends; and
- limiting our flexibility in planning for, or reacting to, changes in our business and our industry.

Our current revolving credit facility imposes restrictions on us, including restrictions on our ability to create liens on our assets and the ability of our subsidiaries to incur indebtedness, and requires us to maintain compliance with specified financial ratios. Our ability to comply with these ratios may be affected by events beyond our control. In addition, the indenture governing our senior notes contains covenants that may adversely affect our ability to incur certain liens or engage in certain types of sale and leaseback transactions. If we breach any of the covenants and do not obtain a waiver from the lenders, then, subject to applicable cure periods, our outstanding indebtedness could be declared immediately due and payable.

If we suffer a loss to our factories, facilities or distribution system due to catastrophe, our operations could be seriously harmed.

Our factories, facilities and distribution system are subject to catastrophic loss due to fire, flood, terrorism or other natural or man-made disasters. In particular, several of our facilities could be subject to a catastrophic loss caused by earthquake due to their locations. Our production facilities, headquarters, and laboratories in California, and our production facilities in Japan, are all located in areas with above-average seismic activity. If any of our facilities were to experience a catastrophic loss, it could disrupt our operations, delay production, shipments and revenue and result in large expenses to repair or replace the facility. If such a disruption were to occur, we could breach agreements, our reputation could be harmed, and our business and operating results could be adversely affected. In addition, because we have consolidated our manufacturing facilities and we may not have redundant manufacturing capability readily available, we are more likely to experience an interruption to our operations in the event of a catastrophe in any one location. Although we carry insurance for property damage and business interruption, we do not carry insurance or financial reserves for interruptions or potential losses arising from earthquakes or terrorism. Also, our third-party insurance coverage will vary from time to time in both type and amount depending on availability, cost and our decisions with respect to risk retention. Economic conditions and uncertainties in global markets may adversely affect

the cost and other terms upon which we are able to obtain third-party insurance. If our third-party insurance coverage is adversely affected, or to the extent we have elected to self-insure, we may be at a greater risk that our operations will be harmed by a catastrophic loss.

If we experience a significant disruption in, or breach in security of, our information technology systems, or if we fail to implement new systems and software successfully, our business could be adversely affected.

We rely on several centralized information technology systems throughout our company to provide products and services, keep financial records, process orders, manage inventory, process shipments to customers and operate other critical functions. Our information technology systems may be susceptible to damage, disruptions or shutdowns due to power outages, hardware failures, computer viruses, attacks by computer hackers, telecommunication failures, user errors, catastrophes or other unforeseen events. Our information technology systems also may experience interruptions, delays or cessations of service or produce errors in connection with system integration, software upgrades or system migration work that takes place from time to time. If we were to experience a prolonged system disruption in the information technology systems that involve our interactions with customers

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or suppliers, it could result in the loss of sales and customers and significant incremental costs, which could adversely affect our business. In addition, security breaches of our information technology systems could result in the misappropriation or unauthorized disclosure of confidential information belonging to us or to our employees, partners, customers or suppliers, which could result in our suffering significant financial or reputational damage.

Adverse conditions in the global banking industry and credit markets may adversely impact the value of our cash investments or impair our liquidity.

As of October 31, 2018, we had cash and cash equivalents of approximately \$2,247 million invested or held in a mix of money market funds, time deposit accounts and bank demand deposit accounts. Disruptions in the financial markets may, in some cases, result in an inability to access assets such as money market funds that traditionally have been viewed as highly liquid. Any failure of our counterparty financial institutions or funds in which we have invested may adversely impact our cash and cash equivalent positions and, in turn, our operating results and financial condition.

We could incur significant liabilities if the distribution of Keysight common stock to our shareholders is determined to be a taxable transaction.

We have received an opinion from outside tax counsel to the effect that the separation and distribution of Keysight qualifies as a transaction that is described in Sections 355(a) and 368(a)(1)(D) of the Internal Revenue Code. The opinion relies on certain facts, assumptions, representations and undertakings from Keysight and us regarding the past and future conduct of the companies' respective businesses and other matters. If any of these facts, assumptions, representations or undertakings are incorrect or not satisfied, our shareholders and we may not be able to rely on the opinion of tax counsel and could be subject to significant tax liabilities. Notwithstanding the opinion of tax counsel we have received, the IRS could determine on audit that the separation is taxable if it determines that any of these facts, assumptions, representations or undertakings are not correct or have been violated or if it disagrees with the conclusions in the opinion. If the separation is determined to be taxable for U.S. federal income tax purposes, our shareholders that are subject to U.S. federal income tax and we could incur significant U.S. federal income tax liabilities.

We cannot assure that we will continue to pay dividends on our common stock.

Since the first quarter of fiscal year 2012, we have paid a quarterly dividend on our common stock. The timing, declaration, amount and payment of any future dividends fall within the discretion of our Board of Directors and will depend on many factors, including our available cash, estimated cash needs, earnings, financial condition, operating results, capital requirements, as well as limitations in our contractual agreements, applicable law, regulatory constraints, industry practice and other business considerations that our Board of Directors considers relevant. A change in our dividend program could have an adverse effect on the market price of our common stock.

### Item 1B. Unresolved Staff Comments

None.

### Item 2. Properties

As of October 31, 2018, we owned or leased a total of approximately 6.3 million square feet of space worldwide. Of that, we owned approximately 4.4 million square feet and leased the remaining 1.9 million square feet. Our sales and support facilities occupied a total of approximately 0.7 million square feet. Our manufacturing plants, R&D facilities and warehouse and administrative facilities occupied approximately 5.6 million square feet. All of our businesses share sales offices throughout the world.

Information about each of our businesses appears below:

**Life Sciences & Applied Markets Business.** Our life sciences and applied markets business has manufacturing and R&D facilities in Australia, China, Germany, Italy, Malaysia, Singapore, United Kingdom and the United States.

**Diagnostics and Genomics Business.** Our diagnostics and genomics business has manufacturing and R&D facilities in Belgium, Denmark, Malaysia and the United States.