MANAGEMENT REPORT

Business and Operating Environment

QIAGEN is a global leader in Sample to Insight solutions that transform biological samples into valuable molecular insights. Our mission is to enable our customers in four broad classes - Molecular Diagnostics, Applied Testing, Pharma and Academia - to achieve outstanding success and breakthroughs, all in keeping with our goal of making improvements in life possible.

QIAGEN's solutions integrate sample and assay technologies, bioinformatics and automation systems into workflows that help customers move from Sample to Insight. Our solutions support more than 500,000 customers worldwide in generating insights into the molecular building blocks of life. Our proven solutions are providing answers in hospitals and laboratories worldwide, helping make sense of the increasing volumes and complexity of biological information.

As we move deeper into "the Century of Biology," knowledge of the molecular basis of life has been growing exponentially, along with greater understanding of diseases and biological mechanisms. Dramatic acceleration in the speed of analyzing DNA - and reduction in cost - is generating new discoveries and vast quantities of genomic data. This revolution in the life sciences is transforming healthcare and influencing many other areas of everyday life. QIAGEN's mission is to make improvements in life possible by providing innovative technologies to enable this ongoing wave of discovery and its wide-ranging applications.

QIAGEN began operations in 1986 as a pioneer in the emerging biotechnology sector, introducing a novel method that standardized and accelerated extraction and purification of nucleic acids from biological samples. As molecular biology has grown to influence many areas of life, QIAGEN has expanded to serve the full spectrum of market needs. We believe our sample technologies are unmatched in quality for isolating and preparing DNA (deoxyribonucleic acid), RNA (ribonucleic acid) and proteins from blood or other liquids, tissue, plants or other materials. Our assay technologies amplify, enrich and make these biomolecules accessible for analysis, such as identifying the genetic information of a pathogen or a gene mutation in a tumor. QIAGEN's industry-leading bioinformatics solutions allows users to analyze and interpret data to provide relevant, actionable insights. Our automation systems for polymerase chain reaction (PCR), next-generation sequencing (NGS) and other technologies tie these together in seamless and cost-effective molecular testing workflows - from Sample to Insight.

Net sales of $1.42 billion in 2017 consisted of consumable kits and other revenues (88% of sales) and automation systems and instruments (12% of sales). Approximately 48% of net sales in 2017 were in Molecular Diagnostics, and 52% in Life Sciences customer classes in the Academia, Pharma and Applied Testing markets.

QIAGEN has grown substantially by developing new platforms, consumables and bioinformatics to meet growing needs in the market, partnering with researchers and Pharma companies, and acquiring companies or technologies to complement our portfolio. We believe the addressable global market for QIAGEN's portfolio of molecular testing products for customers across the continuum of life science research and molecular diagnostics totals more than $8 billion.

We have funded our growth through internally generated funds, debt offerings, and private and public sales of equity securities. QIAGEN has global shares that are listed on the New York Stock Exchange under the ticker symbol "QGEN" and on the Frankfurt Prime Standard as "QIA."

The company is registered under its commercial and legal name QIAGEN N.V. with the trade register (kamer van koophandel) of the Dutch region Limburg Noord under file number 12036979. QIAGEN N.V. is a public limited liability company (naamloze vennootschap) under Dutch law as a holding company. Our principal executive office is located at Hulsterweg 82, 5912 PL Venlo, The Netherlands, and our telephone number is +31-77-355-6600.

As a holding company, QIAGEN conducts business through subsidiaries located throughout the world. Further information about QIAGEN can be found at www.qiagen.com. By referring to our website, we do not incorporate the website or any portion of the website by reference into this Annual Report.

Operating Environment in 2017

Economic Environment

A broad global upswing delivered stronger-than-expected economic growth in 2017, creating opportunities for QIAGEN, despite some uncertainties in the business and political environment. Real Gross Domestic Product (GDP) for the world grew approximately 3.0% in 2017, up from 2.4% in 2016 and 2.8% in 2015, according to World Bank estimates. More than half of the world's economies accelerated in 2017: The United States and Europe stepped up growth from slow to moderate, while emerging markets such as China, India and Turkey grew much faster than average. Macroeconomic influences included continued low financing costs, growth-oriented fiscal and monetary policies, strong investment driven by business confidence, and a recovery in commodity prices. The U.S. dollar declined against other major currencies in 2017, but had little overall effect on QIAGEN results, reported in dollars.

Industry Environment

As genomic knowledge expands, molecular testing is unlocking valuable insights to meet an increasing range of needs in healthcare, academic research, pharmaceutical R&D and public safety. The secular growth trend in sales of instruments, reagents and other consumables, and bioinformatics solutions continued in 2017. Technologies for next-generation sequencing (NGS) and polymerase chain reaction (PCR) continued to disseminate worldwide. Molecular diagnostics is the most dynamically growing segment of in vitro diagnostics, enabling clinicians to identify and profile cancers, infectious diseases, prenatal or neonatal health threats, and patients' immune status. Regulatory and reimbursement climates continue to evolve. In 2017, precision medicine advanced with the first FDA approvals of cancer drugs targeted by biomarker testing rather than tumor sites, and immuno-oncology drugs using gene editing to mobilize patients' immune cells. In Academia, spending on NGS and other molecular technologies grew on improving customer sentiment, despite concerns about research funding. The Pharma industry increasingly guides drug discovery and development with advanced molecular testing, although R&D spending by individual companies depends on company-specific issues. Applied Testing also continues to grow, led by human identification and forensics. The migration of genomic technologies from basic research into the mainstream is a powerful driver for long-term growth of the industry, increasing the need for scalable, user-friendly and efficient workflows from beginning to end in molecular testing.

Recent Developments

QIAGEN has recently achieved a number of strategic milestones by continuing to focus on strategic growth initiatives:

QuantiFERON-TB franchise growing rapidly:

- QIAGEN is aiding the global fight against tuberculosis (TB), a contagious bacterial infection that strikes more than 10 million new persons and kills about 1.8 million annually. The global epidemic is complicated because an estimated one out of three people have latent TB infection, a phase in which the bacterium infects a person but produces no detectable symptoms. About 5-10% of those individuals, if untreated, will progress to the active TB disease, so screening of high-risk individuals and treatment for latent TB plays an important role in global tuberculosis control efforts.
- QIAGEN's novel QuantiFERON tests, the fourth-generation QuantiFERON-TB Gold Plus (QFT-Plus) and third-generation QuantiFERON-TB Gold (QFT), are the market-leading modern diagnostic tools for latent TB infection. In a class known as interferon-gamma release assays (IGRAs), QuantiFERON-TB tests have been shown in clinical studies to be faster, less labor-intensive and more accurate than the century-old tuberculin skin test. QFT is one of two tests mentioned in the World Health Organization guidelines as an alternative to tuberculin skin tests. First introduced in 2015, QFT-Plus adds clinical insights with antigens that measure the cell-mediated immune response to TB infection from both CD4+ and CD8+ T cells. The addition of CD8+ assessment led WHO in its Global TB Report 2016 to cite QFT-Plus (the only such test on the market) for its potential in identifying at-risk adults at greater risk of progressing to active TB. QFT-Plus is now available in more than 75 countries in Europe, the Americas, Africa, Asia and Middle East. The laboratory-based QuantiFERON-TB tests are displacing the more subjective and time-consuming tuberculin skin test, and sales surpassed $175 million in 2017.
- In October 2017 QIAGEN launched QuantiFERON-TB Gold Plus in the United States after it received Food and Drug Administration approval. Japan also recently approved QFT-Plus. These market introductions follow adoption of QFT-Plus in more than 75 countries across Europe, the Middle East, Africa, Asia and Latin America, where nearly two million of the tests have been used. QFT-Plus advances the science of TB testing with innovative antigens that measure each patient's cell-mediated immune response from both CD4+ and CD8+ T cells, a unique capability. An increasing number of peer-reviewed publications support the efficacy of QFT-Plus, which is the only interferon-gamma release assay (IGRA) test on the pathway to evaluation by the World Health Organization (WHO) for its global campaign to eradicate TB.
- In January 2018, QIAGEN began a new partnership with DiaSorin that will provide a state-of-the-art automation option for QuantiFERON-TB Gold Plus customers, embedding QFT-Plus in a broad and highly synergistic assay menu for DiaSorin's LIAISON-family analyzers. More than 7,000 LIAISON-family analyzers are already in use worldwide.

Next-generation sequencing solutions extending QIAGEN's reach:

- As a leader in "universal" technologies for use with any next-generation sequencing system, as well as creator of the innovative GeneReader NGS System for benchtop sequencing, QIAGEN continues to expand its presence in the rapidly growing market for NGS solutions in laboratories around the world. QIAGEN's NGS portfolio produced more than $115 million in sales in 2017.
- In 2017 QIAGEN continued to broaden its portfolio of platform-agnostic NGS solutions, streamlining tasks such as automated sample and library preparation, reliable detection of DNA and RNA variations, and bioinformatics for analysis and interpretation. Our industry-leading solutions for preparation of liquid biopsy samples, along with a diverse offering of off-the-shelf and customized QIAseq panels, continued to expand to new applications.

QIAGEN's GeneReader NGS System, the first complete Sample to Insight next-generation sequencing solution designed for any laboratory to deliver actionable results, continued to gain acceptance with strong growth in placements in 2017.

- We expanded the GeneReader system's capabilities and content menu for clinical researchers in 2017. Going beyond the original GeneRead QIAact Actionable Insights Tumor Panel (AIT), we launched the GeneRead QIAact Lung DNA Panel and Lung RNA Panel for deep analysis of lung cancer samples and the GeneRead QIAact BRCA 1/2 Panel for in-depth insights into breast and ovarian cancers. All of the QIAact NGS panels run with the GeneReader system and integrate seamlessly with our QCI bioinformatics software for analysis and interpretation.

We have incorporated the GeneReader NGS System into collaborations with pharmaceutical companies for co-development of companion diagnostics.

- Multiple studies demonstrating the efficacy of QIAGEN's GeneReader system, panels and other NGS solutions were presented in major scientific meetings in 2017, including the American Society of Clinical Oncology (ASCO), American Society of Human Genetics (ASHG) and Association for Molecular Pathology (AMP). At the AMP annual meeting in November 2017, about 10 percent of the more than 500 papers presented relied on QIAGEN solutions for some aspect of molecular testing, from sample technologies for NGS to bioinformatics for interpretation of data.
- To accelerate the growth of the GeneReader system in China, QIAGEN formed a joint venture in 2017 with Maccura, a leading in vitro diagnostics company in China. The venture, MAQGEN Biotechnology Co., Ltd. (MAQGEN), will develop local adaptations, pursue regulatory paths to maximize the GeneReader's value and leverage Maccura's broad customer network to expand adoption in laboratories across China. The NGS market in China is growing rapidly in personalized medicine and clinical research. MAQGEN China is 60% owned by Maccura and 40% by QIAGEN.
- In late 2017, QIAGEN created a new unit, Enterprise Genomics Services, to serve the growing demand for customization of NGS gene panels with integrated bioinformatics for dedicated applications. This initiative offers benefits to customers in implementation time, expense and risk mitigation across the continuum from NGS discovery to panel development, optimization, verification and implementation. QIAGEN's capabilities support customized solutions for any NGS platform, including the GeneReader NGS System.
- In Applied Testing, QIAGEN collaborated with the International Commission on Missing Persons (ICMP) in 2017 to launch a cutting-edge next-generation sequencing workflow for DNA identification at the ICMP's laboratory in The Hague. The lab integrates the GeneReader system, other QIAGEN instruments and a new NGS panel specifically designed to identify missing persons. QIAGEN will supply software, reagents, consumables and technical support on an ongoing basis.

Continued Leadership in Personalized Healthcare:

- QIAGEN strengthened its leading position in Personalized Healthcare in 2017, surpassing a milestone of 25 master collaboration agreements with pharma and biotech companies to develop companion and complementary diagnostics providing individualized genomic insights to guide clinical decision-making. QIAGEN launched 15 new companion diagnostic projects in 2017, a record high for QIAGEN. In addition, we continued to achieve regulatory approvals of companion diagnostics and to launch them commercially.
- A major initiative in 2017 was QIAGEN's expansion into developing biomarker tests to support emerging therapies in immuno-oncology (I-O), a novel approach using drugs to target the body's immune system to help fight cancer. QIAGEN and Bristol-Myers Squibb launched a groundbreaking collaboration to explore the use of NGS technology to develop gene expression profiles (GEPs) as predictive or prognostic tools for use with a number of novel immuno-oncology molecules Bristol-Myers Squibb is developing. QIAGEN subsequently has entered into other agreements with undisclosed industry partners to co-develop molecular tests to identify patients who could benefit from I-O therapies. QIAGEN obtained a worldwide license in 2017 from The Johns Hopkins University for biomarkers that play roles in identifying patients for I-O therapies.
- QIAGEN continues to roll out regulator-approved companion diagnostics that deliver actionable insights for treatment decisions based on patients' genomic information. We launched the ipsogen JAK2 RGQ PCR Kit in 2017 as the only FDA-cleared JAK2 kit for blood cancers, diagnosing gene mutations in patients with Polycythemia Vera. The FDA approval was expanded in early 2018 to other myeloproliferative neoplasms. The FDA indicated use of QIAGEN's therascreen EGFR RGQ PCR Kit as a companion diagnostic also was expanded in early 2018 to diagnose additional EGFR gene mutations involved in treatment decisions for first-line treatment of metastatic non-small cell lung cancer (NSCLC).

- We added a new liquid biopsy assay in 2017 for clinical research - the AdnaTest Prostate Cancer Panel AR-V7, using circulating tumor cells to monitor RNA expression of a biomarker indicating resistance to prostate cancer treatments.
- As one of the world's leading independent developers of molecular technologies, with a diverse portfolio of sequencing platforms and solutions, QIAGEN is a preferred industry partner for developing companion or complementary diagnostics.

QIAsymphony delivering platform growth as content menu expands:

- QIAGEN surpassed its 2017 goal of 2,000 cumulative placements of QIAsymphony, a cost-effective modular system that integrates PCR molecular testing workflows from initial biological sample processing to final insights. The platform's rapid dissemination and growing content menu fueled double-digit growth in consumables for QIAsymphony.
- The QIAsymphony automation system serves laboratories around the world, with the broadest test menu of any platform in its category in Europe and other markets, plus the unique ability to handle laboratory-developed tests. Nearly 30 diagnostic tests in infectious disease, oncology and transplant care are marketed for use on the Rotor-Gene® Q, a component of the modular QIAsymphony workflow. In the United States, eight FDA-approved diagnostic tests, including three companion diagnostics to guide treatment decisions in cancer, are marketed for this detection platform.
- Two new QIAGEN test kits were approved by the FDA in 2017 for use on QIAsymphony instruments: the ipsogen JAK2 RGQ PCR Kit, a qualitative test for the detection of an important genetic variant in blood cancers; and the artus CMV QS-RGQ MDx kit, to monitor solid organ transplant patients for cytomegalovirus (CMV), a common infection that can be life-threatening in vulnerable patients.
- The QIAsymphony system's sample processing module, QIAsymphony SP, is a market-leading "front end" automated solution for downstream molecular testing. The growth of next-generation sequencing has highlighted the critical need of laboratories for reliable, automated processing of samples, including liquid biopsies. QIAsymphony SP automates the processing of nucleic acids for analysis with the GeneReader NGS System or other sequencers.

Leadership in differentiated core technologies continuing to drive growth:

- As a world leader in sample technologies enabling laboratories to obtain highest-quality DNA and RNA for molecular testing, QIAGEN continued to expand its offerings in 2017 with differentiated solutions for front-end challenges. QIAGEN technologies process an estimated 50,000 biological samples a day. Our strategic focus is on rapidly growing applications in research and clinical diagnostics, such as handling microbiome samples, where we have an estimated 75% market share.
- Innovation in "liquid biopsy" technologies is increasingly enabling QIAGEN customers to unlock molecular insights from blood or other fluids as non-invasive alternatives to surgical biopsies. Our solutions based on several different technologies for isolation and stabilization of nucleic acids are used in an estimated 80% of liquid biopsy testing.
- Partnering with leading providers of molecular testing services, QIAGEN continues to incorporate its differentiated solutions in liquid biopsy testing. In 2017, for example, QIAGEN's PAXgene® Blood ccfDNA Tube was adopted by Clinical Genomics for sample collection with its assay to monitor patients for recurrence of colorectal cancer.
- To facilitate the growing trend toward liquid biopsies for routine use in clinical testing, QIAGEN joined CANCER-ID, a public-private consortium working to establish standard protocols and clinical validation for blood-based biomarkers in lung and breast cancer. QIAGEN is helping create standardized methods and Sample to Insight workflows.
- QIAGEN launched a Custom Solutions business in 2017 to serve life science and molecular diagnostics customers with the tools and expertise to quickly build and commercialize products that meet unique workflow requirements.

The new unit offers custom and OEM sample technologies, oligo and enzyme product options for PCR, qPCR and NGS product development, as well as a range of other platform technologies.

- In forensics, QIAGEN's long-standing leadership in developing international standards of quality for products to collect and test samples for human identification gained support in 2017 with third-party certification that QIAGEN meets state-of-the-art requirements for forensics supply chain and manufacturing (ISO18385:2016).

Industry-leading bioinformatics turning raw genomic data into valuable insights:

- QIAGEN's broad offering of content-enabled bioinformatics software continues to grow both as a standalone franchise and as a driver integrated into QIAGEN's Sample to Insight workflows. Our bioinformatics turn vast amounts of genomic data into actionable insights for customers, addressing a critical bottleneck in next-generation sequencing, especially for clinical research and diagnostics. Studies by leading institutions often use solutions such as QIAGEN Clinical Insight (QCI) or CLC Genomics Workbench to analyze and interpret genomic data. QIAGEN pursues collaborations across the genomics and bioinformatics community to offer customers the richest access possible to insights for research and diagnostics.

- In January 2017, QIAGEN acquired OmicSoft Corporation to expand its solutions and enable scientists to visualize and mine large institutional and publicly available "omics" datasets, in addition to the expertly curated, literature-based datasets marketed by QIAGEN. Its OmicSoft solutions meet a growing need in discovery and translational research to access and manage huge amounts of data on DNA, RNA and other sequencing insights.

- In October 2017, QIAGEN partnered with CENTOGENE AG, a leader in testing for rare diseases and hereditary disorders, to provide customers of both companies with more complete insights. QIAGEN integrated CENTOGENE's rare disease variant database into its bioinformatics offerings for genomic interpretation, while CENTOGENE licensed QIAGEN's bioinformatics solutions for use in its diagnostic testing services for rare diseases.

- Advancing the potential of precision medicine for the diagnosis and treatment of cancer, in November 2017 we launched enhancements in our QIAGEN Clinical Insight (QCI) bioinformatics software to automate guidelines published by leading oncology and pathology groups for the use of next-generation sequencing in genetic profiling of cancers. QIAGEN's QCI-Interpret software integrates the consensus AMP/ASCO/CAP standards with our comprehensive biomedical knowledge base to guide the selection of treatments based on findings from each patient's genomic testing and diagnosis.

- Also in November 2017, a collaboration in women's health with Counsyl, a company based in California, demonstrated the value of QIAGEN Clinical Insight for interpretation of results from prenatal testing and hereditary disease screening. Counsyl reported that using QCI for interpreting and scoring genetic variants reduced search time for literature references by 75%, while maintaining accuracy.

Targeted action increasing returns to shareholders:

- In 2017, QIAGEN fulfilled its commitment to return $300 million to shareholders through share repurchase transactions, including the return of $245 million through a synthetic share repurchase in January 2017 and the open-market repurchase of 1.9 million shares on the Frankfurt Stock Exchange for approximately $60 million in September 2017. Reaffirming its commitment to a disciplined approach to capital allocation, QIAGEN announced a new commitment to return $200 million to shareholders beginning in 2018 via open-market repurchases. Shares will be repurchased on the Frankfurt Stock Exchange.

- In 2017, QIAGEN continued to execute previously announced restructuring actions to improve efficiency and profitability, while supporting momentum in sales growth. Key areas include consolidating activities into shared service centers and global centers of excellence, gaining efficiencies in marketing, and embracing digital tools across the business. In 2017, we launched a shared service center for administrative functions in the Philippines, expanding on the efficiencies and complementing the geographic footprint of our first shared service center in Poland. A pre-tax restructuring charge of $19.8 million ($0.06 per share after taxes) was recorded in 2017 for these changes. In addition, following enactment of the new U.S. tax law in December 2017, QIAGEN announced

restructuring initiatives to mitigate some of its impacts, resulting in a pre-tax restructuring charge of $13.8 million ($0.04 per share after taxes) in the fourth quarter. Operating results in 2017 show the benefits in cost reduction and profitability, and targeted actions are continuing into 2018.

- In a review aimed at freeing resources to focus on high-growth market opportunities, QIAGEN took steps in late 2017 to streamline its product portfolio in China, the company's second-largest market, by discontinuing the commercialization of some non-core PCR tests and externalizing the HPV test (cervical cancer screening) franchise to a third-party company in China. A partnership became effective in January 2018 with a Chinese company that has absorbed R&D, commercial distribution, and the related QIAGEN employees and infrastructure of the HPV test franchise in China. QIAGEN has become a minority shareholder of this company. QIAGEN China will focus additional resources on QuantiFERON-TB, the new MAQGEN China joint venture with Maccura for the GeneReader NGS System, and the life sciences portfolio.

Products

QIAGEN's leadership in Sample to Insight solutions for molecular testing leverages our position across a wide range of applications and customer classes. We provide more than 500 core consumable products (sample and assay "kits"), as well as instruments and automation systems. Our bioinformatics solutions connect laboratory workflows and process genomic data, reporting relevant insights to enable scientists or clinicians to decide on further action.

These diverse revenue streams can be seen in two main categories: consumables and related revenue, and automation platforms and instruments.

Consumables and related revenues

Consumable products, accounting for approximately 79%-80% of net sales, typically include sample technologies to extract and purify molecules of interest from biological samples and assay technologies that make information from these samples available for analysis and interpretation. To maximize customer convenience and reduce user error, these kits contain all necessary reagents and a manual of protocols and background information. Reliability, standardization, ease of use and cost-effectiveness are keys to the success of molecular testing products.

QIAGEN's **sample technologies** ensure that each biological sample is processed in a highly reproducible, standardized method with the highest quality. A broad range of kits support applications such as plasmid DNA purification, RNA purification and stabilization, genomic and viral nucleic acid purification, DNA cleanup after PCR and sequencing, target enrichment, and library preparation for sequencing. We continue to expand our portfolio for applications such as preparing DNA and RNA from minimally-invasive liquid biopsies for cancer and processing difficult samples for research into the microbiome and metagenomics.

Our **assay technologies** contain all the needed reagents to enable customers to target molecules of interest for detection on platforms supporting PCR, NGS or multimodal analysis. Each assay kit is sufficient to support a number of applications, varying from a single application to kits containing more than 1,000 applications each. Applications include open, general-purpose PCR reagents, as well as kits for the detection of viral or bacterial pathogens and parasites, pharmacogenomic testing and genotyping. In PCR, examples are our therascreen family of companion diagnostics, artus line for profiling infectious diseases, and investigator assays for forensics and human identification. A growing portfolio of Digital NGS panels enable sequencing to target DNA or RNA variants for clinical research in cancer or other diseases.

Related revenues, accounting for approximately 7%-8% of our net sales, include **bioinformatics solutions**, sold as freestanding software or cloud-based solutions and also integrated into many QIAGEN consumables and instruments for seamless Sample to Insight workflows. Examples of our bioinformatics solutions:

- **Ingenuity Variant Analysis**, a powerful cloud-based platform tapping into the QIAGEN Knowledge Base, interprets data from NGS analysis to efficiently filter genetic variants and interpret links to diseases.
- **QIAGEN Clinical Insight**, a unique evidence-based decision support solution, draws on the QIAGEN Knowledge Base to deliver clinically relevant insights from complex genomic variants identified in NGS.
- **CLC Genomics Workbench** incorporates cutting-edge technology and algorithms to overcome challenges face by scientists in analyzing and visualizing data from all major NGS platforms.
- **GeneGlobe**, a web-based portal, enables researchers to search and select gene- and pathway-specific solutions from approximately 25 million pre-designed and custom PCR assay kits, NGS panels and other products.

Related revenues also include royalties, milestone payments from co-development agreements with pharmaceutical companies, payments from technology licenses and patent sales, and custom services, such as whole genome amplification services, DNA sequencing, and non-cGMP DNA production on a contract basis.

Automation platforms and instruments

Our instrumentation systems, contributing approximately 12%-13% of net sales together with related services and contracts, automate the use of consumables into efficient workflows for a broad range of laboratory needs. QIAGEN platforms are designed to carry our customers from Sample to Insight - handling and preparation of biological samples, analysis using sequencing technologies, and interpretation that delivers valuable insights. These instruments enable laboratories to perform reliable and reproducible processes, including nucleic acid sample preparation, assay setup, target detection, and interpretation of genomic information. Often several of these instruments are integrated into end-to-end workflows.

Among the automation platforms that contribute to QIAGEN's business:

- **QIAsymphony** is a user-friendly automation system that is driving a new era of integrated workflow, making molecular testing more efficient and helping disseminate standardized, clinically proven molecular diagnostics. The platform includes three modules - **QIAsymphony SP** for sample preparation, **QIAsymphony AS** for assay setup, and **Rotor-Gene Q**, our rotary real-time PCR cycler system, which makes sequences of DNA and RNA visible through amplification and quantifiable. The fully integrated system with all three modules is **QIAsymphony RGQ**. In 2017, our installed base surpassed 2,000 QIAsymphony systems worldwide, serving in a wide variety of laboratories and applications. The platform offers many features to enhance workflows, such as continuous loading, random access and the ability to process an almost unlimited range of sample types. QIAsymphony has the broadest content menu in its category in Europe and other markets, and QIAGEN is developing more regulator-approved assays to add value for customers.
- **GeneReader NGS System**, introduced in late 2015, continues to gain acceptance as the first complete Sample to Insight next-generation sequencing (NGS) solution designed for any laboratory to deliver actionable results. This end-to-end platform provides a simpler, more cost-effective way for basic and translational research to take advantage of NGS technology and improve outcomes. The GeneReader workflow offers the flexibility of scalable batch sizes and continuous loading of multiple flow cells, and customers can create relevant reports using QIAGEN's proven gene panels and bioinformatics solutions. In 2017, we continued to enhance performance and added new content, including QIAact panels for deep analysis of lung, breast and ovarian cancers, as well as customized panels for users' specific needs. GeneReader's digital sequencing integrates seamlessly with QIAGEN bioinformatics solutions for interpretation.
- **QIAcube** robotic workstations provide highly versatile solutions for automated sample processing, with novel technologies for purification of DNA, RNA and proteins, saving laboratory staff time and enabling standardized results in analysis using PCR or NGS.

- **QIAxcel** replaces traditional slab-gel analysis, eliminating time-consuming nucleic acid separation methods in low- to high-throughput labs and offering unprecedented sensitivity and time-to-results for analysis of DNA fragments and RNA.
- **QIAgility** is a compact benchtop instrument that enables rapid, high-precision PCR setup supporting almost all tube and plate formats, as well as Rotor-Discs for the Rotor-Gene Q.
- **ESEQuant** portable, battery-operated instruments enable optical measurement for Point of Need molecular testing in physician practices, emergency rooms, remote areas, and other settings with limited or delayed access to laboratories.

Customers

With a growing portfolio of innovative products for molecular testing, QIAGEN has built deep customer relationships across the entire value chain of the life sciences. Discoveries often surface in universities and research institutes and are published, then are licensed for development by pharmaceutical and biotech companies, and finally move into widespread commercial use in healthcare and other areas of life. We serve the needs of four major customer classes:

- **Molecular Diagnostics** - healthcare providers engaged in patient care including hospitals, public health organizations, reference laboratories and physician practices
- **Applied Testing** - government or industry customers using molecular technologies in fields such as forensics, veterinary diagnostics and food safety testing
- **Pharma** - pharmaceutical and biotechnology companies using molecular testing to support drug discovery, translational medicine and clinical development efforts
- **Academia** - researchers exploring the secrets of life such as disease mechanisms and pathways, in some cases translating findings into drug targets or other products

Molecular Diagnostics

The ability of advanced diagnostic technologies to unlock molecular information for patients is changing the practice of medicine, creating a large and growing market for nucleic acid sample preparation, assay technologies and bioinformatics in clinical care. Dissemination of PCR and other amplification technologies has brought molecular diagnostics into routine use in healthcare around the world, and next-generation sequencing is rapidly disseminating, further transforming healthcare. Technologies for molecular diagnostics enable clinicians and labs to identify and profile microorganisms, cancer cells, bacteria and viruses by detecting specific nucleic acid sequences or characterizing newly discovered genomic sequences related to diseases. Commercial applications are multiplying as researchers identify new biological markers for disease and develop novel technologies to decipher these diagnostic clues.

The molecular diagnostics market generates total sales estimated by industry experts at approximately $7 billion in 2017, including about $3-4 billion potentially addressable with QIAGEN's product portfolio. Molecular diagnostics is the most dynamic segment of the global in vitro diagnostics market and is growing at a compound annual rate estimated in the high single-digits or low double-digits. Given the advantages of precise genetic information over traditional tests, QIAGEN expects the healthcare market to continue to provide significant growth opportunities.

In QIAGEN's robustly growing Molecular Diagnostics business we focus on three priorities for fighting disease:

- **Oncology** - accurately diagnosing cancer, enabling prevention or early detection, and guiding selection of therapies with individualized molecular insights. QIAGEN offers a broad portfolio of companion diagnostic kits

and panels to detect mutations of genes such as KRAS, EGFR, BRAF, BRCA1/2 and others that influence the efficacy and safety of medicines. We also provide industry-leading tests to screen for human papillomavirus (HPV) and protect women from cervical cancer.

- **Infectious diseases** - detecting and differentiating a broad range of viral and bacterial infections, including diseases such as HIV, hepatitis, influenza and healthcare-associated infections. Use of molecular testing to differentiate among pathogens can be useful in guiding treatment, such as selection of antibiotic or antiviral therapies.
- **Immune monitoring** - using advanced technologies that detect immune-system markers as a preventive strategy, such as screening patients for latent TB infection to guard against active TB disease, as well as for monitoring immune function, such as in transplantation patients.

QIAGEN offers one of the broadest portfolios of molecular technologies for healthcare. Success in Molecular Diagnostics depends on the ability to accurately analyze purified nucleic acid samples from sources such as blood, tissue, body fluids and stool, on automated systems that process these samples reliably and efficiently, often handling hundreds of samples concurrently. Other success factors are the range of assays for diseases and biomarkers, convenience and ease of laboratory workflow, and reliability and standardization of lab procedures.

The immune monitoring portfolio, using sensitive QuantiFERON technology, accurately detects infection and measures immune response in patients. Our lead products in this field, QuantiFERON-TB Gold and QuantiFERON-TB Gold Plus, are used in tuberculosis (TB) control efforts worldwide to detect latent TB infection (LTBI) by screening vulnerable populations, such as close contacts of patients with active TB disease, immunocompromised persons or patients on immunosuppressive drugs. Individuals with LTBI can then be treated, preventing the infection from becoming active and contagious. As modern blood tests analyzed in a laboratory, the QuantiFERON-TB assays are faster, less labor-intensive and more accurate than the century-old tuberculin skin test. The potential global market for latent TB infection testing is estimated at up to $1 billion.

QIAGEN's oncology test portfolio includes a broad range of Personalized Healthcare technologies and biomarkers, including regulator-approved companion diagnostics for oncogenes such as KRAS, EGFR and JAK2, as well as comprehensive gene panels for research applications in next-generation sequencing. In 2017, we launched the ipsogen JAK2 RGQ PCR Kit in the United States for use in blood cancers. In Europe, we already offer a market-leading portfolio of ipsogen assays for common and rare leukemia types. The U.S. approval for our therascreen EGFR RGQ PCR Kit was expanded in early 2018 for use as a companion diagnostic to diagnose additional EGFR gene mutations in metastatic non-small cell lung cancer (NSCLC).

QIAGEN also offers an extensive range of kits for diagnosing infectious diseases, and we are expanding this portfolio by seeking regulatory approvals of new tests in additional markets.

QIAGEN is the global leader in screening technologies for HPV, a viral infection that is the primary cause of cervical cancer, which kills about 270,000 women a year. Our “gold standard” digene HC2 HPV Test and our careHPV Test for use in low-resource regions lead the market in HPV screening around the world. In the United States, QIAGEN remains a market leader although vigorous price competition has reduced that business to about 2% of total sales.

A key success factor for our growth in Molecular Diagnostics is enabling laboratories to efficiently use our assay technologies on QIAGEN automation platforms. Our flagship PCR platform is QIAsymphony, based on its flexibility and unique capabilities. We offer broad portfolios of companion diagnostics and infectious disease tests running on the QIAsymphony system. We also are developing companion diagnostics for our GeneReader NGS System and Modaplex platform. Nucleic acid samples purified on our instruments are ready for use in the demanding and sensitive downstream assays performed in molecular diagnostic applications. We market assays directly via

QIAGEN sales channels, and selected assays through major diagnostic partners or other companies to broaden the distribution of our products.

Applied Testing

Use of molecular technologies is expanding in more areas of life as industry and government organizations apply standardized Sample to Insight solutions to diverse needs. Applied Testing is our term for applications outside of human healthcare and research - such as human identification and forensics, food and environmental safety, and veterinary testing. The value of genetic "fingerprinting" has been shown for criminal investigations or clarification of paternity or ancestry, public policy compliance for food safety and genetically modified organisms (GMOs), and containment of diseases in commercial livestock.

QIAGEN has developed relationships with diverse molecular testing laboratories and continually innovates to meet their needs. In 2017, QIAGEN helped the International Commission on Missing Persons launch a cutting-edge next-generation sequencing lab for forensic DNA identification, deploying the GeneReader NGS System and other solutions. We are a leader in standardizing solutions for reliable forensic testing, and in 2017 we received international certification for manufacturing human ID products. In environmental research, QIAGEN's solutions for metagenomics are increasingly used in studies of microbiomes and their effect on health.

Pharma

QIAGEN has deep relationships with pharmaceutical and biotechnology companies. Drug discovery and translational research efforts increasingly employ genomic information, both to guide research in diseases and to differentiate patient populations most likely to respond to particular therapies. We estimate that about half of QIAGEN sales in this customer class support research, while the other half supports clinical development, including stratification of patient populations based on genetic information. QIAGEN's bioinformatics solutions also are widely used to guide pharmaceutical research.

We have built a position as the preferred partner for pharmaceutical and biotech companies to co-develop companion diagnostics paired with targeted drugs. A wave of newly discovered biomarkers and molecular tests indicating the likely efficacy and safety of associated drugs is now transforming the treatment of cancer and other diseases. In 2017, we surpassed 25 master collaboration agreements with Pharma, each enabling multiple co-development projects. These alliances have created a rich pipeline of molecular tests that can move, along with the drugs, through clinical trials and regulatory approvals for marketing to healthcare providers. Several new companion diagnostics are currently in the registration process.

In addition to our broad portfolio of molecular technologies, QIAGEN offers Pharma partners a full infrastructure for co-development programs, intellectual property on platforms and content, extensive regulatory experience, global marketing reach, and independence as a company focusing exclusively on these types of technologies.

Academia

QIAGEN provides Sample to Insight solutions to leading research institutions around the world. While many academic laboratories continue to use manual, labor-intensive methods or create their own in-house technologies, QIAGEN has focused on enabling labs to replace time-consuming traditional methods and internal development efforts with reliable, fast, highly reproducible, and high-quality technologies. QIAGEN often partners with leading institutions in research projects and develops customized solutions such as NGS panels for digital sequencing of multiple gene targets needed for a researcher's study.

As academic institutions increasingly embrace translational research, bridging from discoveries to practical applications in medicine, our relationships in Academia also support our presence in the Molecular Diagnostics, Pharma and Applied Testing customer classes. Research in university settings often helps in development of

technologies for targeted biomolecules, and academic research also can result in scientific publications that validate the usefulness of QIAGEN solutions.

Global Presence by Category of Activity and Geographic Market

Product Category Information

Net sales for the product categories are attributed based on those revenues related to sample and assay products and similarly related revenues including bioinformatics solutions, and revenues derived from instrumentation sales.

(in thousands)	2017	2016	2015
Net Sales			
Consumables and related revenues	$ 1,242,715	$ 1,166,131	$ 1,114,580
Instrumentation	174,821	171,860	166,406
Total	$ 1,417,536	$ 1,337,991	$ 1,280,986

Geographical Information

QIAGEN currently markets products in more than 130 countries. The following table shows total revenue by geographic market for the past three years (net sales are attributed to countries based on the location of the customer, as certain subsidiaries have international distribution):

(in thousands)	2017	2016	2015
Net Sales			
Americas:			
United States	$ 579,906	$ 555,676	$ 525,532
Other Americas	73,478	71,797	79,578
Total Americas	653,384	627,473	605,110
Europe, Middle East and Africa	462,980	428,055	409,955
Asia Pacific and Rest of World	301,172	282,463	265,921
Total	$ 1,417,536	$ 1,337,991	$ 1,280,986

QIAGEN has built an increasing presence in key emerging markets as a growth strategy. In 2017, the top seven emerging markets - Brazil, Russia, India, China, South Korea, Mexico and Turkey - contributed approximately 16% of net sales.

Research and Development

We are committed to expanding our global leadership in Sample to Insight solutions for molecular testing in healthcare and the life sciences. Our strategy for managing innovation focuses on addressing the most significant unmet medical and scientific needs. We target our resources to develop promising technologies for use by our customers in Molecular Diagnostics, Applied Testing, Pharma and Academia - and to meet the needs of clinicians and scientists in key geographic markets.

Innovation at QIAGEN follows parallel paths:

- Creating new systems for automation of workflows - platforms for laboratories, hospitals and other users of these novel molecular technologies.
- Expanding our broad portfolio of novel "content" - including assays to detect and measure biomarkers for disease or genetic identification.
- Integrating bioinformatics with the testing process - software and cloud-based resources to interpret and transform raw molecular data into useful insights.

As a percentage of sales, our research and development investments are among the highest in our industry. Almost 1,000 employees in research and development work in QIAGEN centers of excellence on three continents.

Strengthening our leadership in the automation of laboratories is a key to driving dissemination of molecular testing in healthcare and other fields, as well as generating increased demand for our consumable products. We continue to expand the applications of our modular QIAsymphony platform, enabling hospitals and other customers to adopt or greatly expand their use of molecular diagnostics. QIAGEN also is rolling out a range of performance enhancements and expansions for our GeneReader NGS System to add value by addressing new applications and improving output and connectivity within labs.

We are commercializing a deep pipeline of assays for preventive screening and diagnostic profiling of diseases, detection of biomarkers to guide personalized medicine in cancer and other diseases, and a range of other targets. Our development program generates commercial launches of tests that add value to our QIAsymphony and GeneReader NGS platforms. In 2017, we launched novel infectious disease tests and companion diagnostics for QIAsymphony, as well as additional QIAact panels for deep analysis of lung, breast and ovarian cancers using the GeneReader NGS System. In Applied Testing, we continue to develop new content for human identification and environmental applications. We are also expanding our extensive portfolio of products for disease pathway research by Pharma and Academic customers. In addition, we are developing assays for specific applications in key markets such as China and Japan.

Our bioinformatics teams are developing new software solutions and adding proprietary cloud-based content to support the latest research and clinical trends in molecular testing, especially the interpretation of large volumes of data from next-generation sequencing. In addition, we are integrating these digital technologies with instruments and molecular content to provide our customers seamless Sample to Insight workflows.

Sales and Marketing

We market our products in more than 130 countries, mainly through subsidiaries in markets that we believe have the greatest sales potential in the Americas, Europe, Australia and Asia. Experienced marketing and sales staff, many of them scientists with academic degrees in molecular biology or related areas, sell our products and provide direct support to customers. Key accounts are overseen by business managers to ensure that we serve customers' commercial needs, such as procurement processes, financing, data on costs and value of our systems, and collaborative relationships. In many markets, we have specialized independent distributors and importers.

Our marketing strategy focuses on providing differentiated, high-quality products across the value chain from Sample to Insight, integrating components into end-to-end solutions when possible, and enhancing relationships with commitment to technical excellence and customer service. Our "omni-channel" approach seeks to engage customers through their preferred channels - online, by phone, in person, etc. – and to optimize investment in different customer types.

QIAGEN has initiated actions to drive the growth of our digital marketing channels - including our website (www.qiagen.com), product-specific sites and social media. Our website makes ordering easy with a fully

searchable online product catalog and ordering. The site can be viewed in Chinese and Japanese, and contains selected information in French, German and Korean. Our eCommerce team works with clients to provide automated processes supporting a variety of electronic transactions and all major eProcurement systems. Information contained on our website, or accessed through it, is not part of this Annual Report.

Our GeneGlobe Genes & Pathways web portal (www.geneglobe.com) is a valuable outreach to scientists in Pharma and Academia, enabling researchers to search and order from approximately 25 million pre-designed and custom PCR assay kits, NGS assay panels and other products. We have integrated GeneGlobe with our bioinformatics solutions, linking biological interpretation with ordering of relevant assays to accelerate research.

QIAGEN uses a range of tools to provide customers with direct access to technical support, inform them of new product offerings, and enhance our reputation for technical excellence, high-quality products and commitment to service. For example, our technical service hotline allows existing or potential customers to discuss a wide range of questions about our products and molecular biology procedures, online or via phone, with Ph.D. and M.Sc. scientists at QIAGEN. Frequent communication with customers enables us to identify market needs, learn of new developments and opportunities, and respond with new products.

We also distribute publications, including our catalog, to existing and potential customers worldwide, providing new product information, updates, and articles about existing and new applications. In addition, we hold numerous scientific seminars at clinical, academic and industrial research institutes worldwide and at major scientific and clinical meetings. We conduct direct marketing campaigns to announce new products and special promotions, and we offer personalized electronic newsletters highlighting molecular biology applications.

For laboratories that frequently rely on our consumables, the QIAstock program maintains inventory on-site to keep up with their requirements. QIAGEN representatives make regular visits to replenish the stock and help with other needs, and we are automating this process with digital technologies. Easy-to-use online ordering, inventory monitoring and customer-driven changes make QIAstock an efficient system for providing ready access to our products for the hundreds of customers worldwide who use this program.

Seasonality

Our business does not experience significant, predictable seasonality. Historically, a significant portion of our sales have been to researchers, universities, government laboratories and private foundations whose funding is dependent upon grants from government agencies, such as the National Institutes of Health and similar bodies. To the extent that our customers experience increases, decreases or delays in funding arrangements and budget approvals, and to the extent that any of our customers' activities are slowed, such as during times of higher unemployment, vacation periods or delays in the approval of government budgets, we may experience fluctuations in sales volumes during the year or delays from one period to the next in the recognition of sales.

Intellectual Property, Proprietary Rights and Licenses

We have made and expect to continue to make investments in intellectual property. In 2017, our purchases of intangible assets totaled $34.3 million. While we do not depend solely on any individual patent or technology, we are significantly dependent in the aggregate on technology that we own or license. Therefore, we consider protection of proprietary technologies and products one of the major keys to our business success. We rely on a combination of patents, licenses and trademarks to establish and protect proprietary rights. As of December 31, 2017, we owned 362 issued patents in the United States, 279 issued patents in Germany and 1,825 issued patents in other major industrialized countries. We had 638 pending patent applications. Our policy is to file patent applications in Western Europe, the United States and Japan. U.S. patents have a term of 17 years from the date of issue (for patents issued from applications submitted prior to June 8, 1995), or 20 years from the date of filing (in the

case of patents issued from applications submitted on or after June 8, 1995). Patents in most other countries have a term of 20 years from the date of filing the patent application. We intend to aggressively prosecute and enforce patents and to otherwise protect our proprietary technologies. We also rely on trade secrets, know-how, continuing technological innovation and licensing opportunities to develop and maintain our competitive position.

Our practice is to require employees, consultants, outside scientific collaborators, sponsored researchers and other advisers to execute confidentiality agreements upon commencement of their relationships with us. These agreements provide that all confidential information developed by or made known to the individual during the course of the relationship is to be kept confidential and not disclosed to third parties, subject to a right to publish certain information in scientific literature in certain circumstances and to other specific exceptions. In the case of our employees, the agreements provide that all inventions conceived by individuals in the course of their employment will be our exclusive property.

See "Risk Factors" included in section "Opportunities and Risks" for details regarding risks related to our reliance on patents and proprietary rights.

Competition

In the Academic and Pharma markets, we believe our primary competition in sample technology products involves traditional separation and purification methods, such as phenol extraction, cesium chloride density gradient centrifugation, and precipitation. These methods utilize widely available reagents and other chemicals supplied by companies such as Merck KGaA (MilliporeSigma business) and Roche Diagnostics GmbH (Applied Sciences Division). We compete with these methods through innovative technologies and products, offering a comprehensive solution for nucleic acid collection, pre-treatment, separation and purification needs and providing significant advantages in speed, reliability, convenience, reproducibility and ease of use.

We also experience competition in various markets from other companies providing sample preparation products in kit form and assay solutions. These competitors include, but are not limited to, Promega Corp., EMD Millipore or Merck Millipore, and Macherey-Nagel GmbH for nucleic acid separation and purification; Thermo Fisher and Promega Corp. for assay solutions and for transfection reagents; and Merck KGaA (MilliporeSigma business) and Thermo Fisher for protein fractionation products. We believe our proprietary technologies and products offer significant advantages over competitors' products with regard to purity, speed, reliability and ease-of-use.

Some of our other products within our molecular diagnostics customer class, such as tests for Chlamydia, Gonorrhea, hepatitis B virus, herpes simplex virus and CMV, compete against existing screening, monitoring and diagnostic technologies, including tissue culture and antigen-based diagnostic methodologies. Our competitors for gene-based diagnostic assays include Roche Diagnostics, Thermo Fisher, Abbott, and Danaher. We believe the primary competitive factors in the market for gene-based probe diagnostics and other screening devices are clinical validation, performance and reliability, ease of use, standardization, cost, proprietary position, competitors' market shares, access to distribution channels, regulatory approvals and reimbursement.

We do not believe our competitors typically have the same comprehensive approach to sample to insight solutions as we do or the ability to provide the broad range of technologies and depth of products and services that we offer. With our complete range of manual and fully automated solutions, we believe we offer the value of standardization of procedures and, therefore, more reliable results. We also believe our integrated strategic approach gives us a competitive advantage. The quality of sample technologies-an area in which we have a unique market and leadership position-is a key prerequisite for reliable molecular assay solutions, which increasingly are being applied in emerging markets such as Molecular Diagnostics and Applied Testing.

Current and potential competitors may be in the process of seeking FDA or foreign regulatory approvals for their respective products. Our continued future success will depend in large part on our ability to maintain our technological advantage over competing products, expand our market presence and preserve customer loyalty. There can be no assurance that we will be able to compete effectively in the future or that development by others will not render our technologies or products non-competitive.

Suppliers

As part of our supplier assessment procedures, we evaluate on a monthly basis the performance of our raw material and component suppliers, potential new alternative sources of such materials and components, and the risks and benefits of reliance on our existing suppliers. We buy materials for our products from many suppliers, and are not dependent on any one supplier or group of suppliers for our business as a whole. Raw materials generally include chemicals, raw separation media, biologics, plastics, electronics and packaging. Raw materials are generally readily available at competitive, stable prices from a number of suppliers. Certain raw materials are produced under our specifications, so we closely monitor stock levels to maintain adequate supplies. We believe we maintain inventories at a sufficient level to ensure reasonable customer service levels and to guard against normal volatility in availability.

Government Regulations

We are subject to a variety of laws and regulations in the European Union, the United States and other countries. The level and scope of the regulation varies depending on the country or defined economic region, but may include, among other things, the research, development, testing, clinical trials, manufacture, storage, recordkeeping, approval, labeling, promotion and commercial sales and distribution, of many of our products.

European Union Regulations

In the European Union, in vitro diagnostic medical devices (IVDs) are regulated under EU-Directive 98/79/EC (IVD Directive) and corresponding national provisions. The IVD Directive requires that medical devices meet the essential requirements set out in an annex of the directive. These requirements include the safety and efficacy of the devices. According to the IVD Directive, the Member States presume compliance with these essential requirements in respect of devices which are in conformity with the relevant national standards transposing the harmonized standards of which the reference numbers have been published in the Official Journal of the European Communities. These harmonized standards include ISO 13485:2003, the quality standard for medical device manufacturers.

IVD medical devices, other than devices for performance evaluation, must bear the CE marking of conformity when they are placed on the market. The CE mark is a declaration by the manufacturer that the product meets all the appropriate provisions of the relevant legislation implementing the relevant European Directive. As a general rule, the manufacturer must follow the procedure of the EC Declaration of conformity to obtain this CE marking.

Each European country must adopt its own laws, regulations and administrative provisions necessary to comply with the IVD Directive. Member States may not create any obstacle to the placing on the market or the putting into service within their territory of devices bearing the CE marking according to the conformity assessment procedures.

On May 25, 2017, the European Commission (EC) enacted new EU regulations for medical devices and IVDs that impose additional legal regulatory requirements on MD/IVDs used in the EU. These new regulations will come into full effect after a 5-year transition period. All products will require approval under the new law and no grandfathering of existing approvals will be allowed. Once implemented, the entire EU IVD industry will have to comply with these new requirements, which will bring the EU regulatory landscape on par with other highly regulated markets such as the US. Many Guidance Documents and other regulatory mechanisms will need to be

established during this transition. It is anticipated that it will be late in 2019 before the infrastructure is established to begin the new approvals process.

U.S. Regulations

In the United States, in vitro diagnostic kits are subject to regulation by the FDA as medical devices and must be cleared or approved before they can be marketed. Failure to comply with applicable U.S. requirements may subject a company to a variety of administrative or judicial sanctions, such as FDA refusal to approve pending PMAs, warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil penalties and criminal prosecution. In addition, some of our test kits are sold for research use only in the United States. We do not promote these tests for clinical diagnostic use, and they are labeled "For Research Use Only," or RUO, as required by the FDA.

In Vitro Diagnostics

The FDA regulates the sale or distribution of medical devices, including in vitro diagnostic test kits and some Lab Developed Tests (LDTs). The information that must be submitted to the FDA in order to obtain clearance or approval to market a new medical device varies depending on how the medical device is classified by the FDA. Medical devices are classified into one of three classes on the basis of the controls deemed by the FDA to be necessary to reasonably ensure their safety and effectiveness. Class I devices are subject to general controls, including labeling, pre-market notification and adherence to the FDA's quality system regulations, which are device-specific good manufacturing practices. Class II devices are subject to general controls and special controls, including performance standards and post-market surveillance. Class III devices are subject to most of the previously identified requirements as well as to pre-market approval. All Class I devices are exempt from premarket review; most Class II devices require 510(k) clearance, and all Class III devices must receive premarket approval before they can be sold in the United States. The payment of a fee, that is subject to frequent adjustment, to the FDA is usually required when a 510(k) notice or premarket approval application is submitted.

510(k) Premarket Notification. A 510(k) notification requires the sponsor to demonstrate that a medical device is substantially equivalent to another marketed device, termed a "predicate device", that is legally marketed in the United States and for which a premarket approval application (PMA) was not required. A device is substantially equivalent to a predicate device if it has the same intended use and technological characteristics as the predicate; or has the same intended use but different technological characteristics, where the information submitted to the FDA does not raise new questions of safety and effectiveness and demonstrates that the device is at least as safe and effective as the legally marketed device.

The FDA generally issues a decision letter within 90 days of receipt of the 510(k) if it has no additional questions or sends a first action letter requesting additional information within 75 days. Most 510(k)s do not require clinical data for clearance, but a minority will. Requests for additional data, including clinical data, will increase the time necessary to review the notice. If the FDA believes that the device is not substantially equivalent to a predicate device, it will issue a "Not Substantially Equivalent" letter and designate the device as a Class III device, which will require the submission and approval of a PMA before the new device may be marketed. Under certain circumstances, the sponsor may petition the FDA to make a risk-based determination of the new device and reclassify the new device as a Class I or Class II device. The FDA continues to reevaluate the 510(k) review process, and we cannot predict what if any changes will occur.

Premarket Approval. The PMA process is more complex, costly and time consuming than the 510(k) process. A PMA must be supported by more detailed and comprehensive scientific evidence, including clinical data, to demonstrate the safety and efficacy of the medical device for its intended purpose. If the device is determined to present a "significant risk," the sponsor may not begin a clinical trial until it submits an investigational device exemption (IDE) to the FDA and obtains approval to begin the trial.

After the PMA is submitted, the FDA has 45 days to make a threshold determination that the PMA is sufficiently complete to permit a substantive review. If the PMA is complete, the FDA will file the PMA. The FDA is subject to a performance goal review time for a PMA that is 180 days from the date of filing, although in practice this review time is longer. Questions from the FDA, requests for additional data and referrals to advisory committees may delay the process considerably. The total process may take several years and there is no guarantee that the PMA will ever be approved. Even if approved, the FDA may limit the indications for which the device may be marketed. The FDA may also request additional clinical data as a condition of approval or after the PMA is approved. Any changes to the medical device may require a supplemental PMA to be submitted and approved before changed medical device may be marketed.

Any products sold by us pursuant to FDA clearances or approvals will be subject to pervasive and continuing regulation by the FDA, including record keeping requirements, reporting of adverse experiences with the use of the device and restrictions on the advertising and promotion of our products. Device manufacturers are required to register their establishments and list their devices with the FDA and are subject to periodic inspections by the FDA and certain state agencies. Noncompliance with applicable FDA requirements can result in, among other things, warning letters, fines, injunctions, civil penalties, recalls or seizures of products, total or partial suspension of production, refusal of the FDA to grant 510(k) clearance or PMA approval for new devices, withdrawal of 510(k) clearances and/or PMA approvals and criminal prosecution.

Regulation of Companion Diagnostic Devices

If a sponsor or the FDA believes that a diagnostic test is essential for the safe and effective use of a corresponding therapeutic product, the sponsor of the therapeutic product will typically work with a collaborator to develop an in vitro companion diagnostic device, or IVD. IVDs are regulated by the FDA as medical devices. The FDA issued a final guidance document in 2014, entitled "In Vitro Companion Diagnostic Devices" that is intended to assist companies developing in vitro companion diagnostic devices and companies developing therapeutic products that depend on the use of a specific in vitro companion diagnostic for the safe and effective use of the product. The FDA defined an IVD companion diagnostic device as a device that provides information that is essential for the safe and effective use of a corresponding therapeutic product. The FDA expects that the therapeutic sponsor will address the need for an approved or cleared IVD companion diagnostic device in its therapeutic product development plan and that, in most cases, the therapeutic product and its corresponding IVD companion diagnostic will be developed contemporaneously.

It also issued a draft guidance on July 15, 2016, entitled, "Principles for Codevelopment of an In Vitro Companion Diagnostic Device with a Therapeutic Product" to serve as a practical guide to assist therapeutic product sponsors and IVD sponsors in developing a therapeutic product and an accompanying IVD companion diagnostic.

The FDA indicated that it will apply a risk-based approach to determine the regulatory pathway for IVD companion diagnostic devices, as it does with all medical devices. This means that the regulatory pathway will depend on the level of risk to patients, based on the intended use of the IVD companion diagnostic device and the controls necessary to provide a reasonable assurance of safety and effectiveness. The two primary types of marketing pathways for medical devices are clearance of a premarket notification under Section 510(k) of the Federal Food, Drug, and Cosmetic Act, or 510(k), and approval of a premarket approval application, or PMA. We expect that any IVD companion diagnostic device developed for use with our drug candidates will utilize the PMA pathway and that a clinical trial performed under an investigational device exemption, or IDE, will have to be completed before the PMA may be submitted.

The FDA expects that the therapeutic sponsor will address the need for an IVD companion diagnostic device in its therapeutic product development plan and that, in most cases, the therapeutic product and its corresponding IVD companion diagnostic device will be developed contemporaneously. If the companion diagnostic test will be used to

make critical treatment decisions such as patient selection, treatment assignment, or treatment arm, it will likely be considered a significant risk device for which a clinical trial will be required.

The sponsor of the IVD companion diagnostic device will be required to comply with the FDA's IDE requirements that apply to clinical trials of significant risk devices. If the diagnostic test and the therapeutic drug are studied together to support their respective approvals, the clinical trial must meet both the IDE and IND requirements.

PMAs must be supported by valid scientific evidence, which typically requires extensive data, including technical, preclinical, clinical and manufacturing data, to demonstrate to the FDA's satisfaction the safety and effectiveness of the device. For diagnostic tests, a PMA typically includes data regarding analytical and clinical validation studies. As part of its review of the PMA, the FDA will conduct a pre-approval inspection of the manufacturing facility or facilities to ensure compliance with the Quality System Regulation, or QSR, which requires manufacturers to follow design, testing, control, documentation and other quality assurance procedures. FDA review of an initial PMA may require several years to complete.

If the FDA evaluations of both the PMA and the manufacturing facilities are favorable, the FDA will either issue an approval order or an approvable letter, which usually contains a number of conditions that must be met in order to secure the final approval of the PMA. If the FDA's evaluation of the PMA or manufacturing facilities is not favorable, the FDA will send the applicant a not approvable letter or an order denying approval. A not approvable letter will outline the deficiencies in the application and, where practical, will identify what is necessary to make the PMA approvable. The FDA may also determine that additional clinical trials are necessary, in which case the PMA approval may be delayed for several months or years while the trials are conducted and then the data submitted in an amendment to the PMA. Once granted, PMA approval may be withdrawn by the FDA if compliance with post approval requirements, conditions of approval or other regulatory standards is not maintained or problems are identified following initial marketing.

After approval, the use of an IVD companion diagnostic device with a therapeutic product will be stipulated in the instructions for use in the labeling of both the diagnostic device and the corresponding therapeutic product. In addition, a diagnostic test that was approved through the PMA process or one that was cleared through the 510(k) process and placed on the market will be subject to many of the same regulatory requirements that apply to approved drugs. The FDA has approved a number of drug/diagnostic device companions in accordance with the Guidance.

In September 2013, the FDA issued its final rule on the Unique Device Identifier. This rule now requires an additional registered identifier, including a special barcode, on all FDA regulated medical devices. The rule is implemented in phases with the first deadline of September 24, 2014 being established for all Class III medical devices. For QIAGEN, this impacted the hc2, QuantiFERON, and therascreen products. We established a task force to ensure that the deadline was met but this will place additional administrative and regulatory burden on us related to the annual reporting of compliance of these products to the new regulation. Class II and Class I products are required to have this same labeling as of September 24, 2016 and 2018, respectively. QIAGEN was fully compliant with the new rule by the September 2014 and 2016 deadlines and we continue to work to ensure that we will be able to meet the remaining deadlines. The new rule will also require additional compliance oversight now that it has been implemented. The requirements are now required to be confirmed as part of our annual reporting and PMA submissions. They are also assessed during site inspections by the U.S. FDA.

Some of our products are sold for research purposes in the U.S., and labeled "For Research Use Only" (RUO) or "for molecular biology applications." In November 2013, the FDA issued a final Guidance for Industry and Food and Drug Administration Staff entitled, "Distribution of In Vitro Diagnostic Products Labeled for Research Use Only or Investigational Use Only." In the Guidance, RUO refers to devices that are in the laboratory phase of development, and investigational use only, or IUO, refers to devices that are in the product testing phase of development. These

types of devices are exempt from most regulatory controls. Because we do not promote our RUOs for clinical diagnostic use or provide technical assistance to clinical laboratories with respect to these tests, we believe that these tests are exempt from FDA's premarket review and other requirements. If the FDA were to disagree with our designation of any of these products, we could be forced to stop selling the product until we obtain appropriate regulatory clearance or approval. Further, it is possible that some of our RUOs may be used by some customers without our knowledge in their LDTs, which they develop, validate and promote for clinical use. However, as previously noted, we do not promote these products for use in LDTs or assist in the development of the LDTs for clinical diagnostic use.

The 21st Century Cures Act (Cures Act) was enacted into law on December 13, 2016, after a bipartisan, multi-year effort. The Cures Act primarily affects activities of the Department of Health and Human Services (HHS) and its agencies, including the Food and Drug Administration (FDA or the Agency). On June 6, 2017, Scott Gottlieb, M.D., Commissioner of Food and Drugs, reported to Congress as required by the Cures Act. This report included the Food & Drug Administration Work Plan and Proposed Funding Allocations of FDA Innovation Account (Required by Section 1002 of the 21st Century Cures Act (Public Law 114-255). This is now being implemented with a broad spectrum of initiatives within the FDA with the goal to support patients with improved and timely access to safe and efficacious medical products. For industry, it is anticipated that some processes will become less burdensome with more rapid approval/clearance cycles while others will continue to require significant investment.

HIPAA and Other Privacy and Security Laws

Numerous privacy and data security laws apply to personal information, including health information. These laws vary in their application. For example, the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act, and their implementing regulations (HIPAA), regulate the uses, disclosures and security of identifiable health information (protected health information or PHI) in the hands of certain health care providers, health plans or health care clearing houses (covered entities). HIPAA regulates and limits covered entities' uses and disclosures of PHI and requires the implementation of administrative, physical and technical safeguards to keep PHI secure. HIPAA also applies to organizations that create, receive, maintain or transmit PHI to provide services to or for or on behalf of covered entities (business associates). Business associates and certain of their subcontractors are required to comply with certain privacy and all of the security standards of HIPAA. Business associates and covered entities must also comply with breach notification standards established by HIPAA. The HIPAA breach notification standards require covered entities to notify affected individuals, the government, and in some cases, local and national media in the event of a breach of PHI that has not been secured in accordance with HIPAA standards, such as by encryption. The breach notification standards require business associates to notify covered entity customers of their own breaches of unsecured PHI so that the relevant covered entity may make required notifications. In the ordinary course, HIPAA does not apply to us directly, but if we were to act as a HIPAA covered entity or business associate, we would be subject to these obligations. Most of our institutional and physician customers are covered entities under HIPAA and must obtain proper authorization or de-identify information so that we may provide services. When PHI is de-identified in accordance with HIPAA or when the disclosure of PHI is authorized by a patient, HIPAA does not impose any compliance obligations on the recipient, but our use and disclosure of the information may be limited by contract or the terms of the authorization.

We are subject to enforcement by state attorneys general who have authority to enforce state data privacy or security laws. Accordingly, we maintain an active privacy and data security program designed to address applicable regulatory compliance requirements.

Almost all states have adopted data breach notification laws relating to the "personal information" of its residents. Personal information typically includes an individual's name or initials coupled with social security, financial account, debit, credit or state-issued identification number or other information that could lead to identity theft. There is significant variability under these laws, but most require notification to affected individuals (and some require

notification to the government) in the event of breach. Other laws of some states require that that we comply with data security obligations. These laws may apply to us when we receive or maintain personal information regarding individuals, including our employees.

The Genetic Information Nondiscrimination Act of 2008, also referred to as GINA, is a federal law that protects individuals from discrimination in the health insurance and employment contexts because of DNA characteristics that may affect their health. GINA prohibits covered employers from requesting, obtaining, or using employees' genetic information (subject to limited exceptions), and prohibits covered health insurers from requesting genetic information or using any such information they may already have for purposes of making eligibility, premium, or coverage-related decisions.

Many states have also adopted genetic testing and privacy laws. These laws typically require a specific, written consent for genetic testing as well as consent for the disclosure of genetic test results and otherwise limit uses and disclosures of genetic testing results. A few states have adopted laws that give their residents property rights in their genetic information.

Privacy and data security laws, including those relating to health information, are complex, overlapping and rapidly evolving. As our activities evolve and expand, additional laws may be implicated, for example, there are non-U.S. privacy laws, such as the General Data Protection Regulation (GDPR) of the European Union, that impose restrictions on the transfer, access, use, and disclosure of health and other personal information. Currently, we are implementing the requirements set forth by the GDPR, which is set to take effect on May 25, 2018. All of these laws impact our business either directly or indirectly. Our failure to comply with applicable privacy or security laws or significant changes in these laws could significantly impact our business and future business plans. For example, we may be subject to regulatory action or lawsuits in the event we fail to comply with applicable privacy laws. We may face significant liability in the event any of the personal information we maintain is lost or otherwise subject to misuse or other wrongful use, access or disclosure.

Compliance with Fraud and Abuse Laws

We have to comply with various U.S. federal and state laws, rules and regulations pertaining to healthcare fraud and abuse, including anti-kickback laws and physician self-referral laws, rules and regulations. Violations of the fraud and abuse laws are punishable by criminal and civil sanctions, including, in some instances, exclusion from participation in federal and state healthcare programs, including Medicare and Medicaid.

Anti-Kickback Statute

The federal Anti-Kickback Statute prohibits persons from knowingly or willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, in exchange for or to induce:

- The referral of an individual for a service or product for which payment may be made by Medicare, Medicaid or other government-sponsored healthcare program; or
- purchasing, ordering, arranging for, or recommending the ordering of, any service or product for which payment may be made by a government-sponsored healthcare program.

The definition of "remuneration" has been broadly interpreted to include anything of value, including such items as gifts, certain discounts, waiver of payments, and providing anything at less than its fair market value. In addition, several courts have interpreted the law to mean that if "one purpose" of an arrangement is intended to induce referrals, the statute is violated.

The Anti-Kickback Statue is broad and prohibits many arrangements and practices that are lawful in businesses outside of the healthcare industry. Recognizing that the Anti-Kickback Statute is broad and may technically prohibit many innocuous or beneficial arrangements, the Office of Inspector General of the Department of Health and Human Services (OIG) has issued regulations, commonly known as "safe harbors." These safe harbors set forth certain requirements that, if fully met, will insulate healthcare providers, medical device manufacturers, and others, from prosecution under the Anti-Kickback Statute. Although full compliance with these safe harbor provisions ensures against prosecution under the Anti-Kickback Statute, full compliance is often difficult and the failure of a transaction or arrangement to fit within a specific safe harbor does not necessarily mean that the transaction or arrangement is illegal or that prosecution under the Anti-Kickback Statute will be pursued. However, conduct and business arrangements that do not fully satisfy each applicable safe harbor may result in increased scrutiny by government enforcement authorities such as the OIG. The statutory penalties for violating the Anti-Kickback Statute include imprisonment for up to five years and criminal fines of up to $25,000 per violation. In addition, through application of other laws, conduct that violates the Anti-Kickback Statute can also give rise to False Claims Act lawsuits, civil monetary penalties and possible exclusion from Medicare and Medicaid and other federal healthcare programs. In addition to the Federal Anti-Kickback Statute, many states have their own kickback laws. Often, these laws closely follow the language of the federal law, although they do not always have the same scope, exceptions, safe harbors or sanctions. In some states, these anti-kickback laws apply not only to payment made by a government health care program but also with respect to other payors, including commercial insurance companies.

We have and may in the future, enter into various agreements with health care providers who perform services for us, including some who make clinical decisions to use our products. All such arrangements have been structured with the intention of complying with all applicable fraud and abuse laws, including the Anti-Kickback Statute.

Other Fraud and Abuse Laws

The federal False Claims Act (FCA) prohibits any person from knowingly presenting, or causing to be presented, a false claim or knowingly making, or causing to made, a false statement to obtain payment from the federal government. Those found in violation of the FCA can be subject to fines and penalties of three times the damages sustained by the government, plus mandatory civil penalties of between $5,500 and $11,000 for each separate false claim. Actions filed under the FCA can be brought by any individual on behalf of the government, a "qui tam" action, and such individual, known as a "relator" or, more commonly, as a "whistleblower," who may share in any amounts paid by the entity to the government in damages and penalties or by way of settlement. In addition, certain states have enacted laws modeled after the FCA, and this legislative activity is expected to increase. Qui tam actions have increased significantly in recent years, causing greater numbers of healthcare companies, including medical device manufacturers, to defend false claim actions, pay damages and penalties or be excluded from Medicare, Medicaid or other federal or state healthcare programs as a result of investigations arising out of such actions.

The federal ban on physician self-referrals, commonly known as the Stark Law, prohibits, subject to certain exceptions, physician referrals of Medicare and Medicaid patients to an entity providing certain “designated health services” if the physician or an immediate family member of the physician has any financial relationship with the entity. Penalties for violating the Stark Law include fines, civil monetary penalties and possible exclusion from federal healthcare programs. In addition to the Stark Law, many states have their own self-referral laws. Often, these laws closely follow the language of the federal law, although they do not always have the same scope, exceptions or safe harbors.

The OIG also has authority to bring administrative actions against entities for alleged violations of a number of prohibitions, including the Anti-Kickback Statute and the Stark Law. The OIG may seek to impose civil monetary penalties or exclusion from the Medicare, Medicaid and other federal healthcare programs. Civil monetary penalties can range from $2,000 to $50,000 for each violation or failure plus, in certain circumstances, three times the amounts claimed in reimbursement or illegal remuneration. Typically, exclusions last for five years.

In addition, we must comply with a variety of other laws, such as laws prohibiting false claims for reimbursement under Medicare and Medicaid, all of which can also be triggered by violations of federal anti-kickback laws; the Health Insurance Portability and Accounting Act of 1996, which makes it a federal crime to commit healthcare fraud and make false statements; and the Federal Trade Commission Act and similar laws regulating advertisement and consumer protections.

There are also an increasing number of state "sunshine" laws that require manufacturers to provide reports to state governments on pricing and marketing information. Several states have enacted legislation requiring manufacturers, including medical device companies to, among other things, establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales and marketing activities, and to prohibit or limit certain other sales and marketing practices. In addition, a federal law known as the Physician Payments Sunshine Act, requires manufacturers, including medical device manufacturers, to track and report to the federal government certain payments and other transfers of value made to physicians and teaching hospitals and ownership or investment interests held by physicians and their immediate family members. The federal government discloses the reported information on a publicly available website. If we fail to track and report as required by these laws or to otherwise comply with these laws, we could be subject to the penalty provisions of the pertinent state and federal authorities.

Despite extensive procedures to ensure compliance, we may also be exposed to liabilities under the U.S. Foreign Corrupt Practices Act, or FCPA, which generally prohibits companies and their intermediaries from making corrupt payments to foreign officials for the purpose of obtaining or maintaining business or otherwise obtaining favorable treatment, and requires companies to maintain adequate record-keeping and internal accounting practices to accurately reflect the transactions of the company. We are also subject to a number of other laws and regulations relating to money laundering, international money transfers and electronic fund transfers. These laws apply to companies, individual directors, officers, employees and agents.

Environment, Health and Safety

We are subject to laws and regulations related to the protection of the environment, the health and safety of employees and the handling, transportation and disposal of medical specimens, infectious and hazardous waste and radioactive materials. For example, the U.S. Occupational Safety and Health Administration (OSHA) has established extensive requirements relating specifically to workplace safety for healthcare employers in the U.S. This includes requirements to develop and implement multi-faceted programs to protect workers from exposure to blood-borne pathogens, such as HIV and hepatitis B and C, including preventing or minimizing any exposure through needle stick injuries. For purposes of transportation, some biological materials and laboratory supplies are classified as hazardous materials and are subject to regulation by one or more of the following agencies: the U.S. Department of Transportation, the U.S. Public Health Service, the United States Postal Service and the International Air Transport Association.

Other Country Specific Requirements

In many countries outside of the United States and the EU, coverage, pricing and reimbursement approvals are also required. Additionally, many of the major markets are adopting regulations and requirements similar to U.S. Food and Drug Administration (FDA) which require additional submission activities and management of country specific regulatory requirements. This is being led by the International Medical Device Regulators Forum (IMDRF). This Forum consists of regulators from around the world that have signed governmental agreements to align global regulations, especially around submissions and approvals. In the long term this holds the promise of reducing volatility and complexity in the regulatory landscape.

Reimbursement

United States

In the United States, payments for diagnostic tests come from several sources, including third party payors such as health maintenance organizations and preferred provider organizations; government health programs such as Medicare and Medicaid; and, in certain circumstances, hospitals, referring laboratories or the patients themselves. For many years, federal and state governments in the United States have pursued methods to reduce the cost of these programs. For example, in 2010, the United States enacted major healthcare reform legislation known as the Patient Protection and Affordable Care Act (ACA). Such changes have had, and are expected to continue to have, an impact on our business. At present, Medicare payment rates are affected by across-the-board federal budget cuts commonly referred to as "sequestration." Under sequestration, the Centers for Medicare & Medicaid Services (CMS), the federal agency responsible for administering Medicare and Medicaid, reduced Medicare payments to providers by 2% annually beginning in 2013 and through 2023.

We frequently identify value propositions on our products and communicate them to payors, providers, and patient stakeholders and attempt to positively impact coverage, coding and payment pathways. However, we have no direct control over payor decisions with respect to coverage and payment levels for our products. The manner and level of reimbursement may depend on the site of care, the procedure(s) performed, the final patient diagnosis, the device(s) and/or drug(s) utilized, the available budget, or a combination of these factors, and coverage and payment levels are determined at each payor's discretion. Changes in reimbursement levels or methods may positively or negatively affect sales of our products in any given country for any given product. At QIAGEN, we work with several specialized reimbursement consulting companies and maintain regular contact with payers.

As government programs seek to expand healthcare coverage for their citizens, they have at the same time sought to control costs by limiting the amount of reimbursement they will pay for particular procedures, products or services. Many third-party payors have developed payment and delivery mechanisms to support cost control efforts and to focus on paying for quality. Such mechanisms include payment reductions, pay for performance metrics, quality-based performance payments, restrictive coverage policies, studies to compare effectiveness and patient outcomes, and technology assessments. These changes have increased emphasis on the delivery of more cost-effective and quality-driven healthcare Code Assignment. In the United States, a third-party payor's decisions regarding coverage and payment are impacted, in large part, by the specific Current Procedural Terminology, or CPT, code used to identify a test. The American Medical Association, or AMA, publishes the CPT, which is a listing of descriptive terms and identifying codes for reporting medical services and procedures. The purpose of the CPT is to provide a uniform language that accurately describes medical, surgical, and diagnostic services and therefore to ensure reliable nationwide communication among healthcare providers, patients, and third-party payors. CMS uses its own HCPCS codes for medical billing and reimbursement purposes. Level I HCPCS codes reflect current CPT codes, while Level II codes primarily represent non-physician services and Level III codes are local codes developed by Medicaid agencies, Medicare contractors and private insurers.

A manufacturer of in vitro diagnostic kits or a provider of laboratory services may request establishment of a Category I CPT code for a new product. Assignment of a specific CPT code ensures routine processing and payment for a diagnostic test by both private and government third-party payors.

The AMA has specific procedures for establishing a new CPT code and, if appropriate, for modifying existing nomenclature to incorporate a new test into an existing code. If the AMA concludes that a new code or modification of nomenclature is unnecessary, the AMA will inform the requestor how to use one or more existing codes to report the test.

While the AMA's decision is pending, billing and collection may be sought under an existing, non-specific CPT code. A manufacturer or provider may decide not to request assignment of a CPT code and instead use an existing, non-specific code for reimbursement purposes. However, use of such codes may result in more frequent denials and/or requests for supporting clinical documentation from the third-party payor and in lower reimbursement rates, which may vary based on geographical location.

CMS reimbursement rates for clinical diagnostic tests are defined by HCPS code in the Clinical Laboratory Fee Schedule (CLFS). In 2012, the AMA added 127 new CPT codes for molecular pathology services that became effective on January 1, 2013. These new CPT codes are biomarker specific and were designed to replace the previous methodology of billing for molecular pathology testing, which involved "stacking" a series of non-biomarker specific CPT codes together to describe the testing performed. CMS issued final national reimbursement prices for the new CPT codes in November 2013. These federal reimbursement amounts are widely acknowledged to be lower than the reimbursement obtained by the now outdated "stacking" method, but commercial payors and Medicare contractors are still in the process of solidifying their coverage and reimbursement policies for the testing described by these new CPT codes. As of January 1, 2018, in accordance with the Protecting Access to Medicare Act of 2014 (PAMA), CMS began calculating Medicare reimbursement rates for certain clinical diagnostic tests using weighted median private payor rates, which are based on rate information reported by applicable laboratories. This new rate methodology means the lower reimbursement rates previously experienced in the field of molecular pathology testing now extends to additional diagnostic testing codes on the CLFS.

Coverage Decisions. When deciding whether to cover a particular diagnostic test, private and government third-party payors generally consider whether the test is a contractual benefit and, if so, whether it is reasonable and necessary for the diagnosis or treatment of an illness or injury. However, most third-party payors do not cover experimental services. Coverage determinations are often influenced by current standards of practice and clinical data, particularly at the local level. CMS, the government agency responsible for overseeing the Medicare program, has the authority to make coverage determinations on a national basis, but most Medicare coverage decisions are made at the local level by contractors that administer the Medicare program in specified geographic areas. Private and government third-party payors have separate processes for making coverage determinations, and private third-party payors may or may not follow Medicare's coverage decisions. If a third-party payor has a coverage determination in place for a particular diagnostic test, billing for that test must comply with the established policy. Otherwise, the third-party payor makes reimbursement decisions on a case-by-case basis.

Payment. Payment for covered diagnostic tests is determined based on various methodologies, including prospective payment systems and fee schedules. In addition, private third-party payors may negotiate contractual rates with participating providers or set rates as a percentage of the billed charge. Diagnostic tests furnished to Medicare inpatients generally are included in the bundled payment made to the hospital under Medicare's Inpatient Prospective Payment System, utilizing Diagnosis Related Groups (DRGs) depending on the patient's condition. Payment for diagnostic tests furnished to Medicare beneficiaries in outpatient settings is based on the CLF, under which a payment amount is assigned to each covered CPT code, or through the Outpatient Prospective Payment System (OPPS), which is the outpatient equivalent of the DRG model. The law technically requires fee schedule amounts to be adjusted annually by the percentage increase in the consumer price index (CPI) for the prior year, but Congress has frozen payment rates in certain years. Medicaid programs generally pay for diagnostic tests based on a fee schedule, but reimbursement varies by state.

European Union

In the European Union, the reimbursement mechanisms used by private and public health insurers vary by country. For the public systems, reimbursement is determined by guidelines established by the legislator or responsible national authority. As elsewhere, inclusion in reimbursement catalogues focuses on the medical usefulness, need, quality and economic benefits to patients and the healthcare system. Acceptance for reimbursement comes with cost, use, and often volume restrictions, which again can vary by country.

Conflict Minerals

Recent U.S. legislation has been enacted to improve transparency and accountability concerning the sourcing of conflict minerals from mines located in the conflict zones of the Democratic Republic of Congo (DRC) and its adjoining countries. The term conflict minerals currently encompasses tantalum, tin, tungsten (or their ores) and gold. Certain of our instrumentation product components which we purchase from third party suppliers contain gold. This

U.S. legislation requires manufacturers, such as us, to investigate our supply chain and disclose if there is any use of conflict minerals originating in the DRC or adjoining countries. We conduct due diligence measures annually to determine the presence of conflict minerals in our products and the source of any such conflict minerals. Because we do not purchase conflict minerals directly from smelters or refineries, we rely on our suppliers to specify to us their Conflict Minerals sources and declare their conflict minerals status. We disclosed our most recent Conflict Minerals findings to the Securities Exchange Commission for the calendar year ending December 31, 2016 on Form SD on April 24, 2017 and will provide updated disclosure to the Securities Exchange Commission as required.

Organizational Structure

QIAGEN N.V. is the holding company for more than 50 consolidated subsidiaries, many of which have the primary function of distributing our products and services on a regional basis. Certain subsidiaries also have research and development or production activities. A listing of our significant subsidiaries and their jurisdictions of incorporation is included in Exhibit 8.1 of the 2017 Annual Report on Form 20-F files with the U.S. Securities and Exchange Commission.

Description of Property

Our production and manufacturing facilities for consumable products are located in Germany, the United States, China, and the United Kingdom. Our facilities for software development are located in the United States, Germany, Poland and Romania. In recent years, we have made investments in automated and interchangeable production equipment to increase our production capacity and improve efficiency. Our production and manufacturing operations are highly integrated and benefit from sophisticated inventory control. Production management personnel are highly qualified, and many have advanced degrees in engineering, business and science. We also have installed and continue to expand production-planning systems that are included in our integrated information and control system based on the SAP R/3 business software package from SAP AG. Worldwide, we use SAP software to integrate most of our operating subsidiaries. Capital expenditures for property, plant and equipment totaled $90.1 million, $74.5 million and $97.8 million for 2017, 2016 and 2015, respectively.

We have an established quality system, including standard manufacturing and documentation procedures, intended to ensure that products are produced and tested in accordance with the FDA's Quality System Regulations, which impose current Good Manufacturing Practice (cGMP) requirements. For cGMP production, special areas were built in our facilities in Hilden, Germany, and Germantown, Maryland. These facilities operate in accordance with cGMP requirements.

The consumable products manufactured at QIAGEN GmbH in Germany, and QIAGEN Sciences LLC in Maryland, are produced under ISO 9001: 2008, ISO 13485:2012, ISO 13485:2003 CMDCAS. Our certifications form part of our ongoing commitment to provide our customers with high-quality, state-of-the-art sample and assay technologies under our Total Quality Management system.

Our facilities in Hilden, Germany, currently occupy a total of approximately 781,000 square feet, some of which is leased pursuant to separate contracts, the last of which expires in 2018. Our most recent expansion to these facilities was in 2017 and included approximately 4,400 square feet of additional office and warehouse space. Our production capacity is increased through our manufacturing and research facilities in the United States. QIAGEN Sciences, LLC owns a 24-acre site in Germantown, Maryland. The 285,000 square foot Germantown facility consists of several buildings in a campus-like arrangement and can accommodate over 500 employees. There is room for future expansion of up to 300,000 square feet of facility space. In 2015, we completed expansion of our research and production facilities in Hilden, Germany and renovations of administrative facilities in Germantown, Maryland.

We lease a facility in Frederick, Maryland comprising 42,000 square feet for manufacturing, warehousing, distribution and research operations. We also lease facilities in Massachusetts with 32,400 square feet in Waltham for NGS system development and 39,100 square feet in Beverly for enzyme manufacturing. Additionally, we have

leased facilities in Redwood City, California with 12,700 square feet and Cary, North Carolina with 10,900 square feet focused on bioinformatics. Additionally, we lease smaller facilities in Shenzhen, China and Manchester, United Kingdom for manufacturing, warehousing, distribution and research operations and have shared service centers which lease facilities in Wroclaw, Poland and Manila, Philippines. Other subsidiaries throughout the world lease smaller amounts of space. Our corporate headquarters are located in leased office space in Venlo, The Netherlands.

We believe our existing production and distribution facilities can support anticipated production needs for the next 36 months. Our production and manufacturing operations are subject to various federal, state, and local laws and regulations including environmental regulations. We do not believe we have any material issues relating to these laws and regulations.

MANAGEMENT REPORT

Opportunities and Risks

QIAGEN, like any other company, has business operations that involve significant opportunities and risks. Effective management is paramount to safeguarding the sustainable value creation, and the central task of the leadership team. Managing opportunities and risks is an integral part of the corporate governance system in place throughout QIAGEN, not the task of one particular organizational unit. Management systems are in place to aggregate all risks and opportunities for review at the Managing Board and Supervisory Board levels of QIAGEN N.V., and these are reviewed on a routine basis. According to our current assessment, we consider the opportunities and risks to be manageable and the survival of QIAGEN not to be endangered at the end of 2017, which was the same position taken at the end of 2016. This assessment is supported by our strong balance sheet and the current business outlook, and further supported by the positive historical response to our external financing demands. As a result, QIAGEN has not sought an official rating by any of the leading ratings agencies. We are confident in the future earnings strength of QIAGEN and have access to the resources to pursue value-creating business opportunities.

Opportunities

As an international company, QIAGEN is exposed to a wide variety of developments in the various markets in which it operates. Our mission is to "make improvements in life possible" by capturing growth opportunities presented by the dissemination of molecular technologies across the four customer classes in Molecular Diagnostics, Applied Testing, Pharma and Academia. Due to increased life expectancy for people living in developed countries, and also the dynamic growth of healthcare demand in many emerging markets, the need for innovative diagnostics is increasing at a marked pace. This is underscored by the proven benefits of diagnostics to improve healthcare outcomes, particularly the advent of companion diagnostics to personalize healthcare, while still representing a small fraction of overall healthcare expenditures. Our internal R&D activities present major opportunities, and we are working to find new products and improve existing ones across our portfolio of Sample to Insight solutions. We also continuously evaluate potential additional opportunities across our four customer classes as an integral part of our strategy. All of these factors represent future growth opportunities for QIAGEN.

One of the most important senior management tasks at QIAGEN is to identify and assess opportunities as early as possible and to initiate appropriate measures in order to maximize the fullest value of opportunities and transform them into business success. QIAGEN evaluates organic growth opportunities each year as part of its annual budget planning process, and on an ongoing basis during the year, especially in dynamically changing areas of the business portfolio. These evaluations are based on proposals for new products, services and technologies developed within QIAGEN. This cross-functional process involves a careful analysis of the market environment and competitive positioning, as well as additional factors such as expected development timelines, regulatory and reimbursement issues when evaluating organic opportunities. Business plans include information about the product or service planned to be developed, along with profiles on target customers and competitors, market size and barriers to entry. It also outlines the resources required for implementation. As part of this process, these plans are subjected to a uniform profitability analysis to determine the net present value of an investment and the opportunities to create value (as measured with QIAGEN Value Added, or QVA) and generate returns that exceed the Group's cost of capital after a multi-year period. The monitoring of growth initiatives is done through regular reporting to the Supervisory Board, which receives reports on a frequent basis during the year about the status and progress of key initiatives. Project management and the supporting central functions report directly to Peer M. Schatz, the CEO of QIAGEN.

Risk Management

Our risk management approach embodies the key elements of a sound risk management system including (1) active Supervisory Board and senior management involvement; (2) adequate policies and procedures; (3) adequate risk management, monitoring and information systems; and (4) comprehensive internal controls.

QIAGEN is managed by a Managing Board and an independent Supervisory Board appointed by the General Meeting of Shareholders. One of the Managing Board's responsibilities is the oversight of the risk management system. The Managing Board has developed and implemented strategies, controls and mitigation measures to identify current and developing risks as part of the risk management system. Risk management policies and procedures are embodied in our corporate governance, code of ethics and financial reporting controls and procedures. A variety of functional experts evaluate these business risks, attempting to mitigate and manage these risks on an ongoing basis.

Identified risks are subdivided into three types:

- A base business risk that is specific to us or our industry and threatens our existing business;
- A business growth risk that is specific to us or our industry and threatens our future business growth; and
- An underlying business risk that is not specific to us or our industry, but applies to a larger number of public companies.

All identified risks are evaluated based on their likelihood of occurring and their potential impact (estimated in monetary terms) in disrupting our progress in achieving our business objectives. The overall risk management goal is to identify risks that could significantly threaten our success and to allow management on a timely basis the opportunity to successfully implement mitigation actions. The results of the risk assessment, and any updates, are reported to the Audit Committee of the Supervisory Board on a regular basis. A detailed risk reporting update is provided each quarter to the Audit Committee for specific risks that have been newly identified or have changed since the previous assessment. At least once on an annual basis, the Supervisory Board discusses the corporate strategy and business risks as well as the results of an assessment by the Managing Board and the Audit Committee of the structure and operations of the internal risk management and control systems, including any significant changes.

Our corporate governance structure is based on a strong framework that outlines the responsibilities of our Managing and Supervisory Boards (discussed in more detail in Item 10 of the 2017 Annual Report on Form 20-F files with the U.S. Securities and Exchange Commission) and the function of the Audit Committee of the Supervisory Board (discussed in more detail in Item 6 of the 2017 Annual Report on Form 20-F files with the U.S. Securities and Exchange Commission). We maintain adequate internal controls over financial reporting to ensure the integrity of financial reporting, which is described further in Item 15 of this Annual Report. Additionally, we have a Compliance Committee that consists of senior executives from various functional areas who are responsible for ensuring compliance with legal and regulatory requirements, as well as overseeing the communication of corporate policies, including our Code of Ethics as described further in Item 16B of the 2017 Annual Report on Form 20-F.

Risk Types	
Base Business Risk	· Identification and monitoring of competitive business threats · Monitoring complexity of product portfolio · Monitoring dependence on key customers for single product groups · Reviewing dependence on individual production sites or suppliers · Evaluating purchasing initiatives, price controls and changes to reimbursements · Monitoring production risks, including contamination prevention, high-quality product assurance · Ensuring ability to defend against intellectual property infringements and maintain competitive advantage after expiration
Business Growth Risk	· Managing development and success of key R&D projects · Managing successful integration of acquisitions to achieve anticipated benefits
Underlying Business Risk	· Evaluating financial risks, including economic risks and currency rate fluctuations · Monitoring financial reporting risks, including multi-jurisdiction tax compliance · Reviewing possible asset impairment events · Assessing compliance and legal risks, including safety in operations and environmental hazard risks, compliance with various regulatory bodies and pending product approvals · Monitoring risks of FCPA (Foreign Corrupt Practices Act) or antitrust concerns arising from a network of subsidiaries and distributors in foreign countries

The risks described below are listed in the order of our current view of their expected significance. Describing the risk factors in order of significance does not imply that a lower listed risk factor may not have a material adverse impact on our results of operations, liquidity or capital resources.

Risks

Our continued growth is dependent on the development and success of new products.

Rapid technological change and frequent new product introductions are typical in the markets we serve. Our success will depend in part on continuous, timely development and introduction of new products that address evolving market requirements. We believe successful new product introductions provide a significant competitive advantage because customers make an investment of time in selecting and learning to use a new product and are reluctant to switch thereafter. To the extent that we fail to introduce new and innovative products, or such products suffer significant delays in development or are not accepted in the market, we may lose market share to our competitors, which will be difficult or impossible to regain. An inability to successfully develop and introduce new products, for technological or other reasons, could reduce our growth rate or otherwise have an adverse effect on our business. In the past, we have experienced delays in the development and introduction of products, including regulatory approvals, and we may experience delays in the future.

As a result, we cannot assure you that we will keep pace with the rapid rate of change in our markets or that our new products will adequately meet the requirements of the marketplace, achieve market acceptance or regulatory approval or compete successfully with competitive technologies. Some of the factors affecting market acceptance of new products include:

- availability, quality and price relative to competitive products;
- the timing of introduction of the new product relative to competitive products;
- opinions of the new product's utility;
- citation of the new product in published research;
- regulatory trends and approvals; and
- general trends in life sciences research, applied markets and molecular diagnostics.

In the development of new products we may make significant investments in intellectual property and software. These investments increase our fixed costs, resulting in higher operational costs in the short term that will negatively impact our gross profit and operating income until products reach a minimum level of market acceptance. The expenses or losses associated with unsuccessful product development activities or lack of market acceptance of our new products could materially adversely affect our business, financial condition and results of operations.

Our continued growth depends significantly on the success of new products in the molecular testing markets we serve. Important new product programs underway include our modular medium-throughput QIAsymphony automation platform, our GeneReader NGS System for next-generation sequencing (NGS), sample and assay technologies designed either for QIAGEN instruments or for "universal" use on other platforms, and bioinformatics solutions to analyze and interpret genomic data.

The speed and level of adoption of our QIAsymphony and GeneReader NGS platforms will affect sales not only of instrumentation but also of consumables, sample and assay kits, designed to run on the systems. The rollouts of QIAsymphony and GeneReader NGS System are intended to drive the dissemination and increasing sales of consumables for these systems. We are developing or co-developing new kits for each of these platforms and seeking regulatory approvals for a number of these new products. In turn, the availability and regulatory approval of more tests to run on QIAsymphony or GeneReader NGS System, especially molecular assays for specific diseases or companion diagnostics paired with new drugs, will influence the value of the instruments to prospective buyers. Slower adoption of QIAsymphony, including the complete QIAsymphony RGQ system, or the GeneReader NGS System could significantly affect sales of products designed to run on these platforms.

Our strategic initiative in NGS, including rollout of the GeneReader NGS System and related consumables, aims to drive the adoption of this technology in clinical research and diagnostics. This involves development and commercialization of universal pre-analytic and bioinformatics products for NGS, as well as commercialization of our proprietary GeneReader NGS workflow and related consumables. The market for next-generation sequencing instruments is very competitive, and the speed and level of adoption of our universal solutions and the GeneReader workflow will affect sales of our Sample to Insight solutions.

An inability to manage our growth, manage the expansion of our operations, or successfully integrate acquired businesses could adversely affect our business.

Our business has grown, with total net sales increasing to $1.42 billion in 2017 from $1.30 billion in 2013. We have made a series of acquisitions in recent years, including the acquisitions of OmicSoft Corporation in 2017, Exiqon A/S in 2016, MO BIO Laboratories in 2015, Enzymatics and BIOBASE in 2014, and Ingenuity and CLC bio in 2013. We intend to identify and acquire other businesses in the future, including the acquisition of STAT-Dx expected in 2018, that support our strategy to build on our global leadership position in Sample to Insight solutions. The successful integration of acquired businesses requires a significant effort and expense across all operational areas.

We have also made significant investments to expand our business operations. We completed an expansion project in Germany in early 2012 and another at our facility in Germantown, Maryland, for research, production and administrative space in 2013. We completed two smaller-scale building projects in 2015. These projects increased our fixed costs, resulting in higher operational costs in the short term that will negatively impact our gross profit and operating income until we more fully utilize the additional capacity of these facilities. In addition, we have invested in establishing and expanding shared service centers in Poland and the Philippines, opening new commercial operations in emerging markets to expand our geographic footprint, and implementing digitization of business processes to increase efficiency and improve customer experiences. The expansion of our business and the addition of new personnel may place a strain on our management and operational systems. As we continue to upgrade our operating and financial systems and expand the geographic presence of our operations, we intend to continue to assess the need for reallocation of existing resources or the hiring of new employees as well as increased responsibilities for both existing and new management personnel.

Our future operating results will depend on the ability of our management to continue to implement and improve our research, product development, manufacturing, sales and marketing and customer support programs, enhance our operational and financial control systems, expand, train and manage our employee base, integrate acquired businesses, and effectively address new issues related to our growth as they arise. There can be no assurance that we will be able to manage our recent or any future expansion or acquisitions successfully, and any inability to do so could have a material adverse effect on our results of operations.

Our acquisitions expose us to new risks, and we may not achieve the anticipated benefits of acquisitions of technologies and businesses.

During the past several years, we have acquired and integrated a number of companies through which we have gained access to new technologies, products and businesses that complement our internally developed product lines. In the future, we expect to acquire additional technologies, products or businesses to expand our operations. Acquisitions expose us to new operating and other risks, including risks associated with the:

- assimilation of new products, technologies, operations, sites and personnel;
- integration and retention of fundamental personnel and technical expertise;
- application for and achievement of regulatory approvals or other clearances;
- diversion of resources from our existing products, business and technologies;
- generation of sales to offset associated acquisition costs;
- implementation and maintenance of uniform standards and effective controls and procedures;
- maintenance of relationships with employees and customers and integration of new management personnel;
- issuance of dilutive equity securities;
- incurrence or assumption of debt and contingent liabilities;
- amortization or impairment of acquired intangible assets or potential businesses; and
- exposure to liabilities of and claims against acquired entities.

Our failure to address the above risks successfully in the future may prevent us from achieving the anticipated benefits from any acquisition in a reasonable time frame, or at all.

Global economic conditions could adversely affect our business, results of operations and financial condition.

Our results of operations could be materially affected by adverse general conditions in the global economy and financial markets. Changes in the availability or reimbursement of our diagnostic testing products by insurance providers and healthcare maintenance organizations could also have a significant adverse impact on our results of operations.

Access to financing in the global financial markets has also been adversely affected for many businesses during challenging economic times. The uncertainty surrounding the resolution of the economic and sovereign debt crisis in Europe continues to have a negative impact on financial markets and economic conditions more generally. Our customers may face internal financing pressures that adversely impact spending decisions, the ability to purchase our products or that lead to a delay in collection of receivables and thus negatively impact our cash flow. A severe or prolonged economic downturn could result in a variety of risks to our business that would adversely impact our results of operations, including the reduction or delay in planned improvements to healthcare systems in various countries, the reduction of funding for life sciences research, and intensified efforts by governments and healthcare payors regarding cost-containment efforts.

Our results of operations could also be negatively impacted by any governmental actions or inaction resulting in automatic government spending cuts (sequestration) that may take effect (as in the U.S. in 2013). These conditions may add uncertainty to the timing and budget for investment decisions by our customers, particularly, researchers, universities, government laboratories and private foundations whose funding is dependent upon grants from government agencies, such as the U.S. National Institutes of Health (NIH) and similar bodies.

As is the case for many businesses, we face the following risks in regard to financial markets:

- severely limited access to financing over an extended period of time, which may affect our ability to fund our growth strategy and could result in delays to capital expenditures, acquisitions or research and development projects;
- failures of currently solvent financial institutions, which may cause losses from our short-term cash investments or our hedging transactions due to a counterparty's inability to fulfill its payment obligations;
- inability to refinance existing debt at competitive rates, reasonable terms or sufficient amounts; and
- increased volatility or adverse movements in foreign currency exchange rates.

We may encounter delays in receipt, or limits in the amount, of reimbursement approvals and public health funding, which will impact our ability to grow revenues in the healthcare market or may negatively impact our profitability.

Third-party payors are often reluctant to reimburse healthcare providers for the use of medical tests that involve new technologies or provide novel diagnostic information. In addition, third-party payors are increasingly limiting reimbursement coverage for medical diagnostic products and, in many instances, are exerting pressure on diagnostic product suppliers to reduce their prices. Since each third-party payor often makes reimbursement decisions on an individual patient basis, obtaining such approvals is a time-consuming and costly process that requires us to provide scientific and clinical data supporting the clinical benefits of each of our products. As a result, there can be no assurance that reimbursement approvals will be obtained and the process can delay the broad market introduction of new products. As a result, third-party reimbursement may not be consistent or financially adequate to cover the cost of our products. This could limit our ability to sell our products or cause us to reduce prices, which would adversely affect our results of operations.

Further, the ability of many of our customers to successfully market their products depends in part on the extent to which reimbursement for the costs of these products is available from governmental health administrations, private health insurers and other organizations. Governmental and other third-party payors are increasingly seeking to

contain healthcare costs and to reduce the price of medical products and services. For example, in 2010, the Patient Protection and Affordable Care Act, or ACA, was enacted with the goal of expanding coverage, increasing quality of care and reducing costs through payment innovation, among other things. Both Congress and President Trump have expressed their intention to repeal or repeal and replace the ACA, and as a result certain sections of the ACA have not been fully implemented or effectively repealed. The uncertainty around the future of the ACA, and in particular the impact to reimbursement levels, may lead to uncertainty or delay in the purchasing decisions of our customers, which may in turn negatively impact our product sales. As of January 1, 2018, in accordance with the Protecting Access to Medicare Act of 2014 (PAMA), the Centers for Medicare & Medicaid Services began calculating Medicare reimbursement rates for certain clinical diagnostic tests using weighted median private payor rates, which are based on rate information reported by applicable laboratories. This new rate methodology means the lower reimbursement rates previously experienced in the field of molecular pathology testing now extends to additional diagnostic testing codes on the Clinical Laboratory Fee Schedule. If there are not adequate reimbursement levels, our business and results of operations could be adversely affected.

Reduction in research and development budgets and government funding may result in reduced sales.

Our customers include researchers at pharmaceutical and biotechnology companies, academic institutions, and government and private laboratories. Fluctuations in the research and development budgets of these organizations could have a significant adverse effect on demand for our products. Research and development budgets are affected by changes in available resources, the mergers of pharmaceutical and biotechnology companies, changes in spending priorities and institutional budgetary policies. Our results of operations could be adversely affected by any significant decrease in expenditures for life sciences research and development by pharmaceutical and biotechnology companies, academic institutions, and government and private laboratories. In addition, short-term changes in administrative, regulatory or purchasing-related procedures can create uncertainties or other impediments that can have an adverse impact on our results of operations.

In recent years, the pharmaceutical and biotechnology industries have undergone substantial restructuring and consolidation. Additional mergers or consolidation within the pharmaceutical and biotechnology industries could cause us to lose existing customers and potential future customers, which could have a material adverse impact on our results of operations.

Approximately 23% of our sales are generated from demand for our products used in the Academia customer class by researchers at universities, government laboratories and private foundations, and whose funding is dependent upon grants from government agencies, such as the NIH. Although the level of research funding has been increasing in recent years, we cannot assure you that this trend will continue given federal and state budget constraints. Government funding of research and development is subject to the political process, which is inherently unpredictable. Future sales may be adversely affected if our customers delay purchases as a result of uncertainties regarding the approval of government or industrial budget proposals. Also, government proposals to reduce or eliminate budgetary deficits have sometimes included reduced allocations to the NIH and government agencies in other countries that fund life sciences research and development activities. A reduction in government funding for the NIH or government research agencies in other countries could have a serious adverse impact on our results of operations.

Competition could reduce our sales.

The markets for most of our pre-analytical solutions and other products are very competitive. Competitors may have significant advantages in terms of financial, operational, sales and marketing resources as well as experience in research and development. These competitors may have developed, or could develop in the future, new technologies that compete with our products or even render our products obsolete. Some competitors may obtain regulatory approval from the FDA or similar non-U.S. authorities and market approved products. Our competitors' development

of alternative products offering superior technology, greater cost-effectiveness or regulatory approval could have a material adverse effect on our sales and results of operations.

The growth of our business depends in part on the continued conversion of these organizations to our sample and assay technologies and other products. An inability to do so could have a material adverse effect on our sales and results of operations.

It can be difficult for users of sample and assay technologies to switch from their current supplier of a particular product, primarily due to the time and expense required to properly integrate new products into their operations. As a result, if we are unable to be the first to develop and supply new products, our competitive position may suffer, resulting in a material adverse effect on our sales and results of operations.

Also, for our commercial clinical assays, we often compete with solutions developed by our laboratory customers and conversion from such laboratory developed tests to commercial diagnostics assays can be challenging.

The time and expense needed to obtain regulatory approval and respond to changes in regulatory requirements could adversely affect our ability to commercially distribute our products and generate sales.

We and our customers operate in a highly regulated environment characterized by continuous changes in the governing regulatory framework, particularly for product approvals. Genetic research activities and products commonly referred to as "genetically engineered" (such as certain food and therapeutic products) are subject to extensive governmental regulation in most developed countries, especially in the major markets for pharmaceutical and diagnostic products such as the European Union, the U.S., China and Japan. In recent years, several highly publicized scientific events (most notably in genomic research and "cloning") have prompted intense public debates on the ethical, philosophical and religious implications of an unlimited expansion in genetic research and the use of products emerging from this research. As a result of this debate, some key countries may increase existing regulatory barriers, which could adversely affect demand for our products and prevent us from fulfilling our growth expectations. Furthermore, there can be no assurance that any future changes of applicable regulations will not require further expenditures or an alteration, suspension or liquidation of our operations in certain areas, or even in their entirety.

Changes in the existing regulations or adoption of new requirements or policies could adversely affect our ability to sell our approved or cleared products or to seek approvals for new products in other countries around the world. Sales of certain products now in development may be dependent upon us successfully conducting pre-clinical studies, clinical trials and other tasks required to gain regulatory approvals. These trials could be subject to extensive regulation by governmental authorities in the U.S., particularly the FDA, and regulatory agencies in other countries. These trials involve substantial uncertainties and could impact customer demand for our products.

In addition, certain products, especially those intended for use in in vitro diagnostic applications, require regulatory approvals in various countries. For example, since the European Union Directive 98/79/EC on in vitro diagnostic medical devices (EU-IvD-D) went into effect in 2003, all products and kits used for in vitro diagnostic applications must be compliant with this directive. In addition to high-risk products such as HIV testing systems (list A of Annex II of the directive) or blood glucose testing systems (list B of Annex II of the directive), nucleic acid purification products, which are used in diagnostic workflows, are affected by this regulatory framework. The major goals of this directive are to standardize diagnostic procedures within the European Union, to increase reliability of diagnostic analysis and to enhance patient safety. In addition, new Medical Device Regulations and In Vitro Diagnostic Regulations, part of which may go into effect as early as 2018, will make major changes in IVD regulation for all medical devices and in vitro diagnostics. Compliance with these regulations may be expensive and time-consuming. The new IVD regulation introduces, among other things, a new risk classification system and requirements for conformity

assessments. If we fail to obtain any required clearances, approvals, or certifications, it could significantly damage our business in these markets.

Several of our key products and programs are medical devices that are subject to extensive regulation by the FDA under the U.S. Food, Drug and Cosmetic Act. We plan to apply for FDA clearance or approval of additional products in the future. Regulatory agencies in other countries also have medical device and IVD approval requirements that are becoming more extensive. These regulations govern most commercial activities associated with medical devices, including indications for the use of these products as well as other aspects that include product development, testing, manufacturing, labeling, storage, record-keeping, advertising and promotion. Compliance with these regulations is expensive and time-consuming.

Each medical device that we wish to distribute commercially in the U.S. will likely require us to seek either 510(k) clearance or approval of a pre-market approval application (PMA) from the FDA prior to marketing the device for in-vitro diagnostic use. Clinical trials related to our regulatory submissions may take years to complete and represent a significant expense. The 510(k) clearance pathway usually takes from three to 12 months, but can take longer. The PMA pathway is more costly, lengthy and uncertain, and can take from one to three years, or longer. For example, it took more than four years to receive pre-market approval from the FDA for our HPV test product for use as a test for the presence of HPV in women with equivocal Pap test results and pre-market approval for the use of our HPV test as a primary adjunctive cervical cancer screening test to be performed in combination with the Pap test for women age 30 and older. The uncertain time period required for regulatory review increases our costs to develop new products and increases the risk that we will not succeed in introducing or selling new products in the U.S.

Our cleared or approved devices, including our diagnostic tests and related equipment, are subject to numerous post-approval requirements. We are subject to inspection and marketing surveillance by the FDA to determine our compliance with regulatory requirements. If the FDA determines that we have failed to comply, it can institute a wide variety of enforcement actions, ranging from warning letters to more severe sanctions such as fines, injunctions and civil penalties, recalls or seizures of our products, operating restrictions, partial suspension or total shutdown of production, denial of our requests for 510(k) clearance or pre-market approval of product candidates, withdrawal of 510(k) clearance or pre-market approval already granted and civil or criminal prosecution. Any enforcement action by the FDA may affect our ability to commercially distribute these products in the U.S.

Some of our products are sold for research purposes in the U.S. We do not promote these products for clinical diagnostic use, and they are labeled “For Research Use Only” (RUO) or “for molecular biology applications.” If the FDA were to disagree with our designation of a product as an RUO product, we could be forced to stop selling the product until appropriate regulatory clearance or approval has been obtained. Further, some of our products are used in LDTs, where laboratories use our materials for assays manufactured, validated and performed in house. We do not promote these products for clinical diagnostic use.

Further, the FDA has publicly announced its intention to regulate certain LDTs in a phased-in approach, but draft guidance that was published a couple of years ago was withdrawn at the end of the Obama administration and replaced by an informal nonenforceable discussion paper reflecting some of the feedback that it received on LDT regulation. LDTs represent many of the molecular tests currently in use in terms of volume, and our automation systems - particularly the QIAsymphony platform - are designed to accommodate the automation and validation of these tests. Moreover, laboratories creating LDTs may use some of our materials in their tests. We do not promote these products for clinical diagnostic use, but if the FDA were to stop the use of LDTs or significantly limit their area of application, sales of some of our products in the U.S. could be adversely affected. The flexibility to handle LDTs is an advantage for our instruments, particularly the QIAsymphony automation system. On the consumables side, however, LDTs can at times create competition to our own commercially approved tests. We are pursuing a strategy of developing new content for our platforms partly by seeking regulatory approvals for new assays that incorporates approvals for these tests to run on QIAGEN instruments. We believe standardized tests that pass regulatory scrutiny and are clinically validated are highly attractive to reference laboratories and healthcare providers in our Molecular

Diagnostics customer class, and also to customers in Pharma and Academia who rely on molecular assays to research and develop new products. At this point, the ultimate impact of potential new FDA policies on LDTs is uncertain.

Changes in tax laws or their application or the termination or reduction of certain government tax incentives, could adversely impact our overall effective tax rate, results of operations or financial flexibility.

Our effective tax rate reflects the benefit of some income being partially exempt from income taxes due to various intercompany operating and financing activities. The benefit also derives from our global operations where certain income or loss is taxed at rates higher or lower than The Netherlands' statutory rate of 25%. Changes in tax laws or their application with respect to matters such as changes in tax rates, transfer pricing and income allocation, utilization of tax loss carry forwards, intercompany dividends, controlled corporations, and limitations on tax relief allowed on the interest on intercompany debt, and changes to tax credit mechanisms, could increase our effective tax rate and adversely affect our results of operations and limit our ability to repurchase our Common Shares without experiencing adverse tax consequences. The increased tax burden as a result of changes in law may adversely affect our results of operations. Additionally, if our tax positions are challenged by tax authorities or other governmental bodies, such as the European Commission, we could incur additional tax liabilities, which could have an adverse effect on our results of operations or financial flexibility.

Changes in the interpretation and application of the 2017 Tax Cuts and Jobs Act could materially affect our tax obligations and effective tax rate.

On December 22, 2017, President Trump signed into law the Tax Cuts and Jobs Act (H.R.1) (the "2017 Tax Act"). The 2017 Tax Act includes a number of changes to existing U.S. tax laws that impact us, most notably a reduction of the U.S. corporate income tax rate from 35% to 21% effective as of January 1, 2018 and a new net interest expense deduction limitation, which limits the deduction of net interest expense to 30% of the taxpayer's adjusted taxable income (ATI). The 2017 Tax Act also provides the acceleration of depreciation for certain assets placed into service after September 27, 2017 as well as prospective changes including repeal of the domestic manufacturing deduction beginning in 2018 and capitalization of research and development expenditures beginning in 2022. In December 2017, the SEC staff issued Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act ("SAB 118"), which allows us to record provisional amounts during a measurement period not to extend beyond one year of the enactment date. For those specific income tax effects of the 2017 Tax Act for which the accounting under ASC Topic 740 is incomplete, a reasonable estimate was determined. We have recognized the provisional tax impacts related to the interest expense deduction limitation and the revaluation of deferred tax assets and liabilities and included these amounts in our consolidated financial statements for the year ended December 31, 2017 as discussed in Note 16 Income Taxes in the Notes to the Consolidated Financial Statements. The ultimate impact may differ from these provisional amounts due to additional analysis, changes in interpretations and assumptions we have made, additional regulatory guidance that may be issued, and actions we may take because of the 2017 Tax Act, which could materially affect our tax obligations and effective tax rate.

We are subject to risks associated with patent litigation.

The biotechnology industry has been characterized by extensive litigation regarding patents and other intellectual property rights particularly since industry competitors gravitate around common technology platforms. We are aware that patents have been applied for and/or issued to third parties claiming technologies for the sample and assay technologies that are closely related to those we use. From time to time, we receive inquiries requesting confirmation that we do not infringe patents of third parties. We endeavor to follow developments in this field, and we do not believe that our technologies or products infringe any proprietary rights of third parties. However, there can be no assurance that third parties will not challenge our activities and, if so challenged, that we will prevail. In addition, the patent and proprietary rights of others could require that we alter our products or processes, pay licensing fees or

cease certain activities, and there can be no assurance that we will be able to license any technologies that we may require on acceptable terms. In addition, litigation, including proceedings that may be declared by the U.S. Patent and Trademark Office or the International Trade Commission, may be necessary to respond to any assertions of infringement, enforce our patent rights and/or determine the scope and validity of our proprietary rights or those of third parties. Litigation, or threatened litigation, could involve substantial cost, and there can be no assurance that we would prevail in any proceedings.

We rely on collaborative commercial relationships to develop and/or market some of our products.

Our long-term business strategy involves entering into strategic alliances as well as marketing and distribution arrangements with academic, corporate and other partners relating to the development, commercialization, marketing and distribution of certain of our existing and potential products. In 2017, we entered a new joint venture with Sichuan Maccura Biotechnology Co., Ltd. (Maccura) for the distribution of our GeneReader NGS System in China and are preparing for a new partnership with a Chinese company in 2018 that will take over the research and development, commercial distribution and infrastructure of the HPV test franchise in China. We may be unable to continue to negotiate these collaborative arrangements on acceptable terms, and these relationships also may not be scientifically or commercially successful. In addition, we may be unable to maintain these relationships, and our collaborative partners may pursue or develop competing products or technologies, either on their own or in collaboration with others.

Our Personalized Healthcare business includes projects with pharmaceutical and biotechnology companies to co-develop companion diagnostics paired with drugs that those companies either market currently or are developing for future use. The success of these co-development programs, including regulatory approvals for the companion diagnostics, depends upon the continued commitment of our partners to the development of their drugs, the outcome of clinical trials for the drugs and diagnostics, and regulatory approvals of the diagnostic tests and drugs. In addition, the future level of sales for companion diagnostics depends to a high degree on the commercial success of the related medicines for which the tests have been designed. More companion diagnostics would be sold in combination with a widely prescribed drug than one with limited use.

The successful marketing of QIAGEN products, in some cases, depends on commercial relationships such as joint ventures or distributorships, particularly in emerging markets where we partner with local companies to augment our less-established commercial relationships and infrastructure. The continued commitment of our partners to these ventures, as well as the management of the commercial efforts, will influence QIAGEN's sales and profitability in these markets.

We have made investments in and are expanding our business into emerging markets, which exposes us to risks.

Our top seven emerging markets are Brazil, Russia, India, China, South Korea, Mexico and Turkey, which together accounted for approximately 16% of total sales in 2017, and we expect to continue to focus on expanding our business in these or other fast-growing markets. In addition to the currency and international operation risks described above, our international operations are subject to a variety of risks that include those arising out of the economy, political outlook and language and cultural barriers in countries where we have operations or do business. In many of these emerging markets, we may be faced with several risks that are more significant than in other countries in which we have a history of doing business. These risks include economies that may be dependent on only a few products and are therefore subject to significant fluctuations, weak legal systems which may affect our ability to enforce contractual rights, exchange controls, unstable governments, and privatization or other government actions affecting the flow of goods and currency. In conducting our business, we move products from one country to another and may provide services in one country from a subsidiary located in another country. Accordingly, we are vulnerable to abrupt changes in customs and tax regimes that could have significant negative impacts on our results of operations.

Some of our customers are requiring us to change our sales arrangements to lower their costs, and this may limit our pricing flexibility and harm our business.

Some of our customers have developed purchasing initiatives to reduce the number of vendors from which they purchase products to lower their supply costs. In some cases, these customers have established agreements with large distributors, which include discounts and direct involvement in the distributor's purchasing process. These activities may force us to supply large distributors with our products at discounts in order to continue providing products to some customers. For similar reasons, many larger customers, including the U.S. government, have requested, and may request in the future, special pricing arrangements, which can include blanket purchase agreements. These agreements may limit our pricing flexibility, which could harm our business and affect our results of operations. For a limited number of customers, and at the customer's request, we have conducted sales transactions through distribution and other value-added partners. If sales grow through these intermediaries, it could have an adverse impact on our results of operations, particularly a negative impact on our gross profit.

We are subject to privacy and data security laws and rely on secure communication and information systems which, in the event of a breach or failure, expose us to risks.

We rely heavily on communications and information systems to conduct our business. In the ordinary course of business, we collect and store sensitive data, including our intellectual property and other proprietary business information and that of our customers, suppliers and business partners, and personally identifiable information of our customers and employees, in our data centers and on our networks. Our operations rely on the secure processing, storage and transmission of confidential and other information on our computer systems and networks. We are transforming to a digital, cloud-leveraging organization, which places our assets, customer data, and personally identifiable data at a higher risk than in previous years. We have made significant investments to ensure our employees are aware of cyber security risks facing our company and how to prevent data breaches, including but not limited to, mandatory yearly trainings that are continually updated. We have modernized our cyber security tools, and are continually modernizing our cyber security processes, in an attempt to keep pace with evolving cyber security risks. In spite of our efforts, we are unable to completely eliminate these risks and occasionally experience minor cyber security incidents. External phishing emails (occurring outside of our computer services) is a growing threat that our customers are facing. These emails could lead to the disclosing of intellectual property or personally identifiable information, which could lead to financial harm and cause reputational damage. While our cyber security team works diligently with our customers to mitigate these threats by helping to identify and analyze phishing emails, we cannot guarantee that sensitive data will not be lost or stolen.

A breach in cyber security due to unauthorized access to our computer systems or misuse could include the misappropriation of assets or sensitive information, the corruption data or other operational disruption. Failures to our computer systems and networks could be caused by internal or external events, such as incursions by intruders or hackers, computer viruses, failures in hardware or software, or cyber terrorists. If we do experience a breach or failure of our systems, we could experience operational delays resulting from the disruption of systems, loss due to theft or misappropriation of assets or data, or negative impacts from the loss of confidential data or intellectual property. We may face significant liability in the event any of the personal information we maintain is lost or otherwise subject to misuse or other wrongful use, access or disclosure. Further, we could experience negative publicity resulting in reputation or brand damage with customers or partners.

Additionally, we are subject to privacy and data security laws across multiple jurisdictions, including those relating to the storage of health information, which are complex, overlapping and rapidly evolving. Currently, we are implementing the requirements set forth by the European Union General Data Protection Regulation (GDPR), which is set to take effect on May 25, 2018. As our activities continue to evolve and expand, we may be subject to additional laws which impose further restrictions on the transfer, access, use, and disclosure of health and other personal information which may impact our business either directly or indirectly. Our failure to comply with applicable privacy or security laws or significant changes in these laws could significantly impact our business and

future business plans. For example, we may be subject to regulatory action or lawsuits in the event we fail to comply with applicable privacy laws.

Exchange rate fluctuations may adversely affect our business and operating results.

Because we currently market our products throughout the world, a significant portion of our business is conducted in currencies other than the U.S. dollar, our reporting currency. As a result, fluctuations in value, relative to the U.S. dollar, of the currencies in which we conduct our business have caused and will continue to cause foreign currency transaction gains and losses. Foreign currency transaction gains and losses arising from normal business operations are charged against earnings in the period when incurred. Due to the number of currencies involved, the variability of currency exposures and the potential volatility of currency exchange rates, we cannot predict the effects of future exchange rate fluctuations. While we may engage in foreign exchange hedging transactions to manage our foreign currency exposure, there can be no assurance that our hedging strategy will adequately protect our operating results from the effects of future exchange rate fluctuations.

Our global operations may be affected by actions of governments, global or regional economic developments, weather or transportation delays, natural disasters or other force majeure events (collectively, unforeseen events) which may negatively impact our suppliers, our customers or us.

Our business involves operations around the world. Our consumable manufacturing facilities are located in Germany, China and the U.S. We have established sales subsidiaries in numerous countries and our products are sold through independent distributors serving more than 40 additional countries. Our facilities may be harmed by unforeseen events, and in the event, we or our customers are affected by a disaster, we may experience delays or reductions in sales or production, or increased costs, or may be required to identify alternate suppliers or rely on third-party manufacturers.

To the extent that our suppliers are impacted by a natural disaster or other disruption, we may experience periods of reduced production. Any unexpected interruptions in our production capabilities may lead to delayed or lost sales and may adversely affect our results of operations for the affected period.

In addition, to the extent we temporarily shut down any facility following such an unforeseen event, we may experience disruptions in our ability to manufacture or ship products to customers or otherwise operate our business. Many of our products are manufactured in a single location and we may experience adverse effects to the extent manufacturing operations are disrupted. While our global operations give us the ability to ship product from alternative sites, we may not be able to do so because our customers' facilities are shutdown or the local logistics infrastructure is not functioning, and our sales will suffer.

Damage to our property due to unforeseen events and the disruption of our business from casualties may be covered by insurance, but this insurance may not be sufficient to cover all of our potential losses and such insurance may not continue to be available to us on acceptable terms, or at all. In addition, we may incur incremental costs following an unforeseen event which will reduce profits and adversely affect our results of operations.

We depend on suppliers for materials used to manufacture our products, and if shipments from these suppliers are delayed or interrupted, we may be unable to manufacture our products.

We buy materials to create our products from a number of suppliers and are not dependent on any one supplier or group of suppliers for our business as a whole. However, key components of certain products, including certain instrumentation and chemicals, are available only from a single source. If supplies from these vendors are delayed or

interrupted for any reason, we may not be able to obtain these materials timely or in sufficient quantities or qualities in order to produce certain products, and this could have an adverse impact on our results of operations.

We heavily rely on air cargo carriers and other overnight logistics services, and shipping delays or interruptions could harm our business.

Our customers in the scientific research markets typically only keep a modest inventory of our products on hand, and consequently require overnight delivery of purchases. As a result, we heavily rely on air cargo carriers and logistic suppliers. If overnight services are suspended or delayed, and other delivery carriers and logistic suppliers cannot provide satisfactory services, customers may suspend a significant amount of their work. The lack of adequate delivery alternatives would have a serious adverse impact on our results of operations.

Our operations have inherent IT risks

Business and production processes are increasingly dependent on information technology systems. Major disruptions or failure of global or regional business systems may result in the loss of data and/or impairment of business and production processes. QIAGEN has established a global IT organization with rules and regulations that define the relevant roles and responsibilities, and also works with external partners that provide certain operative IT functions. Technical precautions have been established together with our IT service providers to address this risk.

Our success depends on the continued employment of qualified personnel, any of whom we may lose at any time.

Although we have not experienced any difficulties attracting or retaining management and scientific staff, our ability to recruit and retain qualified, skilled employees will continue to be critical to our success. Given the intense competition for experienced scientists and managers among pharmaceutical and biotechnology companies as well as academic and other research institutions, there can be no assurance that we will be able to attract and retain employees critical to our success on acceptable terms. Initiatives to expand QIAGEN will also require additional employees, including management with expertise in areas such as research and development, manufacturing, digitization, sales and marketing, and the development of existing managers to lead a growing organization. The failure to recruit and retain qualified employees, or develop existing employees, could have a material adverse impact on our results of operations.

Our ability to accurately forecast our results during each quarter may be negatively impacted by the fact that a substantial percentage of our sales may be recorded in the final weeks or days of the quarter.

The markets we serve are typically characterized by a high percentage of purchase orders being received in the final few weeks or even days of each quarter. Although this varies from quarter to quarter, many customers make a large portion of their purchase decisions late in each quarter, in particular because it is during this period that they receive new information on both their budgets and requirements. Additionally, volatility in the timing of milestones from companion diagnostic partnerships can be difficult to predict. As a result, even late in each quarter, we cannot predict with certainty whether our sales forecasts for the quarter will be achieved.

Historically, we have been able to rely on the overall pattern of customer purchase orders during prior periods to project with reasonable accuracy our anticipated sales for the current or coming quarters. However, if customer purchasing trends during a quarter vary from historical patterns as may occur with changes in market conditions, our quarterly financial results could deviate significantly from our projections. As a result, our sales forecasts for any given quarter may prove not to have been accurate. We also may not have sufficient, timely information to confirm or revise our sales projections for a specific quarter. If we fail to achieve our forecasted sales for a particular quarter, the value of our Common Shares could be adversely affected.

We have a significant amount of debt that may adversely affect our financial condition and flexibility.

We have a significant amount of debt and debt service obligations as well as restrictive covenants imposed on us by our lenders. A high level of indebtedness increases the risk that we may default on our debt obligations and restrictive covenants may prevent us from borrowing additional funds. There is no assurance that we will be able to generate sufficient cash flow to pay the interest on our debt and comply with our debt covenants or that future working capital, borrowings or equity financing will be available to repay or refinance our debt. If we are unable to generate sufficient cash flow to pay the interest on our debt and comply with our debt covenants, we may have to delay or curtail our research and development programs. The level of our indebtedness could, among other things:

- make it difficult for us to make required payments on our debt;
- make it difficult for us to obtain any financing in the future necessary for working capital, capital expenditures, debt service requirements or other purposes;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we compete; and
- make us more vulnerable in the event of a downturn in our business.

Our business may require substantial additional capital, which we may not be able to obtain on terms acceptable to us, if at all.

Our future capital requirements and level of expenses will depend upon numerous factors, including the costs associated with:

- marketing, sales and customer support efforts;
- research and development activities;
- expansion of our facilities;
- consummation of possible future acquisitions of technologies, products or businesses;
- demand for our products and services;
- repayment or refinancing of debt; and
- payments in connection with our hedging activities.

We currently anticipate that our short-term capital requirements will be satisfied by cash flow from our operations. As of December 31, 2017, we had outstanding long-term debt of approximately $1.8 billion, of which no amount was current. Furthermore, as of December 31, 2017, we had capital lease obligations, including the current portion, of $1.4 million, that expire in various years through 2020. We may need to refinance all or part of these liabilities before or at their contractual maturities.

If at some point in time our existing resources should be insufficient to fund our activities, we may need to raise funds through public or private debt or equity financings. The funds for the refinancing of existing liabilities or for the ongoing funding of our business may not be available or, if available, not on terms acceptable to us. If adequate funds are not available, we may be required to reduce or delay expenditures for research and development, production, marketing, capital expenditures and/or acquisitions, which could have a material adverse effect on our business and results of operations. To the extent that additional capital is raised through the sale of equity or convertible securities, the issuance of any securities could result in dilution to our shareholders.

The accounting for the cash convertible notes we have issued will result in recognition of interest expense significantly greater than the stated interest rate of the notes and may result in volatility to our Consolidated Statements of Income.

We will settle any conversions of the Cash Convertible Notes described under the heading "Other Factors Affecting Liquidity and Capital Resources" elsewhere in this report entirely in cash. Accordingly, the conversion option that is part of the Cash Convertible Notes will be accounted for as a derivative pursuant to accounting standards relating to derivative instruments and hedging activities. Refer to Note 13, "Derivatives and Hedging" and Note 15 "Lines of Credit and Debt," of the Notes to Consolidated Financial Statements. In general, this resulted in an initial valuation of the conversion option separate from the debt component of the Cash Convertible Notes, resulting in an original issue discount. The original issue discount will be accreted to interest expense over the term of the Cash Convertible Notes, which will result in an effective interest rate reported in our financial statements significantly in excess of the stated coupon rates of the Cash Convertible Notes. This accounting treatment will reduce our earnings. For each financial statement period after the issuance of the Cash Convertible Notes, a gain (or loss) will be reported in our financial statements to the extent the valuation of the conversion option changes from the previous period. The Call Options issued in connection with the Cash Convertible Notes will also be accounted for as derivative instruments, substantially offsetting the gain (or loss) associated with changes to the valuation of the conversion option. This may result in increased volatility to our results of operations.

The cash convertible note hedge and warrant transactions we entered into in connection with the issuance of our Cash Convertible Notes may not provide the benefits we anticipate, and may have a dilutive effect on our common stock.

Concurrently with the issuance of the Cash Convertible Notes, we entered into Call Options and issued Warrants. We entered into the Call Options with the expectation that they would offset potential cash payments by us in excess of the principal amount of the Cash Convertible Notes upon conversion of the Cash Convertible Notes. In the event that the hedge counterparties fail to deliver potential cash payments to us, as required under the Call Options, we would not receive the benefit of such transaction.

Separately, we also issued Warrants. The Warrants could separately have a dilutive effect to the extent that the market price per share of our common stock, as measured under the terms of the Warrants, exceeds the strike price of the Warrants.

An impairment of goodwill and intangible assets could reduce our earnings.

At December 31, 2017, our consolidated balance sheet reflected approximately $2.0 billion of goodwill and approximately $499.3 million of intangible assets. Goodwill is recorded when the purchase price of a business exceeds the fair value of the tangible and separately measurable intangible net assets. U.S. generally accepted accounting principles (U.S. GAAP) requires us to test goodwill for impairment on an annual basis or when events or circumstances occur indicating that goodwill might be impaired. Long-lived assets, such as intangible assets with finite useful lives, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. The impairment review often cannot be done at the level of the individual asset and it must instead be applied to a group of assets. For the purpose of our annual goodwill impairment testing based on the current circumstances of how we manage our business, this group of assets is the Company as a whole. If we determine that any of our goodwill or intangible assets were impaired, we will be required to take an immediate charge to earnings and our results of operations could be adversely affected.

Our strategic equity investments may result in losses.

We have made, and may continue to make, strategic investments in businesses as opportunities arise. We periodically review the carrying value of these investments for impairment, considering factors that include the most

recent stock transactions, book values from the most recent financial statements, and forecasts and expectations of the investee. The results of these valuations may fluctuate due to market conditions and other conditions over which we have no control.

Estimating the fair value of non-marketable equity investments in life science companies is inherently subjective. If actual events differ from our assumptions and unfavorable fluctuations in the valuations of the investments are indicated, we could be required to write-down the investment. This could result in future charges on our earnings that could materially adversely affect our results of operations. It is uncertain whether or not we will realize any long-term benefits from these strategic investments.

Doing business internationally creates certain risks.

Our business involves operations in several countries outside of the U.S. Our consumable manufacturing facilities are located in Germany, China, and the U.S. We source raw materials and subcomponents to manufacture our products from different countries. We have established sales subsidiaries in numerous countries including the U.S., Germany, Japan, the United Kingdom, France, Switzerland, Australia, Canada, the Netherlands, Sweden, Italy, Hong Kong, Singapore, Turkey, Thailand, South Korea, Taiwan, Malaysia, China, Spain, Brazil, Mexico, South Africa and India. In addition, our products are sold through independent distributors serving more than 40 other countries. Conducting and launching operations on an international scale requires close coordination of activities across multiple jurisdictions and time zones and consumes significant management resources. We have invested heavily in computerized information systems in order to manage more efficiently the widely dispersed components of our operations. If we fail to coordinate and manage these activities effectively, our business and results of operations will be adversely affected.

Our operations are subject to other risks inherent in international business activities, such as general economic conditions in the countries in which we operate, longer accounts receivable payment cycles in certain countries, overlap of different tax structures, unexpected changes in regulatory requirements, and compliance with a variety of foreign laws and regulations. Other risks associated with international operations include import and export licensing requirements, trade restrictions, exchange controls and changes in tariff and freight rates, as may occur as a result of rising energy costs. As a result of these conditions, an inability to successfully manage our international operations could have a material adverse impact on our business and results of operations.

Unethical behavior and non-compliance with laws by our sales agents, consultants, distributors or employees could seriously harm our business.

Our business in countries with a history of corruption and transactions with foreign governments increase the risks associated with our international activities. Based on our international operations, we are subject to the U.S. Foreign Corrupt Practices Act (FCPA), the U.K. Bribery Act and other laws that prohibit improper payments or offers of payments to foreign governments and their officials and political parties by business entities for the purpose of obtaining or retaining business. We have operations, agreements with third parties and make sales in countries known to experience corruption. Further international expansion may involve increased exposure to such practices. Our activities in these countries, and in all countries as well, create risks of unauthorized payments or offers of payments, non-compliance with laws, or other unethical behavior by any of our employees, consultants, sales agents or distributors, that could be in violation of various laws, including the FCPA, even though these parties are not always subject to our control. It is our policy to implement safeguards to discourage these or other unethical practices by our employees and distributors including online and in-person employee trainings, periodic internal audits and standard reviews of our distributors. However, our existing safeguards and any future improvements may not prove to be effective, and our employees, consultants, sales agents or distributors may engage in conduct for which we might be held responsible. Violations of the FCPA and other laws may result in criminal or civil sanctions, which

could be severe, and we may be subject to other liabilities, which could negatively affect our business, results of operations and financial condition.

We depend on patents and proprietary rights that may fail to protect our business.

Our success depends to a large extent on our ability to develop proprietary products and technologies and to establish and protect our patent and trademark rights in these products and technologies. As of December 31, 2017, we owned 362 issued patents in the United States, 279 issued patents in Germany and 1,825 issued patents in other major industrialized countries. In addition, at December 31, 2017, we had 776 pending patent applications, and we intend to file applications for additional patents as our products and technologies are developed. The patent positions of technology-based companies involve complex legal and factual questions and may be uncertain, and the laws governing the scope of patent coverage and the periods of enforceability of patent protection are subject to change. In addition, patent applications in the United States are maintained in secrecy until patents issue, and publication of discoveries in the scientific or patent literature tends to lag behind actual discoveries by several months. Therefore, no assurance can be given that patents will issue from any patent applications that we own or license or if patents do issue, that the claims allowed will be sufficiently broad to protect our technology. In addition, no assurance can be given that any issued patents that we own or license will not be challenged, invalidated or circumvented, or that the rights granted thereunder will provide us competitive advantages. Further, as issued patents expire, we may lose some competitive advantage as others develop competing products and as a result, we may lose revenue.

Certain of our products incorporate patents and technologies that are licensed from third parties and for certain products, these in-licensed patents together with other patents provide us with a competitive advantage. These licenses impose various commercialization, sublicensing and other obligations on us. Our failure to comply with these requirements could result in the conversion of the applicable license from being exclusive to non-exclusive or, in some cases, termination of the license, and as a result, we may lose some competitive advantage and experience a loss of revenue.

We also rely on trade secrets and proprietary know-how, which we seek to protect through confidentiality agreements with our employees and consultants. There can be no assurance that any confidentiality agreements that we have with our employees, consultants, outside scientific collaborators and sponsored researchers and other advisors will provide meaningful protection for our trade secrets or adequate remedies in the event of unauthorized use or disclosure of such information. There also can be no assurance that our trade secrets will not otherwise become known or be independently developed by competitors.

We currently engage in, and may continue to engage in, collaborations with academic researchers and institutions. There can be no assurance that under the terms of such collaborations, third parties will not acquire rights in certain inventions developed during the course of these collaborations.

Our business exposes us to potential product liability.

The marketing and sale of our products and services for certain applications entail a potential risk of product liability. Although we are not currently subject to any material product liability claims, product liability claims may be brought against us in the future. Further, there can be no assurance that our products will not be included in unethical, illegal or inappropriate research or applications, which may in turn put us at risk of litigation. We carry product liability insurance coverage, which is limited in scope and amount. There can be no assurance that we will be able to maintain this insurance at a reasonable cost and on reasonable terms, or that this insurance will be adequate to protect us against any or all potential claims or losses.

We are subject to various laws and regulations generally applicable to businesses in the different jurisdictions in which we operate, including laws and regulations applicable to the handling and disposal of hazardous substances. The risk of accidental contamination or injury from these materials cannot be completely eliminated. In the event of such an accident, we could be held liable for any damages that result, and any such liability could have a material adverse impact on us.

Our operating results may vary significantly from period to period and this may affect the market price of our Common Shares.

Our operating results may vary significantly from quarter to quarter, and also from year to year, since they are dependent upon a broad range of factors that include demand for our products, the level and timing of customer research budgets and commercialization efforts, the timing of government funding budgets of our customers, the timing of our research and development activities and related regulatory approvals, the impact of sales and marketing expenses, the impact of restructuring activities, the introduction of new products by us or our competitors, competitive market conditions, exchange rate fluctuations and general economic conditions. Our expense levels are based in part on our expectations as to future sales trends. As a result, sales and earnings may vary significantly from quarter to quarter or from year to year, and actual sales and earnings results in any one period will not necessarily be indicative of results to be anticipated in subsequent periods. Our results may also fail to meet or exceed the expectations of securities analysts or investors, which could cause a decline in the market price of our Common Shares.

Our holding company structure makes us dependent on the operations of our subsidiaries.

QIAGEN N.V. is incorporated under Dutch law as a public limited liability company (naamloze vennootschap), and is organized as a holding company. Currently, the material assets are the outstanding shares of the QIAGEN subsidiaries, intercompany receivables and other financial assets such as cash and short-term investments. As a result, QIAGEN N.V. is dependent upon payments, dividends and distributions from the subsidiaries for funds to pay operating and other expenses as well as to pay future cash dividends or distributions, if any, to holders of our Common Shares. Dividends or distributions by subsidiaries in a currency other than the U.S. dollar may result in a loss upon a subsequent conversion into U.S. dollars.

Our Common Shares may have a volatile public trading price.

The market price of our Common Shares since our initial public offering in September 1996 has increased significantly and been highly volatile. In the last two years, the price of our Common Shares has ranged from a high of $36.34 to a low of $19.94 on NASDAQ, and a high of €31.52 to a low of €17.76 on the Frankfurt Stock Exchange. In addition to overall stock market fluctuations, factors that may have a significant impact on the price of our Common Shares include:

- announcements of technological innovations or the introduction of new products by us or our competitors;
- developments in our relationships with collaborative partners;
- quarterly variations in our operating results or those of our peer companies;
- changes in government regulations, tax laws or patent laws;
- developments in patent or other intellectual property rights;
- developments in government spending budgets for life sciences-related research;

- general market conditions relating to the diagnostics, applied testing, pharmaceutical and biotechnology industries; and
- impact from foreign exchange rates.

The stock market has from time to time experienced extreme price and trading volume fluctuations that have particularly affected the market for technology-based companies. These fluctuations have not necessarily been related to the operating performance of these companies. These broad market fluctuations may adversely affect the market price of our Common Shares.

Holders of our Common Shares should not expect to receive dividend income.

In January 2017, we completed a synthetic share repurchase that combined a direct capital repayment with a reverse stock split and in early 2018 we announced plans to return up to an additional $200.0 million through open-market purchases. We do not anticipate paying any cash dividends on our Common Shares for the foreseeable future, and until the January 2017 distribution in connection with a synthetic share repurchase, we have not paid cash dividends since our inception. Although we do not anticipate paying any cash dividends on a regular basis, the distribution of any cash dividends in a currency other than the U.S. dollar will be subject to the risk of foreign currency transaction losses. Investors should not invest in our Common Shares if they are seeking dividend income; the only return that may be realized through investing in our Common Shares would be through an appreciation in the share price.

Holders of our Common Shares may not benefit from continued stock repurchase programs.

In January 2017, we completed a synthetic share repurchase that combined a direct capital repayment with a reverse stock split. The transaction was announced in August 2016 and involved an approach used by various large, multinational Dutch companies to provide returns to all shareholders in a faster and more efficient manner than traditional open-market purchases. $243.9 million was returned to shareholders through the transaction, which reduced the total number of issued common shares by approximately 3.7% or 8.9 million shares as of January 31, 2017.

The purpose of our share repurchases has been to hold the shares in treasury in order to satisfy obligations from exchangeable debt instruments, warrants and/or employee share-based remuneration plans and thus to reduce dilution to existing holders of our Common Shares. We may decide not to continue such programs in the future, the covenants we have with our lenders may limit our ability to use available cash to do so, and the market price of our Common Shares may make such repurchases less desirable. In any of these cases, holders of our Common Shares may suffer dilution from conversion of our indebtedness or issuance of shares pursuant to employee remuneration plans that would otherwise be at least partially offset by repurchased shares.

Future sales and issuances of our Common Shares could adversely affect our stock price.

Any future sale or issuance of a substantial number of our Common Shares in the public market, or any perception that a sale may occur, could adversely affect the market price of our Common Shares. Under Dutch law, a company can issue shares up to its authorized share capital provided for in its Articles of Association. Pursuant to our Articles of Association, our authorized share capital amounts to EUR 9.0 million, which is divided into 410.0 million common shares, 40.0 million financing preference shares and 450.0 million preference shares, with all shares having a EUR 0.01 par value. As of December 31, 2017, a total of approximately 226.6 million Common Shares were outstanding along with approximately 9.3 million additional shares reserved for issuance upon exercise or release of outstanding stock options and awards, of which 1.1 million were vested. A total of approximately 22.0 million Common Shares are reserved and available for issuances under our stock plans as of December 31, 2017,

including the shares subject to outstanding stock options and awards. The majority of our outstanding Common Shares may be sold without restriction, except shares held by our affiliates, which are subject to certain limitations on resale. Additionally, the Warrants issued in connection with the Cash Convertible Notes Call Spread Overlays cover an aggregate of 35.4 million shares of our common stock (subject to anti-dilution adjustments under certain circumstances).

Shareholders who are United States residents could be subject to unfavorable tax treatment.

We may be classified as a "passive foreign investment company," or a PFIC, for U.S. federal income tax purposes if certain tests are met. Our treatment as a PFIC could result in a reduction in the after-tax return to holders of Common Shares and would likely cause a reduction in the value of these shares. If we were determined to be a PFIC for U.S. federal income tax purposes, highly complex rules would apply to our U.S. shareholders. We would be considered a PFIC with respect to a U.S. shareholder if for any taxable year in which the U.S. shareholder held the Common Shares, either (i) 75% or more of our gross income for the taxable year is passive income; or (ii) the average value of our assets (during the taxable year) which produce or are held for the production of passive income is at least 50% of the average value of all assets for such year. Based on our income, assets and activities, we do not believe that we were a PFIC for U.S. federal income tax purposes for our taxable year ended December 31, 2017, and do not expect to be a PFIC for the current taxable year or any future taxable year. No assurances can be made, however, that the Internal Revenue Service will not challenge this position or that we will not subsequently become a PFIC. In countries outside the U.S., other or similar tax regimes may apply and result in unfavorable tax treatment for any dividends received.

Provisions of our Articles of Association and Dutch law and an option we have granted may make it difficult to replace or remove management and may inhibit or delay a takeover.

Our Articles of Association (Articles) provide that our shareholders may only suspend or dismiss our Managing Directors and Supervisory Directors against their wishes with a vote of two-thirds of the votes cast if such votes represent more than 50% of our issued share capital. If the proposal was made by the joint meeting of the Supervisory Board and the Managing Board, a simple majority is sufficient. The Articles also provide that if the members of our Supervisory Board and our Managing Board have been nominated by the joint meeting of the Supervisory Board and Managing Board, shareholders may only overrule this nomination with a vote of two-thirds of the votes cast if such votes represent more than 50% of our issued share capital.

Certain other provisions of our Articles allow us, under certain circumstances, to prevent a third party from obtaining a majority of the voting control of our Common Shares through the issuance of Preference Shares. Pursuant to our Articles and the resolution adopted by our General Meeting of Shareholders, our Supervisory Board is entitled to issue Preference Shares in case of an intended takeover of our company by (i) any person who alone or with one or more other persons, directly or indirectly, have acquired or given notice of an intent to acquire (beneficial) ownership of an equity stake which in aggregate equals 20% or more of our share capital then outstanding or (ii) an "adverse person" as determined by the Supervisory Board. If the Supervisory Board opposes an intended takeover and authorizes the issuance of Preference Shares, the bidder may withdraw its bid or enter into negotiations with the Managing Board and/or Supervisory Board and agree on a higher bid price for our Shares.

In 2004, we granted an option to the Stichting Preferente Aandelen QIAGEN, or the Foundation (Stichting), subject to the conditions described in the paragraph above, which allows the Foundation to acquire Preference Shares from us. The option enables the Foundation to acquire such number of Preference Shares as equals the number of our outstanding Common Shares at the time of the relevant exercise of the option, less one Preference Share. When exercising the option and exercising its voting rights on these Preference Shares, the Foundation must act in our interest and the interests of our stakeholders. The purpose of the Foundation option is to prevent or delay a change of control that would not be in the best interests of us and our stakeholders. An important restriction on the Foundation's

ability to prevent or delay a change of control is that a public offer must be announced by a third party before it can issue (preference or other) protective shares that would enable the Foundation to exercise rights to 30% or more of the voting rights without an obligation to make a mandatory offer for all shares held by the remaining shareholders. In addition, the holding period for these shares by the Foundation is restricted to two years, and this protective stake must fall below the 30% voting rights threshold before the two-year period ends.

MANAGEMENT REPORT

Performance Review

Our future operating results may be affected by various risk factors, many of which are beyond our control. Certain statements included in this Annual Report and the documents incorporated herein by reference may be forward-looking statements within the meaning of Section 27A of the U.S. Securities Act of 1933, as amended, and Section 21E of the U.S. Securities Exchange Act of 1934, as amended, including statements regarding potential future net sales, gross profit, net income and liquidity. These statements can be identified by the use of forward-looking terminology such as "believe," "hope," "plan," "intend," "seek," "may," "will," "could," "should," "would," "expect," "anticipate," "estimate," "continue" or other similar words. Reference is made in particular to the description of our plans and objectives for future operations, assumptions underlying such plans and objectives, and other forward-looking statements. Such statements are based on management's current expectations and are subject to a number of factors and uncertainties that could cause actual results to differ materially from those described in the forward-looking statements. We caution investors that there can be no assurance that actual results or business conditions will not differ materially from those projected or suggested in such forward-looking statements as a result of various factors. Factors which could cause such results to differ materially from those described in the forward-looking statements include those set forth in the risk factors below. As a result, our future success involves a high degree of risk. When considering forward-looking statements, you should keep in mind that the risk factors could cause our actual results to differ significantly from those contained in any forward-looking statement.

Results of Operations

Overview

We are a leading global provider of Sample to Insight solutions to transform biological materials into valuable molecular insights. QIAGEN sample technologies isolate and process DNA, RNA and proteins from any biological sample, such as blood or tissue. Assay technologies make these biomolecules visible and ready for analysis, such as identifying the DNA of a virus or a mutation of a gene. Bioinformatics solutions integrate software and cloud-based resources to interpret increasing volumes of biological data and report relevant, actionable insights. Our automation solutions tie these together in seamless and cost-effective molecular testing workflows.

We sell our products - consumables, automated instrumentation systems using those technologies, and bioinformatics to analyze and interpret the data - to four major customer classes:

- **Molecular Diagnostics** - healthcare providers engaged in many aspects of patient care including Prevention, Profiling of diseases, Personalized Healthcare and Point of Need testing
- **Applied Testing** - government or industry customers using molecular technologies in fields such as forensics, veterinary diagnostics and food safety testing
- **Pharma** - pharmaceutical and biotechnology companies using molecular testing to support drug discovery, translational medicine and clinical development efforts
- **Academia** - researchers exploring the secrets of life such as the mechanisms and pathways of diseases, and in some cases translating that research into drug targets or commercial applications

We market products in more than 130 countries, mainly through subsidiaries in markets we believe have the greatest sales potential in Europe, Asia, the Americas and Australia. We also work with specialized independent distributors and importers. As of December 31, 2017, we employed approximately 4,700 people in more than 35 locations worldwide.

Recent Acquisitions

We have made a number of strategic acquisitions and implemented other strategic transactions since 2015, targeting innovative technologies and aiming to achieve market-leading positions in high-growth areas of molecular diagnostics and research. These transactions have enhanced our product offerings and technology platforms, as well as our geographic footprint. They include:

- In early 2018, QIAGEN entered into a purchase agreement to acquire STAT-Dx, a privately-held company developing advanced multiplex diagnostics for widespread syndromes such as serious respiratory or gastrointestinal infections. Subject to successful completion of defined development activities by STAT-Dx, QIAGEN has agreed to acquire all shares of STAT-Dx for approximately $147 million in cash and additional payments of up to about $44 million based on the achievement of regulatory and commercial milestones. The acquisition is expected to be completed in the second quarter of 2018 and funded from existing cash reserves. The transaction will expand QIAGEN's instrument and consumables portfolio by adding a novel CE-IVD marked system, to be branded as QIAstat-Dx, enabling Sample to Insight processing of up to 48 molecular targets with cost-efficient, easy-to-use assays. The first two QIAstat-Dx tests, extensive respiratory and gastrointestinal panels, are expected to be launched in Europe and other markets in the second half of 2018, and in the U.S. following expected regulatory approval in 2019.
- QIAGEN entered into a joint venture in May 2017 with Maccura Biotechnology Co., Ltd., a leading in vitro diagnostics company in China, to accelerate the growth of QIAGEN's GeneReader NGS System. Known as MAQGEN China and based in Chengdu, Sichuan Province, the venture will develop local adaptations, pursue regulatory paths for the GeneReader and leverage Maccura's broad customer network to expand the system's adoption in laboratories across China. Maccura owns 60% of the joint venture and QIAGEN owns 40%. QIAGEN's own operations in China continue as a stand-alone company, focusing on our other products and services for customers such as QuantiFERON-TB and the Life Sciences portfolio.
- QIAGEN took steps in late 2017 to streamline its product portfolio and focus on growth areas by discontinuing commercialization of some non-core PCR tests and externalizing the HPV test franchise for cervical cancer screening in China to a third-party company. In January 2018, a partnership became effective with a Chinese company that has taken over R&D, commercial distribution, and the related QIAGEN employees and infrastructure of the HPV test franchise in China. QIAGEN is a minority shareholder of this company.
- In January 2017, QIAGEN acquired OmicSoft Corporation, a privately held company based in the Research Triangle area of North Carolina, to expand our industry-leading bioinformatics offering with complementary solutions enabling scientists to visualize and mine large institutional and publicly available "omics" datasets. The OmicSoft software solutions meet a growing need in discovery and translational research to access and manage huge amounts of data on DNA, RNA and other biological variables generated by next-generation sequencing studies.
- In 2016, QIAGEN acquired Exiqon A/S, a publicly traded company based in Vedbaek, Denmark, expanding our leadership position in Sample to Insight solutions for RNA analysis. Exiqon's RNA analysis solutions, with proprietary Locked Nucleic Acid (LNA) technology, are used by academic, biotech and pharmaceutical researchers worldwide to explore correlations between gene activity and the development of cancer and other diseases. In two steps during 2016, we paid a total of $100.7 million for 100% of the shares of Exiqon. In 2017, Exiqon's product offering was fully integrated into QIAGEN, providing customers of both companies ready access to the combined portfolio of solutions.

- In 2015, we acquired MO BIO Laboratories, Inc., a privately-held provider of cutting-edge sample technologies for studies of the microbiome and metagenomics, analyzing the impact of microbial diversity on health and the environment. The acquisition added a complementary portfolio of sample technologies to QIAGEN's universal solutions for next-generation sequencing. MO BIO kits, based on proprietary Inhibitor Removal Technology, enable the isolation of pure DNA from challenging samples like soil, water, plants and stool.
- In 2015, we acquired an innovative technology from AdnaGen GmbH, a subsidiary of Alere Inc., that enables enrichment and molecular analysis of circulating tumor cells (CTCs) from blood samples. The acquisition added to QIAGEN's pipeline of technologies for molecular testing through non-invasive liquid biopsies as an alternative to costly and risky tissue biopsies. Other assets acquired include two marketed CE-IVD marked products, AdnaTest BreastCancer and AdnaTest Prostate Cancer, for treatment monitoring and detection of tumor relapse.
- In February 2015, we announced the spin-off of teams and activities of QIAGEN Marseille S.A. (formerly Ipsogen S.A.), a majority-owned and fully consolidated entity. In the divestiture, QIAGEN Marseille agreed to the sale of all its assets and liabilities, except its intellectual property portfolio, to a stand-alone company. QIAGEN retained rights to commercialize the ipsogen line of products, including companion diagnostics for blood cancers. As part of this initiative, we acquired the remaining QIAGEN Marseille shares through a tender offer during 2015 and 2016.

Our financial results include the contributions of recent acquisitions and the QIAGEN Marseille spin-off from their effective dates, as well as costs related to the transactions and integration of the acquired companies, such as the relocation and closure of certain facilities.

We determined that we operate as one business segment in accordance with ASC Topic 280, Segment Reporting. Our chief operating decision maker (CODM) makes decisions on business operations and resource allocation based on evaluations of the QIAGEN Group as a whole. Considering the acquisitions made during 2017, we determined that we still operate as one business segment. We provide certain revenue information by customer class to allow better insight into our operations. This information is estimated using certain assumptions to allocate revenue among the customer classes.

Year Ended December 31, 2017, Compared to 2016

Net Sales

In 2017, net sales grew 6% to $1.42 billion compared to $1.34 billion in 2016 with organic business expansion contributing four percentage points to total sales growth with two percentage points of additional growth from the June 2016 acquisition of Exiqon A/S, a leader in RNA analysis technologies, and the January 2017 acquisition of OmicSoft Corporation, a software provider unlocking valuable insights from large "omics" datasets. Sales growth of 6% includes an adverse impact of one percentage point related to growth of non-core PCR tests and the China HPV franchise, which beginning in January 2018 have either been discontinued or externalized through a partnership with a Chinese company which has taken over the commercial distribution of the HPV test franchise in China. All regions and customer classes supported higher sales of consumables and related revenues (+7% / 88% of sales) and instruments (+2% / 12% of sales).

Net sales by geographic region

	Full-year 2017		
	Sales (In $ m)	% change	% of sales
Americas	$ 653	+4%	46%
Europe / Middle East / Africa	$ 463	+8%	33%
Asia-Pacific / Japan	$ 299	+7%	21%

Top 7 emerging markets: Brazil, Russia, India, China, South Korea, Mexico and Turkey ($234 million, +12%, 16% of sales)

FY 2017: Rest of world represented less than 1% of net sales.

Geographic regions: Europe / Middle East / Africa led the geographic performance with 8% growth in 2017, including adverse currency movements of one percentage point of sales growth, and benefited from gains in Germany, Italy and Turkey. The Asia-Pacific / Japan region advanced 7%, due partially to strong performance in South Korea and India, which more than offset lower sales in Japan. Excluding the business portfolio change in China, the Asia-Pacific / Japan region experienced 13% growth, including one percentage point of favorable currency movements. The Americas advanced at a 5% pace, excluding U.S. HPV test sales, on higher sales of QuantiFERON-TB tests and improved conditions among Life Science customers. Excluding adverse currency movements of one percentage point, the top seven emerging markets expanded 12%, with key contributions from Turkey, South Korea, India and Brazil.

Customer classes: An overview of performance in QIAGEN's four customer classes:

Net sales by product category and customer class

	Full-year 2017		
	Sales (In $ m)	% change	% of sales
Consumables and related revenues	$ 1,243	+7%	88%
Instruments	$ 175	+2%	12%
Molecular Diagnostics[1]	$ 683	+5%	48%
Applied Testing	$ 137	+14%	10%
Pharma	$ 275	+7%	19%
Academia	$ 323	+4%	23%

(1) Includes companion diagnostic co-development revenues ($43 million, +32%) and U.S. HPV sales ($28 million, -16%, 2% of sales).

Molecular Diagnostics, which contributed approximately 48% of net sales, expanded 5% in 2017, after being reduced by adverse currency movements of one percentage point. The core portfolio delivered approximately 7% growth before adverse currency movements and the ongoing decline in sales of U.S. HPV test products (-16% / 2% of sales). Sales of consumables used on the QIAsymphony automation platform also grew at a solid pace for the full year, as QIAGEN exceeded its goal for new QIAsymphony placements in 2017. Sales growth of 5% includes an adverse impact of 1% related to the China HPV franchise, which beginning in January 2018 has been externalized through a partnership with a Chinese company.

Applied Testing represented approximately 10% of net sales and grew 14% in 2017 compared to 2016, with negligible favorable currency movements. Applied Testing advanced for instruments as well as consumables and related revenues, in part due to gains in the human identification / forensics portfolio.

Pharma experienced 7% sales growth in 2017 compared to 2016 and provided 19% of net sales, with negligible adverse currency movements. Pharma grew in consumables and related revenues that more than offset weaker instruments growth during the course of the year.

Academia represented approximately 23% of net sales and rose 4% in 2017 compared to 2016, with modestly favorable currency movements. Academia advanced on consumables and related revenues, while the EMEA and Asia Pacific / Japan regions showed growth during 2017.

Gross Profit

Gross profit was $922.6 million, or 65% of net sales, in 2017, compared with $844.7 million, or 63% of net sales, in 2016. Generally, our consumables and related products have a higher gross margin than our instrumentation products and service arrangements. Fluctuations in the sales levels of these products and services can result in changes in gross margin between periods. Further, gross profit in 2017 was impacted by $4.4 million in restructuring charges while 2016 was impacted by restructuring charges of $12.0 million. Additionally, during 2016, we incurred incremental costs in connection with the relocation and centralization of the manufacturing of certain products to our European production site in Hilden, Germany and also in connection with the in-sourcing of the manufacturing of our QuantiFERON product to our U.S. site in Germantown, Maryland.

Amortization expense related to developed technology and patent and license rights, which have been acquired in business combinations, is included in cost of sales. The amortization expense on acquisition-related intangibles within cost of sales decreased to $72.7 million in 2017 from $80.1 million in 2016 reflecting the end of the amortization period of intangibles acquired in 2007. Acquisition-related intangible amortization may increase in the future should we make further acquisitions.

Research and Development

Research and development expenses increased 3% to $154.1 million (11% of net sales) in 2017, compared to $149.8 million (11% of net sales) in 2016. The increase in research and development costs during 2017 reflects our ongoing investments in NGS and our life sciences portfolio, as well as our acquisitions of Exiqon in 2016 and OmicSoft in 2017 together with regulatory activity in support of new products. As we continue to discover, develop and acquire new products and technologies, we expect to incur additional expenses related to facilities, licenses and employees engaged in research and development. Additionally, research and development costs are expected to increase as a result of seeking regulatory approvals, including U.S. FDA Pre-Market Approval (PMA), U.S. FDA 510(k) clearance and EU CE approval of certain assays or instruments. Further, business combinations, along with the acquisition of new technologies, may increase our research and development costs in the future. We have a strong commitment to innovation and expect to continue to make investments in our research and development efforts.

Sales and Marketing

Sales and marketing expenses were largely unchanged at $375.6 million (26% of net sales) in 2017 compared to $376.3 million (28% of net sales) in 2016. Sales and marketing expenses were primarily associated with personnel, commissions, advertising, trade shows, publications, freight and logistics expenses, and other promotional expenses. We experienced efficiencies due to a lower cost base following the realignment of marketing activities as part of the 2016 restructuring project. These incremental savings were slightly offset by higher compensation costs including share based compensation expense when compared to the prior period due to reassessment of stock units with performance criteria. We anticipate that absolute sales and marketing costs will increase along with new product

introductions and growth in sales of our products, but decrease as a percentage of sales. Further, looking forward we expect a lower cost base following the realignment of marketing activities as part of the 2016 restructuring project.

General and Administrative, Restructuring, Integration and Other

General and administrative, restructuring, integration and other costs increased by 11% to $200.1 million (14% of net sales) in 2017 from $180.6 million (13% of net sales) in 2016. The increase in 2017 reflects an increase in acquisition and integration costs which totaled $68.9 million in 2017, which included $45.3 million in costs from acquisition related legal settlements partially offset by $3.3 million gains recorded from the reduction in the fair value of contingent consideration following unmet milestones, as compared to $31.1 million in 2016, of which $6.3 million related to the transaction costs incurred in connection with the acquisition of Exiqon A/S. Acquisition and integration related costs in 2016 are net of $5.0 million of the total $6.5 million gains recorded in general and administrative costs from the reduction in the fair value of contingent consideration following unmet milestones. 2016 also includes the impact of lower share based compensation costs following a reassessment of stock units with performance criteria. Restructuring costs of $29.1 million were lower in 2017 compared to $56.2 million in 2016 related to internal activities, including severance and retention costs as discussed fully in Note 6. As we further integrate the acquired companies and pursue other opportunities to gain efficiencies, we expect to continue to incur additional restructuring and business integration costs in 2018. Over time, we believe the restructuring and integration activities will reduce expenses as we improve efficiency in operations.

Acquisition-Related Intangible Amortization

Amortization expense related to developed technology and patent and license rights acquired in a business combination is included in cost of sales. Amortization of trademarks and customer base acquired in a business combination is recorded in operating expense under the caption "acquisition-related intangible amortization." Amortization expenses of intangible assets not acquired in a business combination are recorded within cost of sales, research and development, or sales and marketing line items based on the use of the asset.

During 2017, amortization expense on acquisition-related intangibles within operating expense increased to $39.4 million, compared to $39.1 million in 2016. We expect acquisition-related intangible amortization will increase as a result of our future acquisitions.

Other Income (Expense)

Total other expense, net was $39.0 million in 2017, compared to $41.9 million in 2016. Total other expense, net is primarily the result of interest expense and other expense, partially offset by interest income.

For the year ended December 31, 2017, interest income increased to $10.6 million from $6.8 million in 2016. Interest income includes interest earned on cash, cash equivalents and short term investments, income related to certain interest rate derivatives as discussed in Note 13 in the accompanying consolidated financial statements and other components including the interest portion of operating lease transactions.

Interest expense increased to $49.7 million in 2017, compared to $39.0 million in 2016. Interest costs primarily relate to debt, discussed in Note 15 in the accompanying consolidated financial statements.

Other expense, net for the year ended December 31, 2017 includes a $3.5 million gain in connection with the sale of our interest in an equity-method investment as well as $3.2 million in income from equity-method investments offset by a $5.1 million loss recognized in connection with the impairments of cost-method investment and net losses on foreign currency in 2017. Included in $9.7 million other expense, net in 2016 is a $8.3 million loss recognized in connection with the impairment of an equity-method investment and a $2.6 million charge for the disposal of goodwill following the transfer of the research and development activities of our instrumentation business as part of

the restructuring program initiated late in 2016. For the year ended December 31, 2017, we recorded net losses on foreign currency of $3.3 million compared to less than $0.1 million in 2016 due to foreign currency rate fluctuations.

Provision for Income Taxes

Our effective tax rates differ from The Netherlands statutory tax rate of 25% due in part to our operating subsidiaries being exposed to effective tax rates ranging from zero to more than 40%. In 2017 and 2016, our effective tax rates were 64.7% and (41.1)%, respectively. The comparison is impacted by pre-tax book income which was higher in 2017 at $114.4 million compared to $56.9 million in 2016. Pretax book income was lower in 2016 primarily due to charges incurred in connection with the restructuring program initiated in the fourth quarter of 2016. Fluctuations in the distribution of pre-tax (loss) income among our operating subsidiaries can lead to fluctuations of the effective tax rate in the consolidated financial statements.

During 2017, the 64.7% reflects the impacts of the U.S. tax reform. Because of the tax reform, we revalued of our U.S. deferred tax assets and liabilities to reflect the corporate income tax rate change from 35% to 21% and provided for a full valuation allowance of $60.8 million which was recorded against deferred tax assets related to U.S. interest carry forwards. Based on the current debt level in the U.S., along with the new restrictive interest limitation enacted with the new U.S. tax reform, it is highly unlikely that the historic U.S. interest carry forward will ever be utilized. We also recorded full valuation allowances against other deferred tax assets on tax losses due to unlikely future profits in other jurisdictions. Following the adoption of ASU 2016-09 Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting, $5.2 million of excess tax benefit was recognized directly to the tax provision for the year ended December 31, 2017 and during 2017, we increased accruals for tax contingencies by $22.1 million, primarily related to ongoing income tax audits. In 2016, tax expense on foreign operations was favorably impacted by lower income tax rates and partial tax exemptions on foreign income primarily derived from operations in Germany, Singapore, Luxembourg, Ireland and Switzerland. These foreign tax benefits are due to a combination of favorable tax laws, regulations, rulings, and exemptions in these jurisdictions. In particular, we have pre-tax income in Germany which is statutorily exempt from trade tax on intercompany foreign royalty income. Further, we have intercompany financing arrangements through Luxembourg and Ireland in which the intercompany income is partially exempt. See Note 16 to the consolidated financial statements for a full reconciliation of the effective tax rate to The Netherlands statutory rate.

In future periods, our effective tax rate may fluctuate from similar or other factors as discussed in “Changes in tax laws or their application could adversely affect our results of operations or financial flexibility” in Item 3 Risk Factors of the 2017 Annual Report on Form 20-F files with the U.S. Securities and Exchange Commission.

Foreign Currencies

QIAGEN N.V.’s reporting currency is the U.S. dollar, and most of our subsidiaries’ functional currencies are the local currencies of the countries in which they are headquartered. All amounts in the financial statements of entities whose functional currency is not the U.S. dollar are translated into U.S. dollar equivalents at exchange rates as follows: (1) assets and liabilities at period-end rates, (2) income statement accounts at average exchange rates for the period, and (3) components of shareholders’ equity at historical rates. Translation gains or losses are recorded in shareholders’ equity, and transaction gains and losses are reflected in net income. The net loss on foreign currency transactions in 2017 was $3.3 million and in 2016 and 2015 was less than $0.1 million, and $0.5 million, respectively, and is included in other expense, net.

Derivatives and Hedging. In the ordinary course of business, we use derivative instruments, including swaps, forwards and/or options, to manage potential losses from foreign currency exposures and variable rate debt. The principal objective of such derivative instruments is to minimize the risks and/or costs associated with global financial and operating activities. We do not utilize derivative or other financial instruments for trading or speculative

purposes. We recognize all derivatives as either assets or liabilities on the balance sheet, measure those instruments at fair value and recognize the change in fair value in earnings in the period of change, unless the derivative qualifies as an effective hedge that offsets certain exposures. In determining fair value, we consider both the counterparty credit risk and our own creditworthiness, to the extent that the derivatives are not covered by collateral agreements with the respective counterparties. To determine our own credit risk, we estimated our own credit rating by benchmarking the price of our outstanding debt to publicly-available comparable data from rated companies. Using the estimated rating, we quantify our credit risk by reference to publicly-traded debt with a corresponding rating.

Foreign Currency Derivatives. As a globally active enterprise, we are subject to risks associated with fluctuations in foreign currencies in our ordinary operations. This includes foreign currency-denominated receivables, payables, debt, and other balance sheet positions including intercompany items. We manage our balance sheet exposure on a group-wide basis using foreign exchange forwards, options and cross-currency swaps.

Interest Rate Derivatives. We use interest rate derivative contracts on certain borrowing transactions to hedge interest rate exposures. We have entered into interest rate swaps in which we agree to exchange, at specified intervals, the difference between fixed and floating interest amounts calculated by reference to an agreed-upon notional principal amount.

We also make use of economic hedges. Further details of our derivative and hedging activities can be found in Note 13 to the accompanying consolidated financial statements.

Liquidity and Capital Resources

To date, we have funded our business primarily through internally generated funds, debt, and private and public sales of equity. Our primary use of cash has been to support continuing operations and our investing activities including capital expenditure requirements and acquisitions. As of December 31, 2017 and 2016, we had cash and cash equivalents of $657.7 million and $439.2 million, respectively. We also had short-term investments of $359.2 million at December 31, 2017. Cash and cash equivalents are primarily held in U.S. dollars and euros, other than those cash balances maintained in the local currency of subsidiaries to meet local working capital needs. At December 31, 2017, cash and cash equivalents had increased by $218.5 million from December 31, 2016, primarily as a result of cash provided by operating activities of $286.8 million and cash provided by financing activities of $387.2 million, partially offset by cash used in investing activities of $464.3 million. Working capital as of December 31, 2017 increased to $1.323 billion as compared to $729.1 million as of December 31, 2016, reflecting the cash provided by the operating and financing activities in 2017 as described below.

Operating Activities. For the years ended December 31, 2017 and 2016, we generated net cash from operating activities of $286.8 million and $341.6 million, respectively. While net income was $40.4 million in 2017, non-cash components in income included $216.4 million of depreciation and amortization and $5.1 million of non-cash impairments due to the impairment of cost-method investments as further discussed in Note 10.

Operating cash flows include a net decrease in working capital of $95.2 million excluding changes in fair value of derivative instruments. The current period change in working capital is primarily due to increased inventories and accounts receivable and decreased taxes payable. Because we rely heavily on cash generated from operating activities to fund our business, a decrease in demand for our products, longer collection cycles or significant technological advances of competitors would have a negative impact on our liquidity.

Investing Activities. Approximately $464.3 million of cash was used in investing activities during 2017, compared to $179.1 million during 2016. Investing activities during 2017 consisted principally of $450.6 million for purchases of short-term investments, $90.1 million in cash paid for purchases of property and equipment, as well as $34.3

million paid for intangible assets and $4.8 million paid for strategic investments in privately and publicly held companies as discussed in Note 10, partially offset by $189.0 million from the sale of short-term investments. Additionally, during 2017 cash paid for acquisitions, net of cash acquired, totaled $50.5 million. Cash used in other investing activities during the year ended December 31, 2017 and 2016 consisted primarily of $20.7 million and $1.2 million, respectively, paid in connection with derivative collateral arrangements.

Financing Activities. For the year ended December 31, 2017, cash provided by financing activities was $387.2 million compared to cash used in financing activities of $10.6 million in 2016. Financing activities during 2017 consisted primarily of $329.9 million net cash proceeds from the German private placement and $394.4 million net cash proceeds from the cash convertible offering. We used $73.6 million of the proceeds from the from the cash convertible offering to pay the premium for a call option related to the cash convertible notes, and simultaneously received $45.4 million from the sale of Warrants, for a net cash outlay of $28.3 million for the call spread overlay. Additionally in 2017, we used $243.9 million for a capital repayment made to shareholders in connection with the January 2017 synthetic share buyback and repurchased QIAGEN shares of $61.0 million in connection with the fourth share repurchase program discussed in Note 17 "Equity." Cash used in other financing activities during the year ended December 31, 2017 and 2016 consisted primarily of $4.4 million and $3.1 million paid for contingent consideration, respectively, together with $4.1 million and $0.8 million paid in connection with derivative collateral arrangements, respectively.

Other Factors Affecting Liquidity and Capital Resources

In September 2017, we issued $400.0 million aggregate principal amount of Cash Convertible Senior Notes which are due in 2023 (2023 Notes), which are discussed fully in Note 15 "Lines of Credit and Debt". Interest on the 2023 Notes is payable semiannually in arrears at a rate of 0.500% per annum. The 2023 Notes will mature on September 13, 2023 unless repurchased or converted in accordance with their terms prior to such date.

Additionally in 2017, we completed a German private placement of $329.9 million, net of issuance costs, consisting of several tranches denominated in either U.S. dollars or Euro at either floating or fixed rates and due at various dates through June 2027 as described in Note 15 "Lines of Credit and Debt."

In October 2016, we extended the maturity of our €400 million syndicated revolving credit facility, which now has a contractual lifetime until December 2021 of which no amounts were utilized at December 31, 2017. The facility can be utilized in Euro, British pounds sterling, Swiss franc or U.S. dollar and bears interest of 0.40% to 1.20% above three months EURIBOR, or LIBOR in relation to any loan not in euro, and is offered with interest periods of one, two, three or six months. We have additional credit lines totaling €26.6 million with no expiration date, none of which were utilized as of December 31, 2017. We also have capital lease obligations, including interest, in the aggregate amount of $1.5 million, and carry $1.8 billion of long-term debt, of which no amounts are current as of December 31, 2017.

In March 2014, we issued $730.0 million aggregate principal amount of Cash Convertible Senior Notes of which $430.0 million is due in 2019 (2019 Notes) and $300.0 million is due in 2021 (2021 Notes). We refer to the 2019 Notes, the 2021 Notes and the 2023 Notes collectively as the “Cash Convertible Notes” which are discussed fully in Note 15 to the consolidated financial statements. Interest on the 2019 and 2021 Notes is payable semiannually in arrears on March 19 and September 19 of each year, at rates of 0.375% and 0.875% per annum for the 2019 Notes and 2021 Notes, respectively, commencing on September 19, 2014. The 2019 Notes will mature on March 19, 2019 and the 2021 Notes will mature on March 19, 2021, unless repurchased or converted in accordance with their terms prior to such date.

In October 2012, we completed a U.S. private placement through the issuance of new senior unsecured notes at a total amount of $400 million with a weighted average interest rate of 3.66% (settled on October 16, 2012). The

notes were issued in three series: (1) $73 million 7-year term due in 2019 (3.19%); (2) $300 million 10-year term due in 2022 (3.75%); and (3) $27 million 12-year term due in 2024 (3.90%).

We had notes payable, which were the long-term borrowings of the proceeds from the issuances of $150.0 million senior unsubordinated convertible notes, with a 1.5% coupon due in 2024 through QIAGEN Finance (2004 Notes). The 2004 Notes were convertible into our common shares at a conversion price of $12.6449, subject to adjustment. In connection with conversions of $14.9 million of the 2004 Notes, we previously repaid $14.5 million of the debt to QIAGEN Finance. During 2015, we paid $250.9 million for the redemption of the remaining loan and repurchased the warrant agreement with QIAGEN Finance and recognized a loss of $7.6 million in other expense, net.

In connection with certain acquisitions, we could be required to make additional contingent cash payments totaling up to $18.5 million based on the achievement of certain revenue and operating results milestones as follows: $11.5 million in 2018 and $7.0 million, payable in any 12-month period from now until 2029 based on the accomplishment of certain revenue targets. Of the $18.5 million total contingent obligation, we have assessed the fair value at December 31, 2017, to be $11.5 million, which is included in accrued liabilities in the accompanying balance sheet as of December 31, 2017.

In July 2014, we announced the launch of our third $100 million share repurchase program to purchase up to another $100 million of our common shares (excluding transaction costs). In 2014, 2.1 million QIAGEN shares were repurchased for $49.1 million (excluding transaction costs) and in 2015 0.8 million QIAGEN shares were repurchased for $20.8 million. This program expired in December 2015.

In April 2016, we announced the launch of our fourth $100 million share repurchase program. In August 2016, we announced our intention to return a total amount of approximately $300 million to our shareholders by the end of 2017. In January 2017, we completed a synthetic share repurchase that combined a direct capital repayment with a consolidation of shares. This approach has been used by various large, multinational Dutch companies to provide returns to shareholders in a faster and more efficient manner than traditional open-market purchases. $243.9 million was repaid to shareholders through the transaction and the outstanding number of common shares was reduced by 8.9 million or 3.7%. As discussed further in Note 17 "Equity", the capital repayment program was completed in January 2017. During the remainder of 2017, 1.9 million QIAGEN shares were repurchased for $61.0 million (including transaction costs) to complete the total program.

In January 2018, we announced our fifth share repurchase program of up to $200 million of our common shares.

Repurchased shares will be held in treasury in order to satisfy various obligations, which include employee share-based remuneration plans.

We expect that cash from financing activities will continue to be impacted by issuances of our common shares in connection with our equity compensation plans and that the market performance of our stock will impact the timing and volume of the issuances. Additionally, we may make future acquisitions or investments requiring cash payments, the issuance of additional equity or debt financing.

We believe that funds from operations, existing cash and cash equivalents, together with the proceeds from our public and private sales of equity, and availability of financing facilities, will be sufficient to fund our planned operations and expansion during the coming year. However, any global economic downturn may have a greater impact on our business than currently expected, and we may experience a decrease in the sales of our products, which could impact our ability to generate cash. If our future cash flows from operations and other capital resources are not adequate to fund our liquidity needs, we may be required to obtain additional debt or equity financing or to reduce or delay our capital expenditures, acquisitions or research and development projects. If we could not obtain

financing on a timely basis or at satisfactory terms, or implement timely reductions in our expenditures, our business could be adversely affected.

Off-Balance Sheet Arrangements

Other than our former arrangements with QIAGEN Finance as discussed in Note 15 to the consolidated financial statements, we did not use special purpose entities and do not have off-balance sheet financing arrangements as of and during the years ended December 31, 2017, 2016 and 2015.

Contractual Obligations

As of December 31, 2017, our future contractual cash obligations are as follows:

	Payments Due by Period						
Contractual Obligations	Total	2018	2019	2020	2021	2022	Thereafter
Long-term deb[1]	$ 1,865,393	$ 24,426	$ 510,267	$ 20,485	$ 330,029	$ 493,910	$ 486,276
Purchase obligations	99,489	65,073	22,556	10,472	943	11	434
Operating leases	64,877	18,483	16,011	11,762	8,457	6,126	4,038
License and royalty payments[2]	55,092	12,907	11,858	11,558	8,860	6,161	3,748
Capital lease obligations[3]	1,470	1,411	45	14	—	—	—
Total contractual cash obligations	$ 2,086,321	$ 122,300	$ 560,737	$ 54,291	$ 348,289	$ 506,208	$ 494,496

(1) Amounts include required principal, stated at the current carrying values, and interest payments.

(2) As of December 31, 2017, $11.8 million and $35.3 million are included in accrued and other current liabilities and other long-term liabilities, respectively.

(3) Includes future cash payments, including interest, due under capital lease arrangements.

In addition to the above and pursuant to purchase agreements for several of our recent acquisitions, we could be required to make additional contingent cash payments totaling up to $18.5 million based on the achievement of certain revenue and operating results milestones as follows: $11.5 million in 2018 and $7.0 million, payable in any 12-month period from now until 2029 based on the accomplishment of certain revenue targets, the launch of certain products or the grant of certain patent rights. As of December 31, 2017, we have accrued $11.5 million for these contingent payments which is included in accrued and other current liabilities.

Liabilities associated with uncertain tax positions, including interest and penalties, are currently estimated at $47.1 million as of December 31, 2017 and are not included in the table above, as we cannot reasonably estimate when, if ever, an amount would be paid to a government agency. Ultimate settlement of these liabilities is dependent on factors outside of our control, such as examinations by each agency and expiration of statutes of limitation for assessment of additional taxes.

Dividend

QIAGEN has not paid a cash dividend since its inception and does not intend to pay any dividends in the foreseeable future. We intend to retain any earnings for the development of our business.

Credit Rating

QIAGEN is currently not rated by any credit rating agency.

MANAGEMENT REPORT

Human Resources

Overview

The skills, knowledge, dedication and passion of our employees are critical for the success of QIAGEN. We want to recruit, support and retain the best employees, offering performance-based remuneration, development opportunities and measures to balance work and family life. We are committed to diversity in our teams, fueling innovation and engagement with our customers and business partners. In a fast-changing, competitive business environment, QIAGEN has a significant commitment to being an employer of choice and further enhancing our position as a great place to work. At the end of 2017, QIAGEN had 4,688 full-time equivalent employees, a small increase from 4,684 at the end of 2016. Total personnel expenses including share-based compensation in 2017 were $453.6 million compared to $464.4 million in 2016.

Code of Ethics

QIAGEN has in place a Code of Conduct which qualifies as a code of ethics, as required by SEC and NASDAQ Marketplace Rules. The Code of Conduct applies to all of QIAGEN's employees, including our principal executive officer, principal financial officer, principal accounting officer or controller and other persons performing similar functions. The full text of the Code of Conduct is available on our website at www.QIAGEN.com.

Training and Retention

At QIAGEN, we recognize that employees are our most important resource. Their exceptional talent, skill, and passion are key to our long-term success and corporate value. Employee development is therefore viewed as an integral success factor in creating lasting value for our customers, patients, colleagues, partners, and shareholders.

QIAGEN maintains a transparent framework, the QIAGEN Profile Navigator (QPN), to make career paths, job requirements and performance expectations clear based on objective criteria for all positions across our growing global organization. Our global Performance Enhancement System (PES) provides all employees and their managers with regular, one-on-one review sessions to discuss career development topics. PES sessions include discussion of an employee's goals and achievements, training needs and interests, career planning drawing upon the QPN role profile system, organizational development, and results of regular "180° surveys." Professional training and development are an ongoing process for all employees, tailored to different career paths. An employee's pursuit of training cycles from PES session to training participation, review, follow-up, and back to PES review. QIAGEN's compensation structure (see below) ties in with the QPN role profiles and PES performance evaluations.

Leadership Campus (LC)

This program, composed of three components, is designed to ensure the ongoing development of QIAGEN's future management generations. LC for Starters prepares high-performing employees to take an initial leadership position. The program provides leadership basics and an overview of relevant business management topics. LC I accelerates the careers of our professionals by providing further insights into advanced leadership and management topics while

focusing on individual development and business-related innovative actions. LC II is a senior executive program that is designed to increase the leadership skills and management knowledge of outstanding QIAGEN senior managers by a more individual development approach. The program mainly focuses on leadership coaching sessions, as well as on business-related innovative actions.

QIAGEN Executive MBA Program

To support our future growth, QIAGEN offers employees the opportunity to participate in the QIAGEN Executive MBA Business Integration Program in cooperation with the University of Würzburg, Germany. The program provides professionals with a wide range of management skills and knowledge, which are key to an executive career in the industry and at QIAGEN in particular. Participants study in an international environment with colleagues from around the world. Two modules are conducted with partner universities in the U.S.: at Boston University in Boston, Massachusetts, and at Florida Gulf Coast University in Fort Myers, Florida.

QIAGEN Academy

To support all QIAGEN employees in individual development, QIAGEN has implemented an online learning management system (LMS), the QIAGEN Academy. It manages the entire training process from enrollment to certificate conveniently in one platform. The QIAGEN Academy is available to every employee 24/7 via the internet. Continual access to all training materials at any time allows employees to blend different learning methods such as virtual classrooms, web-based training, videos or classroom training into holistic and sustainable learning concepts. We offer a huge training catalog with a wide range of development options aligned to our competency model. This includes courses in soft skills, product training and training in QIAGEN-specific processes.

For more information about our training system, please also refer to the section “Employee matters” in our non-financial statement included in this report.

Compensation System

Since the creation of QIAGEN, management has formed a culture that seeks to attract and retain the best talent worldwide and reward associates for performance. This compensation system fosters a focus on achieving corporate strategic initiatives as well as personal accountability.

It is critical for QIAGEN to offer attractive compensation packages on a global basis. According to the QIAGEN philosophy, an employee who achieves his or her performance objectives should generally be awarded compensation comparable to the median levels of compensation provided by relevant benchmark companies. QIAGEN participates in various compensation benchmarking surveys that provide information on the level and mix of compensation awarded by various companies and industries for a broad range of positions around the world. In the case of QIAGEN, these include many peer life science and diagnostics companies based in the U.S.

QIAGEN has a “pay for performance” culture, with the compensation of employees linked to the achievement of corporate financial and individual performance goals. Business goals are established by senior management. These goals are set at ambitious levels each year to motivate and drive performance, with a focus on both short-term and long-term quantifiable objectives. Performance metrics used for these goals include the achievement of targets for net sales, adjusted operating income and free cash flow. In 2017, the payments for short-term variable compensation were based on 97% achievement of the business goals. Compensation for a significant majority of employees worldwide includes fixed base compensation and benefits, which vary according to local market customs, as well as a short-term variable cash bonus. The level of fixed compensation is paid in cash, usually on a monthly basis, and is designed to provide the employee with a reasonable standard of living relative to the compensation offered by peer companies. The amount of short-term variable cash bonus is designed to reward performance, with the payout

amount based on the achievement of overall corporate financial results as well as individual performance against a written set of objectives.

For the Chief Executive Officer the target annual short-term variable cash bonus is set at 57.6% of the annual base salary and the maximum is equivalent to 87.8% of the annual base salary. The Chief Financial Officer has a target annual short-term variable cash bonus set at 41.2% with the maximum being equivalent to 62.8% of the annual fixed salary. Furthermore, to align our compensation programs with the interests of shareholders, senior executives receive a portion of their total compensation in the form of long-term compensation, which is granted as equity as a reward for performance. These grants are determined on an individual basis and approved by the Compensation Committee. These equity grants are made in the form of Performance Stock Units (PSUs) with a staggered vesting period typically over three (40%), five (50%) and 10 years (10%).

For enhanced Work-Life Balance, QIAGEN offers services to help employees balance their personal life with our dynamic and driven work environment, including in-house corporate childcare and sabbatical programs, as well as company-sponsored fitness and health facilities, and programs. Flexible working hours apply to all employees except for functions that require critical on-time presence.

Workplace Health

In today's business climate, the health of employees is often directly related to the health of the company. Increased job satisfaction, improved morale, reduced injuries, and increased productivity are just some of the benefits which a healthy work environment can have. At its headquarters, QIAGEN regularly offers "health days" where all employees are invited to receive free counsel and to participate in screening and nutrition programs, medical check-ups, etc. QIAGEN provides in-house gyms open to all employees, sports courses coached by professional trainers, and on-site soccer fields and beach volleyball courts, all free of charge. All female employees have free access to screening for HPV, the primary cause of cervical cancer.

Employees worldwide

	2015	2016	2017
Americas	1310	1260	1245
EMEA	2403	2543	2567
APAC & RoW	846	881	876
Total	4559	4684	4688

2015

Production	22%
R&D	22%
Sales	39%
Marketing	7%
Admin	10%

2016

Production	21%
R&D	21%
Sales	41%
Marketing	7%
Admin	10%

2017

Production	23%
R&D	20%
Sales	40%
Marketing	6%
Admin	11%

MANAGEMENT REPORT

Non-Financial Statement

Our approach to sustainability

QIAGEN integrates sustainability throughout our business. We aim to save energy and reduce environmental impacts of our operations, drive long-term economic success with healthy, high-performance workplaces, and make improvements in life possible as a good corporate citizen.

These three dimensions of sustainability are interlinked, reinforcing each other. We pledge to continually evaluate the potential environmental impact of our business, its economic influence and our corporate citizenship around the world. Our commitment to sustainability does not stop with formal regulations. As a market and innovation leader in life sciences and molecular diagnostics, we strive to go above and beyond simply following requirements of environmental and labor laws. There is much room for innovation in driving sustainable development in our industry, and we are resolved to continue to move forward. Please find information about our business model, organizational structure, products, customers, business strategy as well as main trends and factors in our Management Report.

We recognize that ongoing success for QIAGEN also depends on the sustainability of society's resources, as well as continuous reduction of any negative impact from our business. By engaging in intensive discussions with our various stakeholders – employees, customers, patients, suppliers, shareholders, NGOs and communities –, we gain a better understanding of our operating environments, including market developments and cultural dynamics. Depending on the subject matter, we use different approaches ranging from standardized questionnaires to one to one conversations.

Material non-financial information

For guidance on materiality and non-financial disclosures, we base our non-financial reporting on the international standards of the Global Reporting Initiative (GRI Standards, 2016) as well as on the sustainability accounting standards for Medical Equipment and Supplies and Biotechnology of the Sustainability Accounting Standards Board (SASB).

To identify the relevant information, we have conducted a systematic materiality analysis in 2016. For each thematic aspect (environmental, social and employee matters, respect for human rights, anti-corruption and bribery) we identified a series of topics that possess high business relevance, highly influence the decisions of our stakeholders and where QIAGEN's activities have significant impact on the thematic aspects. In a joint workshop with representatives from our different departments, the various perspectives had been assessed and discussed. The final list had been validated by our senior management and resulted in twelve material topics:

- **Environmental matters:** energy consumption, emissions
- **Employee matters:** training, diversity, employee satisfaction, employee retention
- **Social matters:** quality and product safety, customer satisfaction, access to medicine

› **Respect for human rights:** conflict minerals

› **Anti-corruption and bribery matters:** anti-trust, anti-corruption

Environmental matters

Protecting the environment, health and safety has always been a hallmark of QIAGEN. As a pioneer in the effort to eliminate harmful substances and waste products in laboratories throughout the world, we strive to reduce energy and water consumption, and set limits on packaging, waste, and transport. With these efforts, we aim to operate in the most cost efficient and environmentally friendly way possible. As effects and concerns over climate change and dwindling natural resources continue to impact pricing, we will be exposed to fluctuations in costs of these key inputs. By being able to improve our manufacturing efficiencies and limit our dependence on finite resources, we are engaging in active risk management and enhancing the value of our company.

For QIAGEN, commitment to safe, environmentally sound practices comes with a culture of operational excellence – reinforced by training, decision-making and standard procedures. Operations employ a concept called QIAzen, derived from the Japanese word KAIZEN, which means "continuous improvement." Key employees in Operations have received QIAzen training to identify and prioritize avenues to improve our manufacturing organization, initiate projects, and monitor implementation with cross-functional teams. By constantly optimizing workflows in manufacturing and production, QIAGEN reduces transportation, saves electricity and minimizes other impacts on natural resources.

Energy Consumption and Emissions

QIAGEN regards climate change as one of the most pressing global challenges. To increase transparency regarding our own global energy consumption and greenhouse gas emissions, QIAGEN recently introduced a systematic approach to sustainability data management. Energy consumption and other parameters are gathered worldwide at all significant sites and monitored at our Hilden headquarters. Currently, our reporting covers direct emissions from combustion of fossil fuels on our own premises as well as indirect emissions from procured electricity and heat.

QIAGEN sites use about the same amount of energy from electricity and heat, as well as a smaller fraction of fuel for our own vehicle fleet. A total of 35.3 GWh of energy has been used by QIAGEN around the globe in 2017.

When it comes to greenhouse gas emissions, QIAGEN emits approximately 30% - or 3.6 kilotons CO2 equivalents (ktCO2e) - directly through natural gas heating and other fossil fuel use. The remaining 70% - about 8.9 ktCO2e - are indirect emissions originating from external generation of electricity for our operations. The total energy use causes greenhouse gas emissions of 12.5 ktCO2e. We calculate greenhouse gas emissions from grid-bound energy sources such as electricity using emission factors for regional production mixes. This method ensures good comparability between different carbon footprints and is also referred to as the "location-based" method.

QIAGEN is committed to reduce its energy consumption and respective CO2-emissions in the long-term and to increase its energy efficiency in a continuous improvement process. To this end, an energy management system has been introduced at our operational headquarter in Hilden, Germany and been certified according to EN ISO 50001:2011 in 2017. We have set ourselves the goal to reduce our energy consumption from electricity and gas by 10% by 2020 compared to 2017.

To meet our goals and limit the footprint of our business on the environment, we have introduced a broad panel of activities and programs. We run simulations to reduce energy consumption and have installed energy recovery and control systems to provide only the minimum of power required for operations. Improvements encompass energy extraction from co-generators, better insulation, heat recovery and installation of intelligent building systems.

In 2011, we opened Europe's first "green" laboratory complex at our site in Hilden. This state-of-the-art research and production facility has been awarded gold-level certification for sustainable construction by the internationally recognized US quality system LEED. In addition, our German facility in Stockach is certified according to DIN EN 16247, a European norm defining quality standards for energy audits.

As a significant part of the energy consumption associated with our business occurs beyond our own premises, transportation of people and cargo is an additional focus. At QIAGEN's headquarters, discounted train and bus tickets encourage employees to use public transportation, and we have installed charging stations for electric cars and bikes. The pool of company cars has been changed to ecological and CO2-efficient models in a continuous adjustment process. Low emissions play a critical role in the decision process for new company cars. At most sites, video conferencing systems have been installed to encourage virtual team meetings and reduce travel between sites.

Employee matters

The exceptional talent, skill and passion of our people are key to our long-term success and growth. We are convinced that a focus on human capital drives our economic performance and sustainability. The development of our employees at all levels is viewed as an integral factor in creating lasting value for our customers, patients, colleagues, partners and shareholders. It is a central element of our initiatives for growth and effectiveness to expand, develop and strengthen QIAGEN's leadership and talent base.

Being the industry's employer of choice by attracting and developing top talents is one of our global goals. To achieve that, QIAGEN creates a work environment that empowers and involves employees at all levels.

Employee training

As a fast-growing technology and knowledge-based company, we consider high-quality training and career development as an integral part of our success. As part of our talent and succession management, we have established transparent career paths with the QIAGEN Profile Navigator (QPN). It defines jobs, core competencies and approaches to advancement across the global organization. QIAGEN's global Performance Enhancement System (PES) creates a clear framework of regular, one-on-one review sessions for each employee and their manager to discuss career development. These include discussions of goals and achievement levels, assessment of relevant competencies, as well as training needs and career planning steps. Professional Training & Development at QIAGEN is an ongoing process, cycling from PES discussion to training participation and learning transfer, and back to PES.

In 2016 we introduced the QIAGEN Academy: It provides the possibility to either take part in e-learning sessions globally or to participate in in-person trainings. The focus is on job-specific skills, competencies and leadership development. In 2017, 3,772 employees took part in a respective internal training, totaling to 7,309 training hours.

We place great importance on transparent and responsible leadership. Our future leaders are trained in entrepreneurial and leadership competencies such as strategic thinking and acting, decision making, risk taking, change management, performance management and employee development. Every year our employees are invited to evaluate their superiors with a standardized questionnaire within our QIALead evaluation process. The summarized and anonymized results are provided to the executive managers.

QIAGEN has implemented a pilot program to identify and develop the most promising specialists and managers to prepare for senior positions. In cooperation with the University of Würzburg, Germany, we offer the opportunity to participate in the QIAGEN Executive MBA Business Integration Program. Participants benefit not only from a curriculum providing them with a wide range of management skills and knowledge. They also experience an international environment, learning with colleagues from around the world. A total of 75 QIAGEN employees had completed the MBA program by the end of 2017, with a new class enrolled in 2016.

We are currently working on different digital solutions to further enhance our development programs. In 2017, we have updated the QIAGEN Academy Interface (3.0) while further extending the range of available trainings and simplifying the enrollment process. We have also launched new leadership insight tools on and e-learning soundbites and rolled-out a talent management suite, which has been already used to conduct our annual personnel enhancement and salary review processes and will see further functional enhancements in 2018.

Diversity

We are committed to create an environment where all individuals have the opportunity to grow and contribute to our progress, regardless of their age, educational background, gender, nationality, physical abilities, race and ethical background, religion, or sexual orientation. Strategic consideration of diversity not only makes QIAGEN a better place to work. We consider it to be a key success factor on the path to achieving our mission and goals. Individuals and teams alike understand the diverse needs of our customers, identify and realize cross-functional opportunities for our business areas, can quickly adapt to a fast-changing environment. Further information about the diversity policy for the composition of the management board and the supervisory board can be found in the corporate governance report.

In 2017, our multicultural workforce was composed of 71 nationalities with an average age of 40.3 With 49.2% women we are well balanced in terms of gender on an aggregate level. We also have significantly increased the diversity of our senior leadership team and will continue to do so in the future. In 2017, almost 31% of our management positions in the four leadership levels below the Executive Committee were held by women. To further improve diversity on a senior level, we have started different initiatives in 2017 to raise awareness for the value of diversity and leverage diverse talents towards management positions. They focus on team discussions around the subject, champion diverse talents and the development of a global recruiting standard to promote diversity in executive positions. Concrete actions in the reporting period included the establishment of diversity forums, manager training tools on the intranet, mandatory unconscious bias trainings within the QIAGEN Academy for all managers, mentorship programs and more significant access for our top talents to our senior management. All initiatives are designed to engage the organization and follow best practices for developing active inclusion. Our goal is to leverage diversity as a great opportunity for QIAGEN to positively impact our business performance through diverse team contributions.

Employee satisfaction and retention

Various measures to enhance career development and diversity within QIAGEN are important factors to maintain the satisfaction of our employees and their dedication for our company. Alongside this, QIAGEN has implemented frameworks for performance-based compensation, equity-based compensation and incentive programs for new ideas and innovation. They aim to ensure fair and attractive compensation and to encourage each employee to work for the company's long-term benefit. With our new compensation plan, we are planning to gradually roll-out starting in late 2018, we intend to have our salary structures based on the QIAGEN Profile Navigator: Each described role is graded into the QIAGEN Job Matrix which comprises three career paths and twelve grades. All three career paths, Specialist, Project Management and Leadership are basically equivalent. Lateral moves between roles in the different career path are possible. This allows us to compare our pay grades with market averages and to ensure our attractiveness as an employer. In early 2018 we plan to complete the adaption in our pilot countries, United Kingdom and China, and we will evaluate the results.

Equally important to us is our employees' work-life balance. We provide services to help employees balance their personal lives with the company's dynamic work environment, including in-house corporate child care, sabbatical programs and flexible work hours. Beyond that, QIAGEN offers a wide range of measures for a good workplace health: from "health days" with free counselling, screening and medical check-ups to opportunities to get exercise like in-house gyms, on-site soccer-fields and beach volleyball courts.

At QIAGEN we believe that good leadership performance is key to our success and employee satisfaction. The results of our annual QIALead survey, which provides a comprehensive view on the performance of all line managers at QIAGEN, are hence are an important indicator for the development of our corporate culture and employee satisfaction are the. For 2017, employees rated their managers with an average total score of 4.2 out of 5.0 points. QIAGEN's efforts to become an employer of choice are also reflected by the high number of applications for open positions, which exceeded 37.700 applications in 2017. At the same time, the average voluntary annual turnover rate remained largely unchanged, increasing by 0.28 percent points compared to 2016. Going forward, QIAGEN has set a goal to reduce the voluntary turnover rate to ensure business continuity, while still allowing for a healthy influx of fresh talent.

Social matters

QIAGEN's mission is to make improvements in life possible by enabling our customers to achieve outstanding success and breakthroughs in life sciences, applied testing, pharma and molecular diagnostics. We are committed to customers and patients to deliver innovative solutions that unlock new insights for scientific research, forensics, food safety or better treatment decisions.

To leverage our leadership in Sample to Insight technologies and create value for our company and stakeholders, it is imperative to understand and target the diverse needs and expectations of our global customers. Only then can we develop ever more innovative and improved solutions. We understand and live up to our responsibility to customers and patients who depend on us for reliable, efficient workflows that enable molecular testing and help to unlock valuable insights.

Customer Satisfaction

Customer satisfaction is an integral part of the QIAGEN mission of "Making improvements in life possible" which is therefore under direct authority of the Chief Executive Officer. Our customers have high expectations on reliability, safety and ecological manufacturing of our products. We rely on close contact with our customers and incorporate their feedback into our product development process and service offers.

It is our commitment to customers to constantly improve customer experience acknowledging ever evolving customer requirements and expectations. QIAGEN has therefore established a global systematic approach to measure customer experience culminating in an aggregated Customer Experience Indicator. Performance of this indicator is embedded in our annual goal setting process and results are communicated to all employees on a monthly basis with the goal of ensuring a seamless and perfect customer experience to every customer, for all products and services along the workflows. With an average Customer Experience Indicator (CEI) of 1,467 of possible 2,000 points in 2017, we have managed to further maintain our strong performance, also exceeding our internal target for the year.

The CEI is measured on a monthly basis through a set of internal KPIs (product and delivery performance, phone support, etc.) that are directly linked to customer experience in transactional interactions and a customer feedback survey program we are able to identify quickly and systematically areas for improvement while staying closely connected with our customers.

Quality and Product Safety

QIAGEN stands for quality. Since QIAGEN's founding 30 years ago we are committed to ultimate quality and always strive to exceed our customers' expectations. QIAGEN's reputation as quality supplier is best in class in our industry and the foundation of our loyal global customer base. To achieve and maintain QIAGEN quality we established Total Quality Management systems in all our manufacturing facilities around the globe. These quality systems assure constant high quality as well as safe and effective medical devices. QIAGEN's quality systems are certified according ISO 9001, ISO 13485, ISO 18385 as well as 21 CFR 820 and all other applicable medical device standards around the globe (see section "Government Regulations" in the Management Report).

QIAGEN like other companies is exposed to the financial implications of recalls and other adverse events. Equipment failures, manufacturing defects, design flaws, or inadequate disclosure of product-related risks can lead to significant product liability claims. With a systematic quality and product safety management, QIAGEN meets the highest standards to protect shareholder value. In the period under review, there were no major recalls.

Access to medicine

QIAGEN is aware of the importance to provide access to healthcare and research products around the world. In developing countries with scarce resources, new ways are needed to ensure access to affordable diagnostics to help prevent and treat diseases. Especially infectious diseases and various malignancies require an early and precise detection to interrupt the infection chain and enable targeted treatment, yet many emerging countries lack educated personnel and technical infrastructures to employ latest, cutting-edge molecular testing technologies. For low-income countries in particular, early disease detection can significantly lower therapeutic costs and stop further dissemination more effectively.

For QIAGEN, a strategic approach to access to novel diagnostic technologies can yield opportunities for growth, innovation, and unique partnerships. We focus on developing products and pricing frameworks that account for different levels of economic development and health care needs. By targeting widespread diseases such as cervical cancer or tuberculosis, we can provide the means to fight infectious and potentially fatal diseases.

To support our growth strategy in emerging markets, we are constantly expanding our presence in these markets and adapting our products to local needs, if required. An example is the development of careHPV tests for high-risk human papillomavirus (HPV), the primary cause of cervical cancer. In corporation with the NGO PATH and support from the Bill & Melinda Gates Foundation, we developed a dedicated testing system for use in regions with limited healthcare-resources, such as Africa, Asia and Latin America. The main advantages of decentralized HPV testing are:

- immediate analysis at the point of care
- instant treatment decisions
- higher compliance of patients

Our careHPV tests are already directly available in 19 countries worldwide. In the reporting period over 680,000 tests were distributed in total.

Another example is our effort to advance diagnostics for tuberculosis (TB) in low income countries. Already in 2015, we have signed five-year memorandum of understanding with the NGO FIND to develop innovative and affordable tests to detect those patients with latent TB who are at risk of active TB. In 2017, our overall revenue share for the emerging markets rose by 13% to over $237 million.

We are furthermore providing financial support to a number of organizations and initiatives focusing on global health projects. In 2017, we continued to work with organizations such as the International Agency for Research on Cancer in Tanzania, Basic Health International in El Salvador or the Pink Ribbon Red Ribbon initiative in different countries.

Respect for human rights

We believe that respect for human rights is an essential component of promoting sustainability in our global business. Our vision is to transition QIAGEN's procurement towards leading practices by implementing global best-in-class procurement methods and standards in terms of processes and governance. This includes to ensure

compliance with our mission "Making improvements in life possible" from which we derive our commitment towards sustainable practices and good corporate citizenship.

We expect our employees as well as our business partner to comply with national regulations and with the specifications of our compliance manual that includes provisions with regard to human rights issues. Responsibility for implementing and overseeing these issues is assumed by HR department and Procurement. Respect for human rights is part of our supplier code of conduct which contains binding rules for all suppliers. As part of our supplier selection process, we assess the suppliers' policy with regard to human rights issues. In addition, first-tier suppliers have to confirm REACH, RoHS and SEC compliance as appropriate. Violations against human rights in our supply chain inherits reputational as well as legal risks for QIAGEN. Supplier audits are conducted if non-compliance is suspected. To our knowledge, there were no violations with regard to human rights in the reporting period.

Conflict minerals

Certain minerals (known as "conflict minerals") have been linked with human rights abuses in the Democratic Republic of Congo and other conflict zones. QIAGEN has performed an extensive inquiry into the company's supply chain to ensure that no conflict minerals from the Democratic Republic of Congo or adjoining countries are used in the company's laboratory instruments.

Our products consist of sample and assay kits, known as consumables, and automated instrumentation systems. We do not believe that any Conflict Minerals are necessary to the production or functionality of any of our consumable products. We conduct due diligence measures annually to determine the presence of Conflict Minerals in our instrumentation products and the source of any such Conflict Minerals. Because we do not purchase Conflict Minerals directly from smelters or refineries, we rely on our suppliers to specify to us their Conflict Minerals sources and declare their Conflict Minerals status. We disclosed our Conflict Minerals findings to the SEC for the calendar year ending December 31, 2016 on Form SD on April 24, 2017 and will provide updated disclosure to the SEC annually.

Anti-corruption and bribery matters

Unethical behavior and non-compliance with laws and regulations has the potential to seriously harm our business. QIAGEN has established a comprehensive Compliance Program which translates legal and regulatory requirements as well as our fundamental values into clear, precise and understandable guidelines as our Corporate Code of Conduct and Ethics and supplementing specific policies for our employees.

Antitrust and Anti-corruption

Special attention is paid to infringements of antitrust and anticorruption law because these can cause substantial financial or reputational damage (see section "Opportunities and Risks" in the Management Report) Our specific Antitrust and Anti-Corruption Policies set forth our commitment to ensure that QIAGEN and its subsidiaries abide by the antitrust and anti-corruption laws of the countries in which we operate.

All our policies are provided to all employees worldwide. Online training reaches all employees in local language, supported by multiple communication resources. All new employees are required to take online training on our Corporate Code of Conduct and Ethics at a minimum. Additional trainings which are customized to the specific area of responsibility are mandatory. All employees in Sales and Marketing as well as Upper Management are required to take training on corruption and anti-trust laws. Such basic trainings are followed by refresher courses on a regular basis.

We have established a hotline for reporting accounting-related concerns on an anonymous basis in good faith. We also offer a direct email and telephone hotline for employees to address questions or make suggestions for our

Compliance Program. In the reporting period no cases with regard to antitrust or corruption had been reported.

Our Compliance Program is overseen by the Compliance Committee under the leadership of the Head of Legal Affairs and Compliance, that coordinates our efforts, consisting of managers from Legal, Internal Audit, HR, Commercial Operations, Trade Compliance and Regulatory functions. The Compliance Program is overseen by the Audit Committee of the Supervisory Board.

The Head of Legal and Compliance coordinates investigations and enforcement as necessary and gives regular updates to the Executive Committee. In the reporting period QIAGEN had no legal actions pending or completed with regard to antitrust or corruption.

More information about QIAGEN's activities and the progress we are making is available online at https://corporate.qiagen.com/about-us/Sustainability/overview.

MANAGEMENT REPORT

Future Perspectives

QIAGEN Perspectives for 2018

Building on global leadership in differentiated Sample to Insight solutions for molecular testing, QIAGEN expects to sustain its sales and earnings growth in 2018 and beyond. Delivering solutions that exceed the expectations of customers is a key competitive advantage in serving customers across the value chain, from healthcare users of Molecular Diagnostics to researchers in Academia and the pharmaceutical industry, as well as public safety laboratories. QIAGEN is two years into executing on mid-term strategic plans to enhance financial performance and returns to shareholders from 2016 through 2020. Focused investments in innovation and commercial support have created a faster sales trajectory for a set of growth drivers, while efficiency and capital allocation initiatives are delivering on operating leverage and increased profitability.

In 2018 QIAGEN continues to focus on the expansion of its business activities for differentiated molecular testing solutions in fast-growing markets. QIAGEN's growth engines include expanding the market for QuantiFERON-TB technology in tuberculosis control; driving the adoption of next-generation sequencing in clinical research and diagnostics; extending QIAGEN's leadership in Personalized Healthcare for cancer and other diseases; increasing placements of the QIAsymphony platform with its growing menu of applications; and deepening QIAGEN's long-standing leadership in innovative core technologies for sample processing. This portfolio is united by the Sample to Insight approach enabling customers to embrace efficient, automated workflows with integrated tools for interpreting molecular data.

QuantiFERON-TB is growing rapidly as global efforts intensify to control tuberculosis (TB), the world's most deadly infectious disease. As the most accurate, cost-effective screening test for latent TB infection, QuantiFERON-TB is displacing the antiquated tuberculin skin test. The fourth-generation QuantiFERON-TB Gold Plus test launched in the United States in 2017, after adoption in more than 75 other countries. This new test will be introduced in Japan in 2018. Also in 2018, QIAGEN and DiaSorin plan to offer customers a state-of-the-art automation option to run QuantiFERON-TB Gold Plus on 7,000-plus DiaSorin LIAISON analyzers worldwide.

Next-generation sequencing (NGS) is rapidly emerging from elite research labs into clinical research and diagnostics because high-throughput analysis enables new depths of genomic insights. In 2017, QIAGEN sales of NGS solutions grew at double-digit rates, passing $115 million. We are targeting more than $140 million in 2018. Our broad portfolio of "universal" solutions includes the leading sample technologies, "Digital NGS" assays and bioinformatics. The GeneReader NGS System, the first purpose-built NGS system for clinical panel testing, is gaining acceptance. In 2017, we expanded GeneReader's capabilities and content menu and added the platform to Pharma collaborations. In China, QIAGEN launched a joint venture with a leading IVD company to accelerate adoption of the GeneReader system.

Personalized healthcare, using a patient's unique genomic characteristics to guide treatment decisions, is driving the growth of QIAGEN's companion diagnostics and collaborations with Pharma companies. As the leading independent developer of companion diagnostics, QIAGEN achieved a milestone of 25 master collaborations in 2017, with15 new co-development projects, including groundbreaking projects to develop diagnostics guiding

immuno-oncology therapies. QIAGEN is the only industry partner developing companion diagnostics for both PCR and NGS platforms. At least five FDA approvals or submissions are planned in 2018.

QIAsymphony, a medium-throughput platform for Sample to Insight analysis with polymerase chain reaction (PCR) as well as efficient sample preparation for other needs, soundly beat its target of 2,000 cumulative placements in 2017. Consumable sales achieved double-digit growth. The QIAsymphony SP module is the market-leading "front end" solution for reliable, automated processing of samples, including liquid biopsies – a critical need in NGS as well as PCR. QIAGEN expects to launch several new regulator-approved diagnostic tests for QIAsymphony in 2018 and has set a target of 2,300 cumulative placements by year-end.

Differentiated core technologies, enabling labs to efficiently process samples and obtain high-quality DNA and RNA for testing, built QIAGEN's global reputation– and continue to drive growth with innovative solutions to new challenges. QIAGEN technologies process an estimated 50,000 biological samples a day. Our focus is on rapidly growing applications in research and diagnostics such as liquid biopsies, single-cell analysis, epigenetics and the microbiome. By leading the way in innovative sample processing solutions, QIAGEN continues to generate double-digit growth in differentiated technologies.

Bioinformatics continues to grow rapidly as QIAGEN adds software applications and augments our expertly curated, literature-based datasets to offer new insights. In 2017, we acquired OmicSoft Corporation to address customers' growing need to access and manage huge amounts of data on DNA, RNA and other "omics." QIAGEN Clinical Insight (QCI) software added an important tool for precision medicine by automating guidelines for use of next-generation sequencing in cancer. Bioinformatics promises to help drive growth as a standalone franchise and a value-added element in Sample to Insight workflows.

QIAGEN also creates value with targeted acquisitions expanding our presence in fast-growing fields. In early 2018, QIAGEN agreed to acquire STAT-Dx and its portfolio of multiplex diagnostics for syndromes such as serious respiratory or gastrointestinal infections. Pending the completion of the acquisition, QIAGEN plans to launch the first two tests, extensive respiratory and gastrointestinal panels, in Europe and other markets in the second half of 2018, followed by U.S. launch pending regulatory clearance in 2019.

QIAGEN has begun to streamline its product portfolio by divesting smaller activities to focus on growth opportunities. In late 2017 and early 2018, we stopped commercialization of some non-core PCR tests in China and transferred the HPV test franchise there (including R&D, distribution, and related staff and infrastructure) to a third-party company in China. This will free up resources to support QuantiFERON-TB, NGS and the Life Sciences portfolio.

Ongoing actions to improve efficiency are expected to continue to benefit results in 2018. Key areas include consolidating activities into shared service centers and global centers of excellence, gaining efficiencies in marketing, and embracing digital tools across the business. Digital channels account for a growing portion of sales (reaching 37% in 2017).

Global Economic Perspectives for 2018

A broad-based global recovery is driving expectations for continued growth in economic output, with a slight acceleration in 2018 from stronger-than-expected 2017 expansion. The World Bank forecasts global GDP growth of 3.1% in 2018, up from 3.0% in 2017, and moderating back to 3.0% in 2019. The momentum reflects a rebound in investment, manufacturing and trade amid continued low interest rates, firming commodity prices and rising confidence. Risks remain, including geopolitical unrest, a shift toward tighter monetary policy and the possibility of a financial market disruption. In the United States, recently enacted tax reform is expected to stimulate investment and output. Europe, which saw demand strengthen in 2017, may expand at a more moderate pace in 2018. China is expected to continue gradual cooling of its rapid growth, amid brisk expansion across emerging markets broadly.

Japan remains in a slow-growth trend. Economic momentum tends to benefit the business environment for QIAGEN, while a downturn could hurt customer funding budgets. Currency exchange rates also affect results reported in U.S. dollars.

Industry Perspectives for 2018

The value of genomic insights is increasingly recognized in medicine and other fields, offering opportunities for QIAGEN to sustain its growth trajectory in 2018 and beyond. Discovery and innovation continue to drive market expansion.

Molecular diagnostics is growing briskly as healthcare providers adopt genomic testing to evaluate and monitor patients for cancer, infectious diseases and other conditions. Personalized medicine, using molecular tests to guide treatment decisions, is expanding rapidly as new discoveries develop into marketed therapies. In 2017, the U.S. Food and Drug Administration for the first-time approved use of an oncology drug based on results of genetic biomarker tests rather than the location of the cancer. Also in 2017, the FDA approved the first CAR T-cell therapies, which genetically modify immune cells to fight cancer. These developments presage a wave of new therapies based on genomic insights. Molecular diagnostics also are migrating from research institutions into hospitals in need of quick, accurate results – driving demand for standardized tests and automated workflows. Diagnostic customers embrace a range of diverse technologies, ranging from single-target or multiplex PCR analysis to in-depth next-generation sequencing. In each application, easy-to-use technologies and decision-support software are critical.

Life science research in Academia and the Pharma industry rely on novel sample and sequencing technologies for discovery of disease pathways and biomarkers, and increasingly to guide drug development and clinical trials. Applications of molecular testing also are expanding for public safety needs such as forensics and environmental monitoring.

Subsequent Events

On January 31, 2018, we announced our fifth share repurchase program of up to $200 million of our common shares beginning in 2018 as well as the acquisition of STAT-Dx for approximately $147 million in cash and additional payments of up to approximately $44 million based on the achievement of regulatory and commercial milestones. The acquisition is expected to be completed in 2018 and funded from existing cash reserves.

In January 2018, a partnership became effective with a Chinese company that has taken over R&D, commercial distribution, and the related QIAGEN employees and infrastructure of the HPV test franchise in China.