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

FORM 10-K

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

For the fiscal year ended: December 29, 2018

or

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

For the transition period from __________ to __________

Commission file number: 0-15386

CERNER CORPORATION
(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)	**43-1196944** (I.R.S. Employer Identification No.)
2800 Rockcreek Parkway North Kansas City, MO (Address of principal executive offices)	**64117** (Zip Code)

(816) 221-1024
(Registrant's telephone number, including area code)

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

Title of each class	Name of each exchange on which registered
Common Stock, $0.01 par value per share	The Nasdaq Stock Market LLC (Nasdaq Global Select Market)

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes [X] No [ ]

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Yes [ ] No [X]

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes [X] No [ ]

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes [X] No [ ]

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

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

Large accelerated filer [X] Accelerated filer [ ] Non-accelerated filer [ ]

Smaller reporting company [ ] Emerging growth company [ ]

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes [ ]   No [X]

As of June 29, 2018, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was $18.8 billion based on the closing sale price as reported on the Nasdaq Global Select Market. Shares of common stock held by each executive officer, director and holder of 10% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status for purposes of this calculation is not intended as a conclusive determination of affiliate status for other purposes.

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date.

Class	Outstanding at January 28, 2019
Common Stock, $0.01 par value per share	324,360,908 shares

DOCUMENTS INCORPORATED BY REFERENCE

Document	Parts into Which Incorporated
Portions of the registrant's Proxy Statement for the Annual Shareholders' Meeting to be held May 30, 2019	Part III

CERNER CORPORATION

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PART I.

Item 1. Business.

Overview

Cerner Corporation started doing business as a Missouri corporation in 1980 and was merged into a Delaware corporation in 1986. Unless the context otherwise requires, references in this report to "Cerner," the "Company," "we," "us" or "our" mean Cerner Corporation and its subsidiaries.

Our corporate world headquarters is located in a Company-owned office park in North Kansas City, Missouri, with our principal place of business located at 2800 Rockcreek Parkway, North Kansas City, Missouri 64117. Our telephone number is 816.221.1024. Our Web site, which we use to communicate important business information, can be accessed at: www.cerner.com. We make our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports available free of charge on or through this Web site as soon as reasonably practicable after such material is electronically filed with or furnished to the Securities and Exchange Commission ("SEC"). We do not intend for information contained in our website to be part of this annual report on Form 10-K.

Cerner is a leading supplier of health care information technology ("HCIT") solutions and tech-enabled services. Our mission is to relentlessly seek breakthrough innovation that will shape health care of tomorrow. We offer a wide range of intelligent solutions and tech-enabled services that support the clinical, financial and operational needs of organizations of all sizes. We have systems in more than 27,500 facilities worldwide, including hospitals, physician practices, laboratories, ambulatory centers, behavioral health centers, cardiac facilities, radiology clinics, surgery centers, extended care facilities, retail pharmacies, and employer sites.

Cerner® solutions are offered on the unified *Cerner Millennium®* architecture and on the *HealtheIntent®* cloud-based platform. *Cerner Millennium* is a person-centric computing framework, which includes integrated clinical, financial and management information systems. This architecture allows providers to securely access an individual's electronic health record ("EHR") at the point of care, and it organizes and proactively delivers information to meet the specific needs of physicians, nurses, laboratory technicians, pharmacists, front- and back-office professionals and consumers. Our *HealtheIntent* platform is a cloud-based platform designed to scale at a population level while facilitating health and care at a person and provider level. On the *HealtheIntent* platform, we offer solutions that aggregate, transform and reconcile data across the continuum of care, enabling key stakeholders to manage the health of populations, improve outcomes and lower costs. Cerner also has an EHR agnostic platform, *CareAware®*, that facilitates connectivity of health care devices to EHRs, allowing for more efficient and effective care.

On February 2, 2015, Cerner acquired the Health Services business from Siemens AG, which offered a portfolio of enterprise-level clinical and financial health care information technology solutions, as well as departmental, connectivity, population health, and care coordination solutions globally.

We offer a broad range of tech-enabled services, including implementation and training, remote hosting, operational management services, revenue cycle services, support and maintenance, health care data analysis, clinical process optimization, transaction processing, employer health centers, employee wellness programs and third-party administrator services for employer-based health plans.

In addition to software and services, we offer a wide range of complementary hardware and devices, both directly from Cerner and as a reseller for third parties.

The following table presents consolidated revenues by our business models and by segment, as a percentage of total revenues:

	For the Years Ended		
	2018	2017	2016
Revenues by Business Models			
Licensed software	11%	12%	11%
Technology resale	5%	5%	6%
Subscriptions	6%	9%	9%
Professional services	34%	31%	30%
Managed services	21%	21%	21%
Support and maintenance	21%	20%	21%
Reimbursed travel	2%	2%	2%
	100%	100%	100%
Revenues by Segment			
Domestic	88%	89%	89%
Global	12%	11%	11%
	100%	100%	100%

Health Care and Health Care IT Industry

Health care expenditures continue to consume an increasing portion of most economies. In the U.S., health care spending increased 3.9 percent to $3.5 trillion in 2017, and now represents 17.9 percent of the U.S.' Gross Domestic Product ("GDP"). An aging population and high levels of chronic conditions are contributing to expectations that health care expenditures will continue growing faster than the economy. The Centers for Medicare and Medicaid Services ("CMS") estimates annual U.S. health care spending will grow at an average rate of 5.5 percent through 2026 and reach $5.7 trillion, or 19.7 percent of GDP by 2026. We believe this trajectory is unsustainable and that health care IT can play an important role in facilitating a shift from a high-cost health care system that incents volume to a proactive system that incents health, quality and efficiency.

For this change to occur, we believe traditional fee-for-service ("FFS") reimbursement models must continue to shift to value-based approaches that are more aligned with quality, outcomes, and efficiency. The shift away from traditional FFS is evident in growth of lives covered under Accountable Care Organizations ("ACOs"). ACOs are groups of hospitals and providers that focus on providing coordinated, high quality care to Medicare, Medicaid, or commercially insured populations and then share in savings created by lowering the cost of care. According to Leavitt Partners, lives covered under ACOs grew from approximately 5 million in 2011 to more than 32 million in 2018.

In addition to the increasing number of lives covered under ACOs, the structure of ACOs is evolving to where providers are expected to assume more risk. Currently, most ACO contracts are upside only, which means providers can receive bonuses for good performance, but they assume no downside for underperformance. In 2018, CMS released a rule called "Pathways to Success" that accelerates the timeframe during which providers need to move to ACOs that include both upside bonuses and downside penalties. We believe this shift is important as assumption of risk by providers creates a strong incentive for them to improve care coordination and deliver high quality care at a lower cost.

Another step towards a value-based model occurred with the passage of The Medicare Access and CHIP Reauthorization Act ("MACRA"), which enacts significant reforms to the payment programs under the Medicare Physician Fee Schedule and consolidated three current value-based programs into one.

While each of the different approaches to aligning reimbursement with value will continue to evolve, we believe the trend away from traditional FFS will continue. We believe this growth in government and private models aligning payment with value, quality and outcomes will drive major changes in the way health care is provided in the next decade, and we expect a much greater focus on patient engagement, wellness and prevention. As health care providers become accountable for proactively managing the health of the populations they serve, we expect them to need ongoing investment in sophisticated information technology solutions that will enable them to predict when intervention is needed so they can improve outcomes and lower the cost of providing care.

The increasingly complex and more clinical outcomes-based reimbursement environment is also contributing to a heightened demand for revenue cycle solutions and services and a desire for these solutions and services to be closely aligned with clinical solutions. We believe this trend is positive for Cerner because our *Cerner Millennium* revenue cycle solutions and services are integrated with our clinical solutions, creating a clinically driven revenue cycle solution that has had significant adoption in recent years.

Over the past several years, we have also seen a shift in the U.S. marketplace towards a preference for a single platform across inpatient and ambulatory settings. The number of physicians employed by hospitals has increased as hospitals have acquired physician groups, and health systems are recognizing the benefit of having a single patient record at the hospital and the physician office. We are benefiting from this trend due to our unified *Cerner Millennium* platform, which spans multiple venues, and ongoing enhancements we have made to our physician solutions.

While health care providers are showing a preference for a single platform across multiple venues, there is also an increased push for interoperability across disparate systems to address the reality that no patient's record will only have information from a single health care IT system. We believe health information should be shareable and accessible among primary care physicians, specialists, and hospital physicians.

As a result, Cerner has led or been a key participant in nearly every major industry effort to advance interoperability and system openness. One example is Cerner's role as a founding member of the CommonWell Health Alliance, an open, not-for-profit industry consortium that brought health care IT firms together for the purpose of enabling safe nationwide interoperability. The vision of CommonWell is for a patient to be able to visit a new doctor, give their consent, and, within moments, have his or her lifetime record available from all the prior places he or she has visited.

In 2018, CommonWell announced general availability of its connection to CareQuality, another national interoperability framework. This connection allows CommonWell and CareQuality enabled health care providers to connect and bilaterally exchange health data to improve care coordination and delivery. This is a significant milestone on the path to achieving true nationwide interoperability and making health data available to individuals and providers regardless of where care occurs.

Outside the United States, we believe Cerner's growth opportunities are good, as most countries are also dealing with health care expenditures growing faster than their economies, which is leading to a focus on controlling costs while also improving quality of care.

Cerner Vision and Growth Strategy
For nearly four decades, Cerner has focused on creating innovation at the intersection of health care and information technology. Together with our clients, we are creating a future where the health care system works to improve the well-being of individuals and communities. Our vision has always guided our large investments in research and development ("R&D"), which have created strong levels of organic growth throughout our history. Our proven ability to innovate has led to what we believe to be industry-leading architectures and an unmatched breadth and depth of solutions and services. The strength of our solutions and services has contributed to our growth. We believe we are positioned to continue growing in coming years as regulatory requirements and industry shifts continue to pressure health care providers to improve quality while lowering costs, which we believe will require having more sophisticated information technology than many of our competitors provide.

A key area of growth for Cerner in recent years has been in the U.S. Federal government sector. As part of the Leidos Partnership for Defense Health, Cerner has played a key role in the U.S. Department of Defense's ("DoD") EHR rollout, which achieved completion of its fourth pilot site in 2018. Broader deployment has kicked off with implementations beginning at four additional sites in the second half of 2018. Also, Cerner was selected in 2018 by the U.S. Department of Veterans Affairs ("VA") to replace their existing EHR system with one based on the EHR being deployed across the DoD health system. With the VA managing one of the largest health systems in the world, this opportunity is expected to contribute to Cerner's growth for several years. In addition, we believe there is potential for this project to have broad industry impact. At the core of this project, Cerner aims to enable seamless care through a single system that links both veteran and military populations, totaling more than 18 million people, while also delivering national interoperability to the commercial market. This will allow patient data to be shared between VA, DoD, and community providers through a secure system.

In addition to growing our client base, we believe we have an opportunity to grow revenues by expanding our solution footprint with existing clients. For example, less than half of our *Cerner Millennium* EHR clients have implemented *Cerner* revenue cycle solutions. This penetration has been growing in recent years and we expect it to continue because of the preference for having EHR and revenue cycle systems provided on the same platform. There is also opportunity to expand penetration of other solutions, such as women's health, anesthesiology, imaging, clinical process optimization, critical care, health care devices, device connectivity, emergency department and surgery.

We also have an opportunity to grow by expanding our services that are targeted at capturing a larger percentage of our clients' existing IT spending. These services leverage our proven operational capabilities and the success of our *CernerWorks*SM managed services business, where we have demonstrated the ability to improve our clients' service levels at a cost that is at or below amounts they were previously spending. One of these services is *Cerner ITWorks*SM, a suite of solutions and services that improves the ability of hospital IT departments to meet their organization's needs while also creating a closer alignment between Cerner and our clients. A second example is *Cerner RevWorks*SM, which includes solutions and services to help health care organizations improve their revenue cycle functions.

Another area in which we continue to have success is our *CommunityWorks*SM offering, which leverages a shared instance of the *Cerner Millennium* platform across multiple clients, allowing us to offer low-cost, high-value solutions and services to smaller community hospitals and critical access hospitals. We believe there continues to be a good opportunity to grow in the small hospital market given many of the existing suppliers in this market have struggled to keep up with ongoing regulatory requirements and marketplace expectations.

We also expect to drive growth over the course of the next decade through initiatives outside the core HCIT market. For example, we offer clinic, pharmacy, wellness and third-party administration services directly to employers. In 2019, we're expanding our onsite services to include a multi-employer tenant clinic model, serving employers who would not normally be able to support their own onsite clinic. These offerings have been shaped by what we have learned from changes we have implemented at Cerner. We have removed our third-party administrator and become self-administered, launched an on-site clinic and pharmacy, incorporated biometric measurements for our associate population, realigned the economic incentives for associates in our health plan, and implemented a data-driven wellness management program. These changes have had a positive impact on the health of our associates while also keeping our health care costs below industry averages.

As discussed below, another significant opportunity for future growth, and a large area of investment for Cerner, is leveraging the vast amounts of data being created as the health care industry is digitized and using this data to help providers and employers manage the health of populations.

Population Health

Population Health Management involves a shift from solely automating health systems to managing a person's health. Getting there requires complete and accurate patient data and meaningfully using that data to engage individuals, exchange information between providers and ultimately drive better outcomes at a lower cost. We believe this shift will shape the future of health care and enable a system driven by accountability, transparency and value.

Cerner's approach to population health is to enable organizations to:

- KNOW what is happening and predict what will happen within their population through solutions for data exchange, longitudinal record, enterprise data warehouse, analytics and quality and regulatory reporting;
- ENGAGE providers and patients in health and care delivery through personal health portals and solutions for care management, home care, long-term care, and retail pharmacy; and
- MANAGE health and improve care with capacity and workforce management, clinical research, predictive modeling, health registries, and contract and network management.

These solutions are enabled by Cerner's *HealtheIntent* platform, which is a multi-purpose, programmable platform designed to scale at a population level while facilitating health and care at a person and provider level. This cloud-based platform enables organizations to aggregate, transform and reconcile data across the continuum of care, and helps improve outcomes and lower costs.

HealtheIntent is scalable, secure and can be accessed anywhere, anytime. It is able to receive data from any clinical or revenue cycle system and also incorporate other data, such as pharmacy, claims, patient satisfaction, socioeconomic, genomic and dozens of open data sources. *HealtheIntent* collects the data from these disparate sources in near real-time, providing clarity to millions of data points in an actionable and programmable workflow. It enables organizations to identify, score and predict the risks of individual patients, allowing them to match the right care programs to the right individuals. The EHR-agnostic nature of our *HealtheIntent* platform allows us to offer our solutions to the entire marketplace, not just existing Cerner clients.

We have created a series of solutions on the *HealtheIntent* platform, including the following solutions:

- **Longitudinal Record** - provides clinicians and the patient a view of their consolidated clinical record, gathered and normalized from multiple sources.
- **Registries and Scorecards** - identifies and automatically segments patients by disease, guides interventions according to clinical best practice, provides visibility to quality measures for provider's population, produces client-defined performance scorecards, and tracks their health and their interventions according to clinical best practice.
- **Enterprise and Population Health Analytics** - allows the integrated data to be analyzed for the purpose of population health management and research.
- **Provider Performance Management** - creates visibility for providers on their performance against key clinical and operation metrics and can be aligned with payment models that incentivize high quality and efficient care.
- **Patient/Member Engagement** - an enhanced patient portal complemented by engagement services to help health care organizations create more meaningful interactions and engagement with the members they serve, and provides the ability to target individuals at risk of becoming chronically ill.
- **Community Care Management** - provides a person-centric approach of proactive surveillance, coordination and facilitation of health services across the care continuum to achieve optimal health status, quality and costs.
- **Population Health Programs** - leverages evidence-based guidelines and the contextual information within *HealtheIntent* to provide identification, prediction and management of a condition at the population, provider and person level and facilitates a personalized plan of care for each member.
- **Contract and Network Management** - for managing provider networks, modeling to inform payer negotiations, determining appropriate business models, and managing contract performance in near real-time.

In less than five years since the first *HealtheIntent* solution went live at our alpha client, more than 155 clients have purchased *HealtheIntent* solutions. The broad addressable market for population health solutions is reflected in the diversity of these clients, which include health systems, physician groups, employers, health plans, state governments, and accountable care organizations. The initial adoption by a large number of clients is encouraging and positions us for larger contributions to revenue from *HealtheIntent* solutions as these initial clients and others transition away from FFS models to value-based and at-risk models that require population health solutions and services. The data variety and scalability of the *HealtheIntent* platform has also grown quickly, as reflected in its over 1,025 data connections, including over 60 EHR systems and 140 claims and payer systems, and records for more than 218 million people.

In 2018, we announced a collaboration with Lumeris Healthcare Outcomes, LLC ("Lumeris") that we believe will strengthen our ability to help health systems succeed in a value-based care market. Lumeris is a company with a consistently highly rated Medicare Advantage plan, a proven methodology to help leading health systems advance value-based care strategies, and the subject matter expertise required to support those efforts. Cerner and Lumeris are launching an EHR-agnostic offering called *Maestro Advantage*™ that is designed to help health systems set up and manage Medicare Advantage Plans and provider-sponsored health plans. As part of the collaboration, Lumeris is adopting *HealtheIntent* as the platform for its clinical methodology and advanced analytics. With this relationship, we gain a partner with a 4.5-Star Medicare Advantage plan to build out the end-to-end capabilities required to run a provider-sponsored health plan within *HealtheIntent*. We also gain an opportunity to be a larger participant in the economics of the provider-sponsored health plan market by being able to offer additional services as part of the *Maestro Advantage* offering, such as care management and provider engagement, along with the solutions on the *HealtheIntent* platform.

In summary, we believe our comprehensive approach to population health is differentiated in the marketplace. We expect population health to be a large contributor to our long-term growth as health care continues to evolve towards a model that incents keeping people healthy.

Software Development

We commit significant resources to developing new health information system solutions and services. As of the end of 2018, approximately 7,300 associates were engaged in research and development activities. Total expenditures for the development and enhancement of our software solutions were $747 million, $706 million and $705 million during the 2018, 2017 and 2016 fiscal years, respectively. These figures include both capitalized and non-capitalized portions and exclude amounts amortized for financial reporting purposes.

As discussed above, continued investment in R&D remains a core element of our strategy. This will include ongoing enhancement of our core solutions and development of new solutions and services.

Intellectual Property

We have a broad portfolio of intellectual property rights to protect the proprietary interests in our solutions, services, devices and brands. Our solutions constitute works of authorship protected by copyrights in the U.S. and globally. We own valuable trade secrets embodied in, or related to, our solutions, services and devices and protect these rights through a number of technical and legal measures. We have registered or applied to register certain trademarks and service marks in a number of countries with particular emphasis on the Cerner branding elements. We continue to develop our patent portfolio and own more than 440 issued patents with hundreds of patent applications pending. We do not consider any of our businesses to be dependent upon any one patent, copyright, trademark, or trade secret, or any family or families of the same.

Our solutions, devices and services incorporate or rely on intellectual property rights licensed from third parties, including software subject to open source software licenses. Certain technologies licensed to Cerner are also important for internal use in running our business and supporting our clients. Although replacing any existing licenses could be inconvenient, based on our experiences, existing contractual relationships, and the incentives of our technology suppliers, we believe that Cerner will continue to obtain these technologies or suitable alternatives for commercially reasonable prices on commercially reasonable terms or under open source software licenses acceptable to Cerner.

Managing Cybersecurity Risks

Our business operations, including the provision of the solutions and services described above, involve the compilation, hosting and transmission of confidential information, including patient health information. We have included security features in our solutions and services that are intended to protect the privacy and integrity of this information, but our solutions and services may be vulnerable to security breaches, viruses, programming errors and other similar disruptive problems. Cerner maintains documented information privacy, security and risk management programs with clearly defined roles, responsibilities, policies, and procedures which are designed to secure the information maintained on Cerner's platforms.

In addition, all of our associates are required to complete annual cybersecurity education and training, which includes identifying suspicious emails, Internet threats, telecommunication threats and ransomware. Cerner regularly reviews and modifies its security program to reflect changing technology, regulatory environment, laws, risk, industry and security practices and other business needs. We believe our policies and procedures are adequate to ensure that relevant information about cybersecurity risks and incidents is appropriately reported and disclosed.

Sales and Marketing

The markets for Cerner HCIT solutions, health care devices and services include integrated delivery networks, physician groups and networks, managed care organizations, hospitals, medical centers, free-standing reference laboratories, home health agencies, blood banks, imaging centers, pharmacies, pharmaceutical manufacturers, employers, governments and public health organizations. The majority of our sales are clinical and revenue cycle solutions and services to hospitals and health systems, but our solutions and services are highly scalable and sold to organizations ranging from physician practices, to community hospitals, to complex integrated delivery networks, to local, regional and national government agencies. Sales to large health systems typically take approximately nine to 18 months, while the sales cycle is often shorter when selling to smaller hospitals and physician practices.

Our executive marketing management is located at our world headquarters in Kansas City, Missouri, while our client representatives are deployed across the United States and globally. In addition to the United States, through our subsidiaries, we have sales associates and/or offices giving us a presence in more than 35 countries.

We support our sales force with technical personnel who perform demonstrations of Cerner solutions and services and assist clients in determining the proper hardware and software configurations. Our primary direct marketing strategy is to generate sales contacts from our existing client base and through presentations at industry seminars and tradeshows. We market our ambulatory solutions, offered on a subscription basis, directly to the physician practice market using lead generation activities and through existing acute care clients that are looking to extend Cerner solutions to affiliated physicians. We attend a number of major tradeshows each year and sponsor executive user conferences, which feature industry experts who address the HCIT needs of large health care organizations.

Client Services

Substantially all of Cerner's clients that buy software solutions also enter into software support agreements with us for maintenance and support of their Cerner systems. In addition to immediate software support in the event of problems, these agreements allow clients to access new releases of the Cerner solutions covered by support agreements. Each client has 24-hour access to the applicable client support teams, including those located at our world headquarters in North Kansas

City, Missouri, our Continuous Campus in Kansas City, Kansas, our campus in Malvern, Pennsylvania, and our global support organizations in Germany, England and Ireland.

Most clients who buy hardware through Cerner also enter into hardware maintenance agreements with us. These arrangements normally provide for a fixed monthly fee for specified services. In the majority of cases, we utilize subcontractors to meet our hardware maintenance obligations. We also offer a set of managed services that include remote hosting, operational management services and disaster recovery.

Backlog

Backlog, which reflects contracted revenue that has not yet been recognized as revenue, was $15.25 billion as of December 29, 2018, of which we expect to recognize approximately 29% as revenue over the next 12 months. In the first quarter of 2018, we adopted new revenue recognition guidance as further discussed in Note (2) of the notes to consolidated financial statements. In connection with the adoption of such guidance, we modified our calculation of backlog as previously determined under Regulation S-K to represent the aggregate amount of transaction price allocated to performance obligations that are unsatisfied (or partially satisfied) to conform to the new revenue recognition guidance. Backlog amounts disclosed prior to the adoption of the new revenue recognition guidance have not been adjusted, and are not comparable to, the current period presentation.

We believe that backlog may not necessarily be a comprehensive indicator of future revenue as certain of our arrangements may be canceled (or conversely renewed) at our clients' option, thus contract consideration related to such cancellable periods has been excluded from our calculation of backlog. However, historically our experience has been that such cancellation provisions are rarely exercised. We expect to recognize approximately $525 million of revenue over the next 12 months under currently executed contracts related to such cancellable periods, which is not included in our calculation of backlog.

Competition

The market for HCIT solutions, devices and services is intensely competitive, rapidly evolving and subject to rapid technological change. We offer a suite of intelligent solutions and services that support the clinical, financial and operational needs of organizations of all sizes. The principle markets in which we compete include, without limitation, health care software solutions, HCIT services, ambulatory, health care device and technology resale, health care revenue cycle and transaction services, value-based care technologies, analytics systems, care management solutions, population health management, and post-acute care. Our principal existing competitors, including their affiliates, in these markets include, but are not limited to:

- Allscripts Healthcare Solutions, Inc.
- athenahealth, Inc.
- Computer Programs and Systems, Inc.
- eClinicalWorks, LLC
- Epic Systems Corporation
- InterSystems Corporation
- MEDHOST, Inc.
- Medical Information Technology, Inc. (MEDITECH)
- Optum, Inc.

In addition, we expect that major software information systems companies, large information technology consulting service providers and system integrators, start-up companies, managed care companies, healthcare insurance companies, accountable care organizations and others specializing in the health care industry may offer competitive software solutions, devices or services. The pace of change in the HCIT market is rapid and there are frequent new software solutions, devices or services introductions, enhancements and evolving industry standards and requirements. We believe that the principal competitive factors in our markets include the breadth and quality of solution and service offerings, the stability of the solution provider, the features and capabilities of the information systems and devices, the ongoing support for the systems and devices and the potential for enhancements and future compatible software solutions and devices. We believe that we compete favorably with our competitors on the basis of these factors and that we are the leader- or among the leaders- in each of our main offerings. Our brand recognition and reputation for innovative technology and service delivery, combined with our breadth of solution and services offerings, global distribution channels and client relationships position us as a strong competitor going forward.

Number of Employees (Associates)

At the end of 2018, we employed approximately 29,200 associates worldwide.

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Executive Officers of the Registrant

The following table sets forth the names, ages, positions and certain other information regarding the Company's executive officers as of January 28, 2019. Officers are elected annually and serve at the discretion of the Board of Directors.

Name	Age	Positions
Brent Shafer	61	Chairman of the Board of Directors and Chief Executive Officer
Marc G. Naughton	63	Executive Vice President and Chief Financial Officer
Michael R. Nill	54	Executive Vice President and Chief Operating Officer
John Peterzalek	58	Executive Vice President and Chief Client Officer
Randy D. Sims	58	Executive Vice President, Chief Legal Officer and Secretary
Jeffrey A. Townsend	55	Executive Vice President and Chief of Innovation
Donald Trigg	47	Executive Vice President, Strategic Growth
Julia M. Wilson	56	Executive Vice President and Chief People Officer

Brent Shafer was appointed Chief Executive Officer and Chairman of the Board of Directors effective February 1, 2018. Prior to joining the Company, Mr. Shafer served as Chief Executive Officer of Philips North America, a health technology company and the North American division of Koninklijke Philips N.V. ("Philips") since February 2014. In that position, Mr. Shafer led an organization of 17,000 employees and oversaw a health technology portfolio that included a broad range of solutions and services covering patient monitoring, imaging, clinical informatics, sleep and respiratory care as well as a group of market-leading consumer-oriented brands. For 12 years, Mr. Shafer played a key role in helping Philips develop and strengthen its health care focus, increase its profitability and grow its market share. Prior to his most recent position, Mr. Shafer served as Chief Executive Officer of the global Philips' Home Healthcare Solutions business, a home healthcare services provider with 6,000 employees, from May 2010 until May 2014, as Chief Executive Officer of the North America region for Royal Philips Electronics from January 2009 until May 2010, and as president and Chief Executive Officer of the Healthcare Sales and Service business for Philips North America from May 2005 until May 2010. Prior to joining Philips, Mr. Shafer served in various senior leadership positions with other companies, including Hill-Rom Company Inc., GE Medical Systems, and Hewlett-Packard.

Marc G. Naughton joined the Company in November 1992 as Manager of Taxes. In November 1995 he was named Chief Financial Officer and in February 1996 he was promoted to Vice President. He was promoted to Senior Vice President in March 2002 and promoted to Executive Vice President in March 2010.

Michael R. Nill joined the Company in November 1996. Since that time he has held several positions in the Technology, Intellectual Property and *CernerWorks* Client Hosting Organizations. He was promoted to Vice President in January 2000, promoted to Senior Vice President in April 2006 and promoted to Executive Vice President and named Chief Engineering Officer in February 2009. Mr. Nill was appointed Chief Operating Officer in May 2011.

John Peterzalek joined the Company in 2003 as President, Cerner South East and has held a variety of business and client leadership roles since that time, including Senior Vice President, East Region, a title which he held from 2007 to 2014 when he was named Senior Vice President, Client Relationships. He was promoted to Executive Vice President, Client Relationships in April 2017 and Executive Vice President, Worldwide Client Relationships in October 2017. He held the title of Executive Vice President, Worldwide Client Relationships until September 2018 when he was named Executive Vice President and Chief Client Officer. As Chief Client Officer, Mr. Peterzalek focuses on driving value, innovation and results to Cerner's clients globally and leads the corporate direction for revenue generation, solution strategy, business development, and marketing.

Randy D. Sims joined the Company in March 1997 as Vice President and Chief Legal Officer, was promoted to Senior Vice President in March 2011, and Executive Vice President in April 2018. Prior to joining the Company, Mr. Sims worked at Farmland Industries, Inc. for three years where he last served as Associate General Counsel. Prior to Farmland, Mr. Sims was in-house legal counsel at The Marley Company for seven years, holding the position of Assistant General Counsel when he left to join Farmland.

Jeffrey A. Townsend joined the Company in June 1985. Since that time he has held several positions in the Intellectual Property Organization and was promoted to Vice President in February 1997. He was appointed Chief Engineering Officer in March 1998, promoted to Senior Vice President in March 2001, named Chief of Staff in July 2003 and promoted to Executive Vice President in March 2005.

Donald Trigg serves as Executive Vice President, Strategic Growth. He originally joined the Company in 2002 as Vice President, Corporate Positioning. He has held multiple roles during his time at the Company, including Chief Marketing Officer from 2003 to 2007, General Manager for the Kansas City region from 2006-2007, Managing Director for the United Kingdom and Ireland from 2008-2010 and Senior Vice President and President, Cerner Health Ventures from 2012-2018. From 2010-2012, Mr. Trigg served as Chief Revenue Officer at CodeRyte, Inc prior to its acquisition by 3M's healthcare division. Mr. Trigg also spent more than a decade serving in the public policy space as a senior advisor for the 2000 Bush for President campaign in Austin, TX, the Director of Policy at the U.S. Department of Commerce and in a series of senior policy roles in the U.S. House and U.S. Senate.

Julia M. Wilson first joined the Company in July 1990. Since that time, she has held several positions in the Functional Group Organization. She was promoted to Vice President and Chief People Officer in August 2003, to Senior Vice President in March 2007 and to Executive Vice President in March 2013.

Item 1A. Risk Factors.

Risks Related to our Business

We may incur substantial costs related to product-related liabilities. Many of our software solutions, health care devices, technology-enabled services or other services (collectively referred to as "Solutions and Services") are intended for use in collecting, storing and displaying clinical and health care-related information used in the diagnosis and treatment of patients and in related health care settings such as registration, scheduling and billing. We attempt to limit by contract our liability; however, the limitations of liability set forth in the contracts may not be enforceable or may not otherwise protect us from liability for damages. We may also be subject to claims that are not covered by contract. Although we maintain liability insurance coverage, there can be no assurance that such coverage will cover any particular claim that has been brought or that may be brought in the future, that such coverage will prove to be adequate or that such coverage will continue to remain available on acceptable terms, if at all. A successful material claim or series of claims brought against us, if uninsured or under-insured, could materially harm our business, results of operations and financial condition. Product-related claims, even if not successful, could damage our reputation, cause us to lose existing clients, limit our ability to obtain new clients, divert management's attention from operations, result in significant revenue loss, create potential liabilities for our clients and us and increase insurance and other operational costs.

We may be subject to claims for system errors and warranties. Our Solutions and Services are very complex and may contain design, coding or other errors, especially when first introduced. It is not uncommon for HCIT providers to discover errors in Solutions and Services after their introduction to the market. Similarly, the installation of our Solutions and Services is very complex and errors in the implementation and configuration of our systems can occur. Our Solutions and Services are intended for use in collecting, storing, and displaying clinical and health care-related information used in the diagnosis and treatment of patients and in related health care settings such as registration, scheduling and billing. Therefore, users of our Solutions and Services are less tolerant of errors than the market for other types of technologies generally. Our client agreements typically provide warranties concerning material errors and other matters. If a client's Solutions and Services fail to meet these warranties or leads to faulty clinical decisions or injury to patients, it could 1) constitute a material breach under the client agreement, allowing the client to terminate the agreement and possibly obtain a refund or damages or both, or require us to incur additional expense in order to make the Solution or Service meet these criteria; or 2) subject us to claims or litigation by our clients or clinicians or directly by the patient. Additionally, such failures could damage our reputation and could negatively affect future sales. Our client agreements generally limit our liability arising from such claims but such limits may not be enforceable in certain jurisdictions or circumstances. Although we maintain liability insurance coverage, there can be no assurance that such coverage will cover any particular claim that has been brought or that may be brought in the future, that such coverage will prove to be adequate or that such coverage will continue to remain available on acceptable terms, if at all. A successful material claim or series of claims brought against us, if uninsured or under-insured, could materially harm our business, results of operations and financial condition.

We may experience interruptions at our data centers or client support facilities, which could interrupt clients' access to their data, exposing us to significant costs and reputational harm. We perform data center and/or hosting services for certain clients, including the collection and storage of critical patient and administrative data and the provision of support services through various client support facilities. Our business relies on the secure electronic transmission, data center storage and hosting of sensitive information, including protected health information; personally identifiable information;

financial information; and other sensitive information relating to our clients and their patients, providers and certain billing information, our company, our workforce and our third party suppliers. Complete failure of all local public power and backup generators; impairment of all telecommunications lines; a successful concerted denial of service attack; a significant system, network or data breach; damage, injury or impairment (environmental, accidental or intentional) to the buildings, the equipment inside the buildings housing our data centers, the personnel operating such facilities or the client data contained therein; or errors by the personnel trained to operate such facilities could cause a disruption in operations and negatively impact clients who depend on us for data center and system support services. We offer our clients disaster recovery services for additional fees to protect clients from isolated data center failures, leveraging our multiple data center facilities; however only a small percentage of our hosted clients choose to contract for these services. Additionally, Cerner's core systems are disaster tolerant as we have implemented redundancy across physically diverse data centers. If any of these systems are interrupted, damaged or breached by an unforeseen event or actions of a Cerner associate or contractor or a third party or fail for any extended period of time, it could damage our reputation, cause us to lose existing clients, hurt our ability to obtain new clients, result in significant revenue loss, create potential liabilities for our clients and us, increase insurance and other operating costs and have a material adverse impact on our results of operations. We use third party public cloud providers in connection with certain cloud-based offerings and third parties to host our own data, in which case we have to rely on such third parties to prevent service interruption and such reliance is subject to similar risks described above with respect to our own data center and hosting services.

If our IT security is breached, or if the IT security of third parties on which we rely is breached, we could be subject to increased expenses, exposure to legal claims and regulatory actions, and clients and prospective clients could be deterred from using our Solutions and Services. We are in the information technology business, and in providing our Solutions and Services, we store, retrieve, process and manage our clients' information and data (and that of their patients), as well as our own data. We believe we have a reputation for secure and reliable Solution and Service offerings, and we have invested a great deal of time and resources in protecting the security, confidentiality, integrity and availability of our Solutions and Services and the internal and external data that we manage. Third parties attempt to identify and exploit Solution and Service vulnerabilities, penetrate or bypass our security measures, and gain unauthorized access to our or our clients' and suppliers' software, hardware and cloud offerings, networks and systems, any of which could lead to disruptions in mission-critical systems or the unauthorized release or corruption of personal information or the confidential information or data of Cerner, our clients or their patients.

High-profile security breaches at other companies have increased in recent years, and security industry experts and government officials have warned about the risks of hackers and cyber-attacks targeting information technology products and businesses. Although this is an industry-wide problem that affects other software and hardware companies, we may be targeted by computer hackers because we are a prominent health care IT company and have high profile clients, including government clients. These risks will increase as we continue to grow our cloud offerings, collect, store and process increasingly large amounts of our clients' confidential data, including personal health information, and host or manage parts of our clients' businesses in cloud-based/multi-tenant IT environments. We use third party public cloud providers in connection with certain cloud-based offerings and third party providers to host our own data, in which case we have to rely on the processes, control and security such third parties have in place to protect the infrastructure, which are subject to similar risks described above with respect to our IT security.

We continue to invest in and improve our threat protection, detection and mitigation policies, procedures and controls. In addition, we work with other companies in the industry on increased awareness and enhanced protections against cybersecurity threats. Because of the evolving nature and sophistication of these security threats, which can be difficult to detect, there can be no assurance that our policies, procedures and controls or those of third parties on which we rely will detect or prevent any of these threats and we cannot predict the full impact of any such past or future incident.

The costs we would incur to address and remediate these security incidents would increase our expenses, and our efforts to address these problems may not be successful and could result in interruptions, delays, cessation of service and loss of existing or potential clients that may impede our sales, development of solutions, provision of services or other critical functions. If a cyber-attack or other security incident described above were to allow unauthorized access to or modification of our clients' or suppliers' data, our own data or our IT systems, or if our Solutions or Services are perceived as having security vulnerabilities, we could suffer significant damage to our brand and reputation. This in turn could lead to fewer clients using our Solutions and Services and result in reduced revenue and earnings. These types of security incidents could also lead to lawsuits, regulatory investigations and claims and increased legal liability, including regulatory actions by state and federal government authorities and non-US authorities and, in some cases, contractual costs related to notification and fraud monitoring of impacted persons. We maintain cyber risk insurance, but this insurance may not be sufficient to cover all of our losses from any future breaches of our IT systems or those of third parties on which we rely.

Our proprietary technology may be subject to claims for infringement or misappropriation of intellectual property rights of others, or our intellectual property rights may be infringed or misappropriated by others. We rely upon a combination of confidentiality practices and policies, license agreements, confidentiality provisions in employment agreements, confidentiality agreements with third parties and technical security measures to maintain the confidentiality, exclusivity and trade secrecy of our proprietary information. We also rely on trademark and copyright laws to protect our intellectual property rights in the U.S. and abroad. We continue to develop our patent portfolio of U.S. and global patents, but these patents do not provide comprehensive protection for the wide range of Solutions and Services we offer. Despite our protective measures and intellectual property rights, we may not be able to adequately protect against theft, copying, reverse engineering, misappropriation, infringement or unauthorized use or disclosure of our intellectual property, which could have an adverse effect on our competitive position.

In addition, we are routinely involved in intellectual property infringement or misappropriation claims, and we expect this activity to continue or even increase as the number of competitors, patents and patent enforcement organizations in the HCIT and broader IT market increases, the functionality of our Solutions and Services expands, the use of open-source software increases and we enter new geographies and new market segments. These claims, even if unmeritorious, are expensive to defend and are often incapable of prompt resolution. If we become liable to third parties for infringing or misappropriating their intellectual property rights, we could be required to pay a substantial damage award, develop alternative technology, obtain a license or cease using, selling, offering for sale, licensing, implementing or supporting the applicable Solutions and Services.

Many of our software solutions and technology-enabled services contain open source software that may pose particular risks to our proprietary software solutions and technology-enabled services in a manner that could have a negative effect on our business. We rely upon open source software in our software solutions and technology-enabled services. The licensing terms applicable for certain open source software have not been interpreted by U.S. or foreign courts and could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to provide and support our Solutions or Services.

Additionally, we may encounter claims from third parties claiming ownership and unauthorized use of the software purported to be licensed under the open source terms, demanding release of derivative works of open source software that could include our proprietary source code, or otherwise seeking to enforce the terms of the applicable open source licenses. These claims could result in litigation and, even if unmeritorious, could be expensive to defend and incapable of prompt resolution. If we become liable to third parties for such claims, we could be required to make our software source code available under the applicable open source license, utilize or develop alternative technology, or cease using, selling, offering for sale, licensing, implementing or supporting the applicable solutions or technology-enabled services. In addition, use of certain open source software may pose greater risks than use of third party commercial software, as most open source licensors and distributors do not provide commercial warranties or indemnities or controls on the origin of the software.

We may become involved in legal proceedings that could have a material adverse impact on our business, results of operations and financial condition. From time to time and in the ordinary course of our business, we and certain of our subsidiaries may become involved in various legal proceedings and claims, including for example, employment disputes and litigation; client disputes and litigation alleging solution and implementation defects, personal injury, intellectual property infringement, violations of law and breaches of contract and warranties; and other third party disputes and litigation alleging personal injury, intellectual property infringement, violations of law, and breaches of contracts and warranties. All such legal proceedings are inherently unpredictable and, regardless of the merits of the claims, litigation may be expensive, time-consuming and disruptive to our operations and distracting to management. If resolved against us, such legal proceedings could result in excessive verdicts, injunctive relief or other equitable relief that may affect how we operate our business. Similarly, if we settle such legal proceedings, it may affect how we operate our business. Future court decisions, alternative dispute resolution awards, business expansion or legislative activity may increase our exposure to litigation and regulatory investigations. In some cases, substantial non-economic remedies or punitive damages may be sought. Although we maintain liability insurance coverage, there can be no assurance that such coverage will cover any particular verdict, judgment or settlement that may be entered against us, that such coverage will prove to be adequate or that such coverage will continue to remain available on acceptable terms, if at all. If we incur liability that exceeds our insurance coverage or that is not within the scope of the coverage in legal proceedings brought against us, it could have a material adverse effect on our business, results of operations and financial condition.

We are subject to risks associated with our global operations. We market, sell and support our Solutions and Services globally. We have established offices around the world, including in the Americas, Europe, the Middle East and the Asia

Pacific region. We plan to continue to expand our non-U.S. operations and enter new global markets. This expansion will require significant management attention and financial resources to develop successful direct and indirect non-U.S. sales and support channels. Our business is generally transacted in the local functional currency. In some countries, our success will depend in part on our ability to form relationships with local partners. There is a risk that we may sometimes choose the wrong partner. For these and other reasons, we may not be able to maintain or increase non-U.S. market demand for our Solutions and Services.

Non-U.S. operations are subject to inherent risks, and our business, results of operations and financial condition, including our revenue growth and profitability, could be adversely affected by a variety of uncontrollable and changing factors. These include, but are not limited to:

- Greater difficulty in collecting accounts receivable and longer collection periods;
- Difficulties and costs of staffing and managing non-U.S. operations;
- The impact of global economic and political market conditions;
- Effects of sovereign debt conditions, including budgetary constraints;
- Unfavorable or volatile foreign currency exchange rates;
- Legal compliance costs or business risks associated with our global operations where: i) local laws and customs differ from, or are more stringent than those in the U.S., such as those relating to data protection and data security, or ii) risk is heightened with respect to laws prohibiting improper payments and bribery, including without limitation the U.S. Foreign Corrupt Practices Act, the U.K. Anti-Bribery Act and similar laws and regulations in foreign jurisdictions;
- Certification, licensing or regulatory requirements and unexpected changes to those requirements;
- Changes to or reduced protection of intellectual property rights in some countries;
- Potentially adverse tax consequences as a result of changes in tax laws or otherwise, and difficulties associated with repatriating cash generated or held abroad in a tax-efficient manner;
- Different or additional functionality requirements or preferences;
- Trade protection measures;
- Export control regulations;
- Health service provider or government spending patterns or government-imposed austerity measures;
- Natural disasters, war or terrorist acts;
- Labor disruptions that may occur in a country; and
- Political unrest which may impact sales or threaten the safety of associates or our continued presence in these countries and the related potential impact on global stability.

Fluctuations in foreign currency exchange rates could materially affect our financial results. Our consolidated financial statements are presented in U.S. dollars. In general, the functional currency of our subsidiaries is the local currency where the subsidiary operates. For each subsidiary, assets and liabilities denominated in foreign currencies are translated into U.S. dollars at the exchange rates in effect at the balance sheet dates and revenues and expenses are translated at the average exchange rates prevailing during the month of the transaction. Therefore, increases or decreases in the value of the U.S. dollar against other major currencies affect our revenues, net earnings and the value of balance sheet items denominated in foreign currencies. Future fluctuations in foreign currency exchange rates, particularly the strengthening of the U.S. dollar against major currencies, could materially affect our financial results.

We are subject to tax legislation in numerous countries; changes in tax laws or challenges to our tax positions could adversely affect our business, results of operations and financial condition. We are a global corporation with a presence in more than 35 countries. As such, we are subject to tax laws, regulations and policies of the U.S. federal, state and local governments and of comparable taxing authorities in other country jurisdictions. Changes in tax laws, including for example the U.S. federal tax legislation commonly referred to as the Tax Cuts and Jobs Act of 2017 ("Tax Act"), as well as other factors, could cause us to experience fluctuations in our tax obligations and effective tax rates in 2018 and thereafter and otherwise adversely affect our tax positions and/or our tax liabilities. Although our accounting for the effects of the enactment of the Tax Act is now complete, there could be additional regulations we may become subject to. The full impact of the Tax Act on us may change significantly as regulations, interpretations and rulings relating to the Tax Act are issued and additional changes in U.S. federal and state tax laws may be made in the future. There can be no assurance that our effective tax rates, tax payments, tax credits or incentives will not be adversely affected by these or other initiatives.

In addition, U.S. federal, state and local, as well as other countries' tax laws and regulations, are extremely complex and subject to varying interpretations and requires significant judgment in determining our worldwide provision for income taxes and other tax liabilities. Longstanding international tax norms that determine each country's jurisdiction to tax cross-border international trade are evolving as a result of the Base Erosion and Profit Shifting reporting requirements ("BEPS") recommended by the G8, G20 and Organization for Economic Cooperation and Development ("OECD"). Further, during 2018, the European Commission issued proposals and the OECD issued an interim report related to the taxation of the digital economy. As these and other tax laws and related regulations change, our financial results could be materially impacted. Given the unpredictability of these possible changes and their potential interdependency, it is very difficult to assess the overall effect of such potential tax changes, but such changes could adversely impact our financial results.

In the ordinary course of a global business, there are many intercompany transactions and calculations which could be subject to challenge by tax authorities. We are regularly under audit by tax authorities and those authorities often do not agree with positions taken by us on our tax returns. Our intercompany transfer pricing has been reviewed by the U.S. Internal Revenue Service ("IRS") and by foreign tax jurisdictions and will likely be subject to additional audits in the future. There can be no assurance that our tax positions will not be challenged by relevant tax authorities or that we would be successful in any such challenge, which could result in additional taxation, penalties and interest payments.

The vote by the United Kingdom (UK) to leave the European Union (EU) could adversely affect our financial results. In June 2016, UK voters approved a referendum to withdraw the UK's membership from the EU, which is commonly referred to as "Brexit". In March 2017, the UK government initiated the exit process under Article 50 of the Treaty of the European Union, commencing a period of up to two years for the UK and the other EU member states to negotiate the terms of the withdrawal, such period ending on March 29, 2019 unless extended. There has been limited progress so far in the negotiations and continued uncertainty in the UK government and Parliament, which increases the possibility of the UK exiting the EU on March 29, 2019 without a formal withdrawal agreement in place and of significant market and economic disruption. We have operations in the UK and the EU, and as a result, we face risks associated with the potential uncertainty and disruptions that may lead up to and follow Brexit, including with respect to volatility in exchange rates and interest rates and potential material changes to the regulatory regime applicable to our operations in the UK. Brexit could adversely affect European or worldwide political, regulatory, economic or market conditions and could contribute to instability in global political institutions, regulatory agencies and financial markets. For example, depending on the terms of Brexit, the UK could also lose access to the single EU market and to the global trade deals negotiated by the EU on behalf of its members. Disruptions and uncertainty caused by Brexit may also cause our clients to closely monitor their costs and reduce their spending budget on our Solutions and Services. Any of these effects of Brexit, and others we cannot anticipate or that may evolve over time, could adversely affect our business, results of operations and financial condition.

Our success depends upon the recruitment and retention of key personnel. To remain competitive in our industries, we must attract, motivate and retain highly skilled managerial, sales, marketing, consulting and technical personnel, including executives, consultants, programmers and systems architects skilled in the HCIT, health care devices, health care transactions, population health management and revenue cycle industries and the technical environments in which our Solutions and Services are offered. Competition for such personnel in our industries is intense in both the U.S. and abroad. We may also experience increased compensation costs that are not offset by either improved productivity or higher sales. Our failure to attract additional qualified personnel and to retain and motivate existing personnel to meet our needs could have a material adverse effect on our prospects for long-term growth. In addition, we invest significant time and expense in training our associates, which increases their value to clients and competitors who may seek to recruit them and increases the cost of replacing them. Our success is dependent to a significant degree on the continued contributions of key management, sales, marketing, consulting and technical personnel. Members of our senior management team have left over the years for a variety of reasons, and we cannot guarantee that there will not be additional departures. The unexpected loss of key personnel, or the failure to successfully develop and execute effective succession planning to assure smooth transitions of those key associates and their knowledge, relationships and expertise, could disrupt our business and have a material adverse impact on our results of operations and financial condition, and could potentially inhibit development and delivery of our Solutions and Services and market share advances.

We may be subject to harassment or discrimination claims and legal proceedings, and our inability or failure to respond to and effectively manage publicity related to such claims could adversely impact our business. Although our Global Code of Conduct and other employment policies prohibit harassment and discrimination in the workplace, in sexual or in any other form, we have ongoing programs for workplace training and compliance, and we investigate and take disciplinary action with respect to alleged violations, actions by our associates could violate those policies. And, with the increased use of social media platforms, including blogs, chat platforms, social media websites, and other forms of Internet-based communications that allow individuals access to a broad audience, there has been an increase in the speed and accessibility of information dissemination. The dissemination of information via social media, including information about alleged harassment, discrimination or other claims, could harm our business, brand, reputation, financial condition, and results of operations, regardless of the information's accuracy.

We depend on strategic relationships and third party suppliers and our revenue and operating earnings could suffer if we fail to manage these relationships properly. To be successful, we must continue to maintain our existing strategic relationships and establish additional strategic relationships as necessary with leaders in the markets in which we operate. We believe that these relationships contribute to our ability to further build our brand, extend the reach of our Solutions and Services and generate additional revenues and cash flows. If we were to lose critical strategic relationships, this could have a material adverse impact on our business, results of operations and financial condition.

We license or purchase certain intellectual property and technology (such as software, services, hardware and content) from third parties, including some competitors, and depend on such third party intellectual property and software, services, hardware and content in the operation and delivery of our Solutions and Services. Additionally, we sell or license third party intellectual property, services and software, hardware or content in conjunction with our Solutions and Services. For instance, we currently depend on Amazon Web Services, Microsoft, Cloudera, Oracle, VMWare and IBM technologies for portions of the operational capabilities of, among others, our *Millennium* and *HealtheIntent* solutions. Our remote hosting and cloud services businesses also rely on a limited number of software and services suppliers for certain functions of these businesses, such as Oracle, NetApp, Microsoft, Veritas, CITRIX, GTT and Equinix. Additionally, we rely on Dell/EMC, Hewlett-Packard Enterprise, Cisco, NetApp, IBM and others for our hardware technology platforms.

Most of our third party software license support contracts expire within one to five years, can be renewed only by mutual consent and may be terminated if we breach the terms of the license and fail to cure the breach within a specified period of time. Most of these third party software licenses are non-exclusive; therefore, our competitors may obtain the right to use any of the technology covered by these licenses and use the technology to compete directly with us.

If any of our third party suppliers were to change product offerings, cease actively supporting the technologies, fail to update and enhance the technologies to keep pace with changing industry standards, encounter technical difficulties in the continuing development of these technologies, significantly increase prices, change delivery models, terminate our licenses or supply contracts, suffer significant capacity or supply chain constraints or suffer significant disruptions, we may need to seek alternative suppliers and incur additional internal or external development costs to ensure continued performance of our Solutions and Services. Such alternatives may not be available on attractive terms, or may not be as widely accepted or as effective as the intellectual property or technology provided by our existing suppliers. If the cost of licensing, purchasing or maintaining our third party intellectual property or technology significantly increases, our operating earnings could significantly decrease. In addition, interruption in functionality of our Solutions and Services as a result of changes in third party suppliers could adversely affect our commitments to clients, future sales of Solutions and Services, and negatively affect our revenue and operating earnings.

We intend to continue strategic business acquisitions and other combinations, which are subject to inherent risks. In order to expand our Solutions and Services offerings and grow our market and client base, we may continue to seek and complete strategic business acquisitions and other combinations that we believe are complementary to our business. Acquisitions have inherent risks which may have a material adverse effect on our business, results of operations, financial condition or prospects, including, but not limited to: 1) failure to successfully integrate the business, culture and financial operations, services, intellectual property, solutions or personnel of an acquired business and to maintain uniform standard controls, policies, procedures and information systems; 2) diversion of our management's attention from other business concerns; 3) management of a larger company and entry into markets in which we have little or no direct prior experience; 4) failure to achieve projected synergies and performance targets; 5) failure to commercialize "go forward" Solutions and Services under development and increase revenues from existing marketed Solutions and Services; 6) loss of clients, key personnel, supplier, research and development, distribution, marketing, promotion and other important relationships; 7) incurrence of debt or assumption of known and unknown liabilities; 8) write-off of software development costs, goodwill, client lists and amortization of expenses related to intangible assets; 9) dilutive issuances of equity securities; 10) accounting deficiencies that could arise in connection with, or as a result of, the acquisition of an acquired company, including issues related to internal control over financial reporting and the time and cost associated with remedying such deficiencies; and 11) litigation arising from claims or liabilities assumed from an acquired company or that are otherwise related to acquisition activity, such as claims from former employees, former stockholders or other third parties, all of which could require us to incur significant expenses and cause management distraction. If we fail to successfully integrate acquired businesses or fail to implement our business strategies with respect to these acquisitions, we may not be able to achieve projected results or support the amount of consideration paid for such acquired businesses.

Volatility and disruption resulting from global economic or market conditions could negatively affect our business, results of operations and financial condition. Our business, results of operations, financial condition and outlook may be impacted by the health of the global economy. Volatility and disruption in global capital and credit markets may lead to slowdowns or declines in client spending which could adversely affect our business and financial performance. Our business and financial performance, including new business bookings and collection of our accounts receivable, may be adversely affected by current and future economic conditions (including a reduction in the availability of credit, higher energy costs, rising interest rates, financial market volatility and lower than expected economic growth) that cause a slowdown or decline in client spending. Reduced purchases by our clients or changes in payment terms could adversely affect our revenue growth and cause a decrease in our cash flow from operations. Bankruptcies or similar events affecting clients may cause us to incur bad debt expense at levels higher than historically experienced. Further, volatility and disruption in global financial markets may also limit our ability to access the capital markets at a time when we would like, or need, to raise capital, which could have an impact on our ability to react to changing economic and business conditions. Accordingly, if global financial and economic volatility continues or worsens, our business, results of operations and financial condition could be materially and adversely affected.

We operate in intensely competitive and dynamic industries, and our ability to successfully compete and continue to grow our business depends on our ability to respond quickly to market changes, changing technologies and evolving pricing and deployment methods and to bring competitive new Solutions and Services and features to market in a timely fashion. The market for health care information systems, Solutions and Services to the health care industry is intensely competitive, dynamically evolving and subject to rapid technological advances and innovative enhancements, changing delivery and pricing models, evolving standards in computer hardware and software development and communications infrastructure, and changing and increasingly sophisticated client needs. Development of new proprietary Solutions or Services is complex, entails significant time and expense, may not be successful and often involves a long return on investment cycle. We cannot guarantee that the market for our Solutions and Services will develop as quickly as expected or at all or that we will be able to introduce new Solutions or Services on schedule or at all. Moreover, we cannot guarantee that errors will not be found in our new Solution releases before or after commercial release, which could result in Solution delivery redevelopment costs, harm to our reputation, lost sales, license terminations or renegotiations, product liability claims, diversion of resources to remedy errors and loss of, or delay in, market acceptance. We believe that we must continue to dedicate a significant amount of resources to our research and development efforts to maintain our competitive position; and oftentimes, successful investments require several years before generating significant revenue.

In addition, we expect that major software information systems companies, highly capitalized consumer technology companies, large information technology consulting service providers and system integrators, start-up companies and others operating in the health care industry may offer competitive Solutions and Services. As we continue to develop new Solutions and Services to address areas such as analytics, transaction services, device integration, revenue cycle and population health management, we expect to face new competitors, and these competitors may have more experience in these markets, better brand recognition and/or more established relationships with prospective clients. We face strong competition and often face downward price pressure, which could adversely affect our results of operations or liquidity. For example, some of our competitors may bundle products for promotional purposes or as a long-term pricing strategy, commit to large deployments at prices that are unprofitable, or provide guarantees of prices and product implementations. These practices could, over time, significantly constrain the prices that we can charge for certain of our Solutions and Services. If we do not adapt our pricing models to reflect changes in use of our Solutions and Services or changes in client demand, our revenues could decrease.

Additionally, the pace of change in the health care information systems market is rapid and there are frequent new software solution introductions, new deployment models (such as via the cloud), software solution enhancements, device introductions, device enhancements and evolving industry standards and requirements. We provide our cloud and other offerings to clients globally via deployment models that best suit their needs, including via our cloud-based software as a services (SaaS) offering. As our business models continue to evolve, we may not be able to compete effectively, generate significant revenues or maintain the profitability of our cloud offerings. If we do not successfully execute our strategy or anticipate the needs of our clients, our reputation as a SaaS provider could be harmed and our revenues and profitability could decline. There are a limited number of hospitals and other health care providers in the U.S. market and in recent years, the health care industry has been subject to increasing consolidation. If we are unable to recognize the impact of industry consolidation, falling costs and technological advancements in a timely manner, or we are too inflexible to rapidly adjust our business models, our prospects and financial results could be negatively affected materially.

Our success also depends on our ability to maintain and expand our business with our existing clients and effectively transition existing clients to current Solutions and Services, as well as attracting additional clients. Certain clients originally purchased one or a limited number of our Solutions and Services. These clients may choose not to expand their use of or purchase new Solutions and Services. Failure to generate additional business from our current clients could materially and adversely impact our business, financial condition and operating results.

If we are unable to manage our growth in the new markets in which we offer Solutions and Services, our business, results of operations and financial condition could suffer. Our future financial results will depend on our ability to profitably manage our business in the new markets that we enter. Over the past several years, we have pursued growth and expansion opportunities in the areas of analytics, revenue cycle and population health. To achieve success in those areas, we will need to, among other things, recruit, train, retain and effectively manage associates, manage changing business conditions and implement and improve our technical, administrative, financial control and reporting systems for offerings in those areas. Difficulties in managing future growth in new markets could have a material adverse impact on our business, results of operations and financial condition.

Long sales cycles for our Solutions and Services could have a material adverse impact on our future results of operations. Some of our Solutions and Services have long sales cycles, ranging from several months to eighteen months or more beginning at initial contact with the client through execution of a contract. How and when to implement, replace, or expand an information system, or modify, add or outsource business processes, are major decisions for health care organizations. Many of the Solutions and Services we provide require a substantial capital investment and time commitments by the client or prospective client. Any decision by our clients or prospective clients to delay a purchasing decision could have a material adverse impact on our results of operations.

Our work with government clients exposes us to additional risks inherent in the government contracting environment. Our clients include national, provincial, state, local and foreign governmental entities and their agencies. Our government work carries various risks inherent in contracting with such government entities and agencies. These risks include, but are not limited to, the following:

- Government entities, particularly in the U.S., often reserve the right to audit our contracts and conduct inquiries and investigations of our business practices with respect to government contracts. U.S. government agencies conduct reviews and investigations and make inquiries regarding our systems in connection with our performance and business practices with respect to our government contracts. Negative findings from audits, investigations or inquiries could affect our future sales and profitability by preventing us, by operation of law or in practice, from receiving new government contracts for some period of time.

- If a government client discovers improper or illegal activities during its audits or investigations, we may become subject to various civil and criminal penalties, including those under the civil U.S. False Claims Act, and administrative sanctions, which may include termination of contracts, suspension of payments, fines and suspensions or debarment from doing business with other agencies of that government. The inherent limitations of internal controls may not prevent or detect all improper or illegal activities.

- U.S. government contracting regulations impose strict compliance and disclosure obligations. Disclosure is required if certain company personnel have knowledge of "credible evidence" of a violation of federal criminal laws involving fraud, conflict of interest, bribery or improper gratuity, a violation of the civil U.S. False Claims Act or receipt of a significant overpayment from the government. Failure to make required disclosures could be a basis for suspension and/or debarment from federal government contracting in addition to breach of the specific contract and could also impact contracting beyond the U.S. federal level. Reported matters also could lead to audits or investigations and other civil, criminal or administrative sanctions.

- Government contracts are subject to heightened reputational and contractual risks compared to contracts with commercial clients. For example, government contracts and the proceedings surrounding them are often subject to more extensive scrutiny and publicity. Negative publicity, including allegations of improper or illegal activity, poor contract performance, deficiencies in services or other deliverables, or information security breaches, regardless of accuracy, may adversely affect our reputation.

- Terms and conditions of government contracts also tend to be more onerous and are often more difficult to negotiate. Because government contracts are subject to specific procurement regulations and a variety of other socio-economic requirements, we must comply with such requirements. We must also comply with various statutes, regulations and requirements related to employment practices, recordkeeping and accounting. These regulations and requirements affect how we transact business with our clients and suppliers, and in some instances, impose additional costs on our business operations.

- Government entities typically fund projects through appropriated monies. While these projects are often planned and executed as multi-year projects, government entities usually reserve the right to change the scope of projects or terminate these projects at their convenience either for lack of approved funding or any other reason. Changes in government or political developments, including budget deficits, shortfalls or uncertainties, government spending reductions (e.g., U.S. Congressional sequestration of funds under the Budget Control Act of 2011) or other debt constraints could result in our projects being reduced in price or scope or terminated altogether, which also could limit our recovery of reimbursable expenses. Furthermore, if insufficient funding is appropriated to the government entity to cover termination costs, we may not be able to fully recover our investments.

- Our failure to comply with a variety of complex procurement rules and regulations could result in our being liable for penalties, including termination of our government contracts, disqualification from bidding on future government contracts and suspension or debarment from government contracting. We must comply with laws and regulations relating to the formation, administration and performance of government contracts, which affect how we do business with our customers and may impose added costs on our business. Significant statutes and regulations in the U.S. that we must comply with include the Federal Acquisition Regulation and supplements, the Truth in Negotiations Act, the Procurement Integrity Act, and the Civil False Claims Act.

- Government contracts may be protested by unsuccessful bidders. These protests could result in administrative procedures and litigation, could be expensive to defend and incapable of prompt resolution. Loss of a bid protest may result in loss of the award, contract modification, expense or delay.

The occurrences or conditions described above could affect not only our business with the particular government entities involved, but also our business with other entities of the same or other governmental bodies or with certain commercial clients and could have a material adverse effect on our business, results of operations and financial condition.

There are risks associated with our outstanding and future indebtedness. We have customary restrictive covenants in our current debt agreements, which may limit our flexibility to operate our business. These covenants include limitations on priority debt, liens, mergers, asset dispositions, and transactions with affiliates, and require us to maintain certain leverage and interest coverage ratios. Failure to comply with these covenants could result in an event of default that, if not cured or waived, could result in reduced liquidity for the Company and could have a material adverse effect on our business, results of operations and financial condition. Additionally, our ability to pay interest and repay the principal for our indebtedness is dependent upon our ability to manage our business operations, generate sufficient cash flows to service such debt and the other factors discussed in this section. There can be no assurance that we will be able to manage any of these risks successfully.

Changes in accounting standards issued by the Financial Accounting Standards Board ("FASB") or other standard-setting bodies may adversely affect our financial statements. Our financial statements are subject to the application of U.S. GAAP, which is periodically revised and/or expanded. From time to time, we are required to adopt new or revised accounting standards issued by recognized authoritative bodies, including the FASB and the SEC. It is possible that future accounting standards we are required to adopt, such as amended guidance for lease accounting, may require changes to the current accounting treatment that we apply to our consolidated financial statements and may require us to make significant changes to our processes and systems. Refer to Note (1) of the notes to consolidated financial statements relating to summary of significant accounting policies and recently issued accounting pronouncements for more information. Such changes could result in a material adverse impact on our business, results of operations and financial condition.

Goodwill and other intangible assets represent approximately 19% of our total assets and we could suffer losses due to asset impairment charges. We assess our goodwill and other intangible assets for impairment periodically in accordance with applicable authoritative accounting guidance. Declines in business performance or other factors could result in a non-cash impairment charge. This could materially and negatively affect our results of operations and financial condition.

Risks Related to our Industries

The health care industry is subject to changing political, economic and regulatory influences, which could impact the purchasing practices and operations of our clients and increase our costs to deliver compliant Solutions and Services. The last four years have been quite active legislatively with major statutes such as the Protecting Access to Medicare Act (PAMA) of 2014 establishing requirements for "Appropriate Use Criteria" in ordering high dollar diagnostic imaging services, the Medicare and CHIP Reauthorization Act (MACRA) of 2015 which reformed how physicians are paid under Medicare and which established the Merit-based Incentive Payment System (MIPS), the 21st Century Cures Act of 2016 (Cures Act) which laid the groundwork for nationwide trusted health information exchange, established interoperability requirements for providers, payers and consumers and which set the framework for information blocking regulations, and most recently the Substance Use Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities (SUPPORT) Act of 2018 that includes significant policies for addressing the opioid crisis. These statutes are heavily laden with provisions that directly call for or describe roles for the use of health information technology to help providers comply with new federal requirements under Medicare and for state Medicaid programs.

Many health care providers are consolidating to create integrated health care delivery systems with greater market power. These providers may try to use their market power to negotiate price reductions for our Solutions and Services. As the health care industry consolidates, our client base could be consolidated with fewer buyers, competition for clients could become more intense and the importance of landing new client relationships becomes greater.

Reform of payment policies for Medicare and Medicaid continues to evolve. The Patient Protection and Affordable Care Act (the "ACA") became law in 2010; this comprehensive health care reform legislation introduced value-based principles into federal health insurance payments systems, sought to improve health care quality, and expanded access to affordable health insurance. MACRA built upon the value based policies introduced by the ACA. These legislative initiatives accelerated the adoption of "Alternative Payment Models" as bundled payment models based on episodes of care or per capita payment for defined populations emerged as alternatives to traditional fee for service payments to providers. Subsequent legislative, regulatory and judicial developments have created uncertainty for the continued implementation of the ACA and other health care-related legislation and, to the extent that implementation continues, the way in which they are implemented. Examples include the Medicare Shared Savings Program for Accountable Care Organizations and the Bundled Payment for Care Improvement - Advanced model program under the Innovation Center of the Center for Medicare and Medicaid Services (CMS) which focuses on episode-based payment for hospital and ambulatory services. Together with ongoing statutory and budgetary policy developments at a federal level, the collective impact of this health care reform legislation could include changes in Medicare and Medicaid payment policies and other health care delivery administrative reforms that could potentially negatively impact our business and the business of our clients. Because of that uncertainty and because of ongoing federal fiscal budgetary pressures yet to be resolved for federal health programs, we cannot predict the full effect of health care legislation on our business at this time. The direction and pace of health care reform initiatives may adversely impact either our operational results or the way we operate our business. Federal health insurance programs still routinely require adoption of certified HCIT as a program requirement or prerequisite, and we anticipate future adoption of new certification requirements. But we also anticipate possible significant impacts from information blocking provisions of the Cures Act and expanded surveillance by federal agencies of both certified HCIT and its use by our clients. CMS has also mandated updates to the electronic prescribing standards and adoption of controlled substance electronic prescribing by hospitals in response to the opioid crisis which may drive upgrades of existing HCIT investments by hospitals and physicians rather than seeking replacement. In response to this uncertainty, purchasers of HCIT may postpone investment decisions, including investments in our Solutions and Services. Future legislation and regulation may ultimately impact the fiscal stability and sustainability of HCIT purchasers. Differences in demand related to new regulatory requirements and/or near-term compliance deadlines that contribute to demand for our Solutions and Services could impact our financial results. There can be no certainty that any legislation that may be adopted will be favorable to our business. We cannot predict whether or when future health care reform initiatives at the federal or state level or other initiatives affecting our business will be proposed, enacted or implemented or what impact those initiatives may have on our business, results of operations and financial condition.

The health care industry is highly regulated, and thus, we are subject to several laws, regulations and industry initiatives, non-compliance with certain of which could materially adversely affect our operations or otherwise adversely affect our business, results of operations and financial condition. As a participant in the health care industry, our operations and relationships, and those of our clients, are regulated by several U.S. federal, state, local and foreign governmental entities. The impact of these regulations on us is both direct, to the extent that we are ourselves subject to these laws and regulations, and also indirect, in terms of government program requirements applicable to our clients for the use of HCIT and because, in a number of situations, even though we may not be directly regulated by specific health care laws and regulations, our Solutions and Services must be capable of being used by our clients in a way that complies with those laws and regulations. There is a significant and wide-ranging number of regulations both within the U.S. and abroad, such as regulations in the areas of health care fraud, information blocking, e-prescribing, claims processing and transmission, health care devices, the security and privacy of patient data and interoperability standards, that may be directly or indirectly applicable to our operations and relationships or the business practices of our clients. Specific risks include, but are not limited to, the following:

Health Care Fraud. U.S. federal and state governments continue to enhance regulation of and increase their scrutiny over practices involving health care fraud, waste and abuse perpetuated by health care providers and professionals whose services are reimbursed by Medicare, Medicaid and other government health care programs. Our health care provider clients, as well as our provision of Solutions and Services to government entities, subject our business to laws and regulations on fraud and abuse which, among other things, prohibit the direct or indirect payment or receipt of any remuneration for patient referrals, or arranging for or recommending referrals or other business paid for in whole or in part by these federal or state health care programs. U.S. federal enforcement personnel have substantial funding, powers and remedies to pursue suspected or perceived fraud and abuse. The effect of this government regulation on our clients is difficult to predict. Many of the regulations applicable to our clients and that may be applicable to us, including those relating to marketing incentives offered in connection with health care device sales and information blocking, are vague or indefinite and have not been interpreted by the courts. They may be interpreted or applied by a prosecutorial, regulatory or judicial authority in a manner that could broaden their applicability to us or require our clients to make changes in their operations or the way in which they deal with us. If such laws and regulations are determined to be applicable to us and if we fail to comply with any applicable laws and regulations, we could be subject to civil and criminal penalties, sanctions or other liability, including exclusion from government health programs, which could have a material adverse effect on our business, results of operations and financial condition. Even an unsuccessful challenge by a regulatory or prosecutorial authority of our activities could result in adverse publicity, require a costly response from us and adversely affect our business, results of operations and financial condition.

Preparation, Transmission, Submission and Collection of Medical Claims for Reimbursement. Our Solutions and Services are capable of electronically transmitting claims for services and items rendered by a physician to many patients' payers for approval and reimbursement. We also provide revenue cycle management services to our clients that include the coding, preparation, submission and collection of claims for medical service to payers for reimbursement. Such claims are governed by U.S. federal and state laws. U.S. federal law provides civil liability to any persons that knowingly submit, or cause to be submitted, a claim to a payer, including Medicare, Medicaid and private health plans, seeking payment for any services or items that overbills or bills for services or items that have not been provided to the patient. U.S. federal law may also impose criminal penalties for intentionally submitting such false claims. In addition, federal and state law regulates the collection of debt and may impose monetary penalties for violating those regulations. We have policies and procedures in place that we believe result in the accurate and complete preparation, transmission, submission and collection of claims, provided that the information given to us by our clients is also accurate and complete. The HIPAA security, privacy and transaction standards, as discussed below, also have a potentially significant effect on our claims preparation, transmission and submission services, since those services must be structured and provided in a way that supports our clients' HIPAA compliance obligations. In connection with these laws, we may be subjected to U.S. federal or state government investigations and possible penalties may be imposed upon us; false claims actions may have to be defended; private payers may file claims against us; and we may be excluded from Medicare, Medicaid or other government-funded health care programs. Any investigation or proceeding related to these laws, even if unwarranted or without merit, may have a material adverse effect on our business, results of operations and financial condition.

Regulation of Health Care Devices. The U.S. Food and Drug Administration ("FDA") has determined that certain of our Solutions and Services are medical devices that are actively regulated under the Federal Food, Drug and Cosmetic Act ("Act") and amendments to the Act. Other countries have similar regulations in place related to medical devices, that now or may in the future apply to certain of our Solutions and Services. If other of our Solutions and Services are deemed to be actively regulated medical devices by the FDA or similar regulatory agencies in countries where we do business, we could be subject to extensive requirements governing pre- and post-marketing activities including pre-market notification clearance. Complying with these medical device regulations globally is time consuming and expensive and could be subject to unanticipated and significant delays. Further, it is possible that these regulatory agencies may become more active in regulating software and devices that are used in health care. If we are unable to obtain the required regulatory approvals for any such Solutions and Services, our short- and long-term business plans for these Solutions and Services could be delayed or canceled.

There have been nine FDA inspections at various Cerner sites since 2003. Inspections conducted at our Headquarters Campus, Realization Campus and Innovations Campus in 2010 and 2017 resulted in the issuance of an FDA Form 483 observation to which we responded promptly. The FDA has taken no further action with respect to the Form 483 observations that were issued in 2010 and 2017. The remaining FDA inspections, including inspections at our campuses in 2006, 2007 and 2014, resulted in no issuance of a Form 483. We remain subject to periodic FDA inspections and we could be required to undertake additional actions to comply with the Act and any other applicable regulatory requirements. Our failure to comply with the Act and any other applicable regulatory requirements could have a material adverse effect on our ability to continue to manufacture, distribute and deliver our Solutions and Services. The FDA has many enforcement tools including recalls, device corrections, seizures, injunctions, refusal to grant pre-market clearance of products, civil fines and criminal prosecutions. Any of the foregoing could have a material adverse effect on our business, results of operations and financial condition.

Security and Privacy. U.S. federal, state and local and foreign laws regulate the confidentiality of personal information, how that information may be used, and the circumstances under which such information may be released. These regulations govern both the disclosure and use of confidential personal and patient medical record information and require the users of such information to implement specified security and privacy measures. U.S. regulations currently in place governing electronic health data transmissions continue to evolve and are often unclear and difficult to apply. Laws in non-U.S. jurisdictions are also evolving and may have similar or even stricter requirements related to the treatment of personal or patient information.

In the U.S., HIPAA regulations apply national standards for some types of electronic health information transactions and the data elements used in those transactions to ensure the integrity, security and confidentiality of health information and standards to protect the privacy of individually identifiable health information. Covered entities under HIPAA, which include health care organizations such as our clients, our employer clinic business and our claims processing, transmission and submission services, are required to comply with HIPAA privacy standards, transaction regulations and security regulations. Moreover, the HITECH provisions of the American Recovery and Reinvestment Act of 2009 ("ARRA"), and associated regulatory requirements, extend many of the HIPAA obligations, formerly imposed only upon covered entities, to business associates as well. As a business associate of our clients who are covered entities, we were in most instances already contractually required to comply with the HIPAA regulations as they pertain to handling of covered client data. However, the extension of these HIPAA obligations to business associates by law has created additional liability risks related to the privacy and security of individually identifiable health information.

Evolving HIPAA and HITECH-related laws and regulations in the U.S. and data privacy and security laws and regulations in non-U.S. jurisdictions could restrict the ability of our clients to obtain, use or disseminate patient information. This could adversely affect demand for our Solutions and Services if they are not re-designed in a timely manner to meet the requirements of any new interpretations or regulations that seek to protect the privacy and security of patient data or enable our clients to execute new or modified health care transactions. We may need to expend additional capital, software development and other resources to modify our Solutions and Services to address these evolving data security and privacy issues. Furthermore, our failure to maintain confidentiality of sensitive personal information in accordance with the applicable regulatory requirements could damage our reputation and expose us to claims, fines and penalties.

In Europe, we are subject to EU and national data protection legislation, including the 2016 General Data Protection Regulation ("GDPR") which imposes restrictions on the processing of personal data (including health data) that, in some respects, are more stringent, and impose more significant burdens on subject businesses, than current privacy standards in the U.S. The EU regulation establishes several obligations that organizations must follow with respect to use of personal data, including a prohibition on the transfer of personal information from the EU to other countries whose laws do not adequately protect the privacy and security of personal data to European standards. In addition to this EU-wide legislation, certain member states have adopted more stringent data protection standards, particularly for health data. We have addressed these requirements, relative to data transfers, by self-certifying our compliance with the EU-U.S. Privacy Shield Framework to the U.S. Department of Commerce International Trade Administration ("ITA"). The ITA has approved our self-certification. However, continued criticism of the Privacy Shield by officials in Europe casts uncertainty as to the long-term effectiveness of the Privacy Shield to support EU-U.S. transfers of personal data. For that reason, we are also pursuing alternative methods of compliance (e.g. Standard Contractual Clauses), but those methods also may be subject to scrutiny by data protection authorities in European member states.

The GDPR impacts how businesses, including both us and our clients, can collect and process the personal data of EU individuals. We have incurred development costs in delivering Solutions and Services as we update our Solutions and Services to enable our European clients to comply with these varying and evolving standards. The costs of compliance with, and other burdens imposed by, such laws, regulations and policies, or modifications thereto, that are applicable to us may limit the use and adoption of our Solutions and Services and could have a material adverse impact on our business, results of operations and financial condition.

The GDPR grants broad enforcement powers to regulatory agencies to investigate and enforce our compliance with their data privacy and security requirements. Governmental enforcement personnel, particularly in the EU, have substantial powers and remedies to pursue suspected or perceived violations. If we fail to comply with any applicable laws or regulations or fail to deliver compliant Solutions and Services, we could be subject to civil penalties, sanctions or contract liability. Enforcement investigations, even if meritless, could have a negative impact on our reputation, cause us to lose existing clients or limit our ability to attract new clients.

Interoperability Standards. Our clients continue to be concerned and often require that our Solutions and Services be interoperable with other third party HCIT suppliers. Market forces and governmental/regulatory authorities create software interoperability standards that may apply to our Solutions and Services. If our Solutions and Services are not consistent with those standards, we could be forced to incur substantial additional development costs to conform. The Office of the National Coordinator for Health Information Technology (ONC) is charged under the Cures Act with developing a Trusted Exchange Framework that establishes governance requirements for trusted health information exchange in the U.S. ONC has developed the U.S. Common Data Set for Interoperability which may lay the groundwork for future data exchange requirements for trusted exchange. ONC continues to modify and refine these standards. We may incur increased software development and administrative expense and delays in delivering Solutions and Services if we need to update our Solutions and Services to conform to these varying and evolving requirements. In addition, delays in interpreting these standards may result in postponement or cancellation of our clients' decisions to purchase our Solutions and Services. If our Solutions and Services are not compliant with these evolving standards, our market position and sales could be impaired, and we may have to invest significantly in changes to our Solutions and Services.

Federal Requirements for Certified Health Information Technology. Various U.S. federal, state and non-government agencies continue to generate requirements for the use of information technology. In many cases, these requirements have become conditions for receiving payment for health care services to beneficiaries of federal health insurance programs. These requirements are expansions of the statutory ARRA HITECH program that began providing incentive payments in 2011 to hospitals and eligible providers for the "meaningful use of certified electronic health record technology ("CEHRT")." Although those incentive programs have expired, CEHRT continues to be a condition of participation in federal health care programs. In 2015, MACRA required the use of CEHRT as part of its Quality Payment Program for eligible providers under Medicare. CEHRT is also one of the areas measured under the Merit based Incentive Payment System (known as MIPS) by which the Medicare Physician Fee Schedule was restructured. In the last several years, participation in Medicare's "alternative payment models" to replace traditional "fee for service" payments with quality and risk-sharing payment models has been conditioned on CEHRT and this continues with the Trump Administration. The Cures Act has tied CEHRT to its policy goals of reducing barriers to the exchange of health information data blocking, encouraging nationwide interoperability, consumer access to health information and improving health information availability between consumers and their care teams. The regulations establishing the certification standards for CEHRT will continue to be updated to support these policy goals with greater emphasis on interoperability, consumer engagement, patient safety and health information privacy and security. The ONC is due to develop additional regulations under the Cures Act to enforce the act's policy directives relating to data blocking and interoperability. In addition, the ONC has increased its surveillance activities concerning vendor compliance relative to CEHRT.

We have completed certification efforts to meet current CEHRT requirements that became mandatory for certain Federal programs on January 1, 2019, and for many others that become mandatory during 2019. We will continue to address additional regulatory requirements as they evolve. However, these standards and specifications are subject to interpretation by the entities designated to certify our electronic health care technology as CEHRT compliant. Additionally, if our business practices, Solutions and Services are not compliant with these evolving regulatory requirements, our market position and sales could be impaired, and we may have to invest significantly in changes to our Solutions and Services. Further, we bear potential financial risks where we are alleged to have not appropriately complied with these regulations. We also bear financial risk where we have entered into agreements with clients to warrant their ability to meet future federal program requirements that require use of CEHRT. While a client's ability to meet future federal health program related attestation requirements may be dependent on the client's ability to adopt, rollout and attain sufficient use of our certified Solutions and Services on a timely basis, we may face risks that come from issues in full adoption of our certified Solutions and Services, which in turn could lead to a client missing its attestation targets. These risks are enhanced when we are under agreements to provide application management services to our clients that place responsibilities on us for application configuration and implementation as a prerequisite to meaningful use attainment ordinarily borne by the client.

Risks Related to Our Common Stock

Our quarterly operating results may vary, which could adversely affect our stock price. Our quarterly operating results have varied in the past and may continue to vary in future periods, including variations from guidance, expectations or historical results or trends. Quarterly operating results may vary for a number of reasons including demand for our Solutions and Services, the financial condition of our current and potential clients, our long sales cycle, potentially long installation and implementation cycles for larger, more complex systems, accounting policy changes and other factors described in this section and elsewhere in this report. As a result of health care industry trends and the market for our Solutions and Services, a large percentage of our revenues are generated by the sale and installation of larger, more complex and higher-priced systems. The sales process for these systems is lengthy and involves a significant technical evaluation and commitment of capital and other resources by the client. Sales may be subject to delays due to changes in clients' internal budgets, procedures for approving large capital expenditures, competing needs for other capital expenditures, additions or amendments to U.S. federal, state or local regulations, availability of personnel resources or by actions taken by competitors. Delays in the expected sale, installation or implementation of these large systems may have a significant negative impact on our anticipated quarterly revenues and consequently our earnings, since a significant percentage of our expenses are relatively fixed. Because of the complexity and value of our contracts, the loss of even a small number of clients could have a significant negative effect on our financial results.

Revenue recognized in any quarter may depend upon our or our clients' abilities to meet project milestones. Delays in meeting these milestone conditions or modification of the project plan could result in a shift of revenue recognition from one quarter to another and could have a material adverse effect on results of operations for a particular quarter.

We may also experience seasonality in revenues. For example, our revenues historically have been lower in the first quarter of the year and greater in the fourth quarter of the year, primarily as a result of clients' year-end efforts to make final capital expenditures for the then-current year. These seasonal variations may lead to fluctuations in our annual and quarterly revenues and operating results.

Our sales forecasts may vary from actual sales in a particular quarter. We use a "pipeline" system, a common industry practice, to forecast sales and trends in our business. Our sales associates monitor the status of all sales opportunities, such as the date when they estimate that a client will make a purchase decision and the potential dollar amount of the sale. These estimates are aggregated periodically to generate a sales pipeline. We compare this pipeline at various points in time to evaluate trends in our business. This analysis provides guidance in business planning and forecasting, but these pipeline estimates are by their nature speculative. Our pipeline estimates are not necessarily reliable predictors of revenues in a particular quarter or over a longer period of time, partially because of changes in the pipeline and in conversion rates of the pipeline into contracts that can be very difficult to estimate. A negative variation in the expected conversion rate or timing of the pipeline into contracts, or in the pipeline itself, could cause our plan or forecast to be inaccurate and thereby adversely affect business results. For example, a slowdown in information technology spending, adverse economic conditions, new or changed U.S. federal, state or local regulations related to our industry or a variety of other factors can cause purchasing decisions to be delayed, reduced in amount or cancelled, which would reduce the overall pipeline conversion rate in a particular period of time. Because a substantial portion of our contracts are completed in the latter part of a quarter, we may not be able to adjust our cost structure quickly enough in response to a revenue shortfall resulting from a decrease in our pipeline conversion rate in any given fiscal quarter.

The trading price of our common stock may be volatile. The market for our common stock may experience significant price and volume fluctuations in response to a number of factors including actual or anticipated variations in operating results, articles or rumors about our performance or Solutions and Services, announcements of technological innovations or new services or products by our competitors or us, changes in expectations of future financial performance or estimates of securities analysts, governmental regulatory action, health care reform measures, client relationship developments, economic conditions and changes occurring in the securities markets in general and other factors, many of which are beyond our control. For instance, our quarterly operating results have varied in the past and may continue to vary in future periods, due to a number of reasons including, but not limited to, demand for our Solutions and Services, the financial condition of our current and potential clients, our long sales cycle, potentially long installation and implementation cycles for larger, more complex and higher-priced systems, key management changes, accounting policy changes and other factors described herein. As a matter of policy, we do not generally comment on our stock price or rumors.

Furthermore, the stock market in general, and the markets for software, health care devices, other health care solutions and services and information technology companies in particular have experienced extreme volatility that often has been unrelated to the operating performance of particular companies. These broad market and industry fluctuations may adversely affect the trading price of our common stock, regardless of actual operating performance.

We cannot guarantee that our stock repurchase program or our quarterly dividend program will be fully implemented or that either will enhance long-term stockholder value. Our Board of Directors has approved a stock repurchase program totaling $1.0 billion, of which $283 million remains available for purchase at the end of 2018. The repurchase program does not have an expiration date and we are not obligated to repurchase a specified number or dollar value of shares. Additionally, our Board has approved the initiation of a quarterly cash dividend program and while we expect to pay a cash dividend on a quarterly basis, future declarations of such quarterly cash dividends are subject to approval by the Board of Directors and the Board of Directors' determination that the declaration of dividends are in the best interests of Cerner and its shareholders.

Either or both of our repurchase or dividend programs may be suspended or terminated at any time and, even if fully implemented, may not enhance long-term stockholder value.

Our Directors have authority to issue preferred stock and our corporate governance documents contain anti-takeover provisions. Our Board of Directors has the authority to issue up to 1,000,000 shares of preferred stock and to determine the preferences, rights and privileges of those shares without any further vote or action by the shareholders. The rights of the holders of common stock may be harmed by rights granted to the holders of any preferred stock that may be issued in the future and issuances of preferred stock could be used to delay or hinder a change of control of the Company.

In addition, some provisions of our Certificate of Incorporation and Bylaws could make it more difficult for a potential acquirer to acquire a majority of our outstanding voting stock or otherwise effect a change of control of the Company. These include provisions that provide for a classified board of directors, require advance notice of stockholder proposals at stockholder meetings, prohibit shareholders from taking action by written consent and restrict the ability of shareholders to call special meetings. We are also subject to provisions of Delaware law that prohibit us from engaging in any business combination with any interested shareholder for a period of three years from the date the person became an interested shareholder, unless certain conditions are met, which could have the effect of delaying or preventing a change of control.

Risks Relating to Forward-looking Statements

Statements made in this report, the Annual Report to Shareholders of which this report is made a part, other reports and proxy statements filed with the SEC, communications to shareholders, press releases and oral statements made by representatives of the Company that are not historical in nature, or that state the Company's or management’s intentions, hopes, beliefs, expectations, plans, goals or predictions of future events or performance, may constitute "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Forward-looking statements can often be identified by the use of forward-looking terminology, such as "could," "should," "will," "intended," "continue," "believe," "may," "expect," "hope," "anticipate," "goal," "forecast," "plan," "guidance," "opportunity," "prospects" or "estimate" or the negative of these words, variations thereof or similar expressions. Forward-looking statements are not guarantees of future performance or results. They involve risks, uncertainties and assumptions. It is important to note that any such performance and actual results, financial condition or business, could differ materially from those expressed in such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in this Item 1A. Risk Factors and elsewhere herein or in other reports filed with the SEC. Other unforeseen factors not identified herein could also have such an effect. Any forward-looking statements made in this report speak only as of the date of this report. Except as required by law, we undertake no obligation to update or revise forward-looking statements to reflect changed assumptions, the occurrence of unanticipated events or changes in our business, results of operations, financial condition or business over time.

Market and Industry Data

This Annual Report on Form 10-K may contain market, industry and government data and forecasts that have been obtained from publicly available information, various industry publications and other published industry sources. We have not independently verified the information and cannot make any representation as to the accuracy or completeness of such information. None of the reports and other materials of third party sources referred to in this Annual Report on Form 10-K were prepared for use in, or in connection with, this Annual Report.

Item 1B. Unresolved Staff Comments.

None

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Item 2. Properties.

As of the end of 2018, we owned approximately six million gross square feet of real estate located in the greater Kansas City metro area and Malvern, Pennsylvania. Such property primarily consists of office space, data center, and warehouse facilities used primarily by our Domestic Segment.

As of the end of 2018, we leased additional space used primarily by our Domestic Segment in the following locations:

- Arlington, Virginia
- Brooklyn, New York
- Carlsbad, California
- Colchester, Vermont
- Columbia, Missouri
- Costa Mesa, California
- Denver, Colorado
- Durham, North Carolina
- Franklin, Tennessee
- Jefferson City, Missouri
- Kansas City, Missouri
- Lakeland, Florida
- Mason, Ohio
- Minneapolis, Minnesota
- Nevada, Missouri
- New Concord, Ohio
- New York, New York
- North Kansas City, Missouri
- Rochester, Minnesota
- Salt Lake City, Utah
- Tempe, Arizona
- Waltham, Massachusetts

We also leased space primarily used by our Global Segment in the following locations:

- Abu Dhabi, United Arab Emirates
- Bangalore, India
- Berlin, Germany
- Brasov, Romania
- Brisbane, Australia
- Cairo, Egypt
- Doha, Qatar
- Dubai, United Arab Emirates
- Dublin, Ireland
- Erlangen, Germany
- Essen, Germany
- Gmund, Austria
- Gothenburg, Sweden
- Hamburg, Germany
- Idstein, Germany
- Kolkata, India
- Kuala Lumpur, Malaysia
- Las Palmas, Gran Canaria, Spain
- Lisbon, Portugal
- London, England
- Lund, Sweden
- Madrid, Spain
- Markham, Ontario, Canada
- Melbourne, Australia
- Oslo, Norway
- Palma de Mallorca, Spain
- Paris, France
- Riyadh, Saudi Arabia
- Sao Paulo, Brazil
- Singapore
- St. Wolfgang, Germany
- Stockholm, Sweden
- Sydney, Australia
- The Hague, Netherlands
- Vienna, Austria

In general, we believe our facilities are suitable to meet our current and reasonably anticipated future needs.

Item 3. Legal Proceedings.

From time to time, we are involved in litigation which is incidental to our business. In our opinion, no litigation to which we are currently a party is likely to have a material adverse effect on our consolidated financial condition, results of operations, or cash flows.

Item 4. Mine Safety Disclosures.

Not applicable

Part II.

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

Our common stock trades on the Nasdaq Global Select Market[SM] under the symbol CERN. The following table sets forth the high, low and last sales prices for the fiscal quarters of 2018 and 2017 as reported by the *Nasdaq Global Select Market*.

	2018			2017		
	High	Low	Last	High	Low	Last
First Quarter	$ 73.43	$ 56.49	$ 58.00	$ 59.83	$ 47.09	$ 58.85
Second Quarter	63.22	52.05	59.79	69.28	58.09	66.47
Third Quarter	67.57	59.49	64.41	72.27	61.53	71.32
Fourth Quarter	65.44	48.78	52.01	73.86	62.86	67.39

At January 28, 2019, there were approximately 940 owners of record. To date, we have paid no cash dividends. Subject to declaration by the Board of Directors, the Company plans to initiate a quarterly cash dividend of $0.15 per share, with the first payment expected in the third quarter of 2019. Future dividends will be subject to the determination, declaration and discretion of the Board of Directors and compliance with our covenants under our credit facility.

The table below provides information with respect to Common Stock purchases by the Company during the fourth fiscal quarter of 2018:

Period	Total Number of Shares Purchased (a)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs (b)	Approximate Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs (b)
September 30, 2018 - October 27, 2018	—	$ —	—	$ 581,522,399
October 28, 2018 - November 24, 2018	1,722,734	58.05	1,722,124	481,556,844
November 25, 2018 - December 29, 2018	3,745,917	52.96	3,745,917	283,172,767
Total	5,468,651	$ 54.56	5,468,041	

(a) Of the 5,468,651 shares of common stock, par value $0.01 per share, presented in the table above, 610 shares were originally granted to employees as restricted stock pursuant to our 2011 Omnibus Equity Incentive Plan (the "Omnibus Plan"). The Omnibus Plan allows for the withholding of shares to satisfy the minimum tax obligations due upon the vesting of restricted stock. Pursuant to the Omnibus Plan, the 610 shares reflected above were relinquished by employees in exchange for our agreement to pay U.S. federal and state withholding obligations resulting from the vesting of the Company's restricted stock.

(b) As announced on May 25, 2017, our Board of Directors authorized a share repurchase program that allows the Company to repurchase up to $500 million of shares of our common stock, excluding transaction costs. As announced on May 21, 2018, our Board of Directors approved an amendment to the repurchase program that was authorized in May 2017. Under the amendment, the Company was authorized to repurchase up to an additional $500 million of shares of our common stock, for an aggregate of $1 billion, excluding transaction costs. The repurchases are to be effectuated in the open market, by block purchase, in privately negotiated transactions, or through other transactions managed by broker-dealers. No time limit was set for the completion of the program. During 2018, we repurchased 11.2 million shares for total consideration of $644 million under the program pursuant to Rule 10b5-1 plans. At December 29, 2018, $283 million remains available for repurchase under the outstanding program. Refer to Note (14) of the notes to consolidated financial statements for further information regarding our share repurchase program.

See Part III, Item 12 for information relating to securities authorized for issuance under our equity compensation plans.

Item 6. Selected Financial Data.

(In thousands, except per share data)	2018[1]	2017[2]	2016	2015[3]	2014
Statement of Operations Data:					
Revenues	$ 5,366,325	$ 5,142,272	$ 4,796,473	$ 4,425,267	$ 3,402,703
Operating earnings	774,785	960,471	911,013	781,136	763,084
Earnings before income taxes	800,851	967,129	918,434	781,380	774,174
Net earnings	630,059	866,978	636,484	539,362	525,433
Earnings per share:					
Basic	1.91	2.62	1.88	1.57	1.54
Diluted	1.89	2.57	1.85	1.54	1.50
Weighted average shares outstanding:					
Basic	330,084	331,373	337,740	343,178	342,150
Diluted	333,572	337,999	343,653	350,908	350,386
Balance Sheet Data:					
Working capital	$ 1,356,114	$ 1,590,632	$ 773,960	$ 1,049,967	$ 1,714,471
Total assets	6,708,636	6,469,311	5,629,963	5,561,984	4,530,565
Long-term debt and capital lease obligations, excl. current installments	438,802	515,130	537,552	563,353	62,868
Shareholders' equity	4,928,389	4,785,348	3,927,947	3,870,384	3,565,968

(1) In 2018, we adopted new revenue recognition guidance as further discussed in Note (2) of the notes to consolidated financial statements.

(2) Includes the impact of certain U.S. income tax reform, as further described in Note (12) of the notes to consolidated financial statements.

(3) In 2015, we acquired our Health Services business from Siemens AG.

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

The following Management Discussion and Analysis ("MD&A") is intended to help the reader understand our results of operations and financial condition. This MD&A is provided as a supplement to, and should be read in conjunction with, our financial statements and the accompanying notes to the financial statements.

Our fiscal year ends on the Saturday closest to December 31. Fiscal years 2018, 2017 and 2016 each consisted of 52 weeks and ended on December 29, 2018, December 30, 2017, and December 31, 2016, respectively. All references to years in this MD&A represent fiscal years unless otherwise noted.

Management Overview

Our revenues are primarily derived by selling, implementing and supporting software solutions, clinical content, hardware, devices and services that give health care providers and other stakeholders secure access to clinical, administrative and financial data in real or near-real time, helping them to improve quality, safety and efficiency in the delivery of health care.

Our core strategy is to create organic growth by investing in research and development ("R&D") to create solutions and tech enabled services for the health care industry. This strategy has driven strong growth over the long-term, as reflected in five- and ten-year compound annual revenue growth rates of 13% and 12%, respectively. This growth has also created an important strategic footprint in health care, with *Cerner*® solutions in more than 27,500 contracted provider facilities worldwide, including hospitals, physician practices, laboratories, ambulatory centers, behavioral health centers, cardiac facilities, radiology clinics, surgery centers, extended care facilities, retail pharmacies, and employer sites. Selling additional solutions and services back into this client base is an important element of our future revenue growth. We are also focused on driving growth by strategically aligning with health care providers that have not yet selected a supplier and by displacing competitors in health care settings that are looking to replace their current suppliers. We may also supplement organic growth with acquisitions or strategic investments.

We expect to drive growth through solutions and tech-enabled services that reflect our ongoing ability to innovate and expand our reach into health care. Examples of these include our *CareAware*® health care device architecture and devices, *Cerner ITWorks*℠ services, revenue cycle solutions and services, and *HealtheIntent*® population health solutions and services. Finally, we continue to believe there is significant opportunity for growth outside of the United States, with many non-U.S. markets focused on health care information technology as part of their strategy to improve the quality and lower the cost of health care.

Beyond our strategy for driving revenue growth, we are also focused on earnings growth. Similar to our history of growing revenue, our net earnings have increased at compound annual rates of 10% and 13% over the most recent five- and ten-year periods, respectively. We expect to drive earnings growth as we continue to grow our revenue. We also have opportunities to expand our operating margins over time. In the near term, we expect growth in non-cash expenses, such as amortization and depreciation, and a mix of lower margin revenue associated with some of our rapidly growing services businesses will limit our margin expansion. Longer-term, we expect to generate margin expansion as the growth rate of non-cash expenses slows, we achieve economies of scale and efficiencies in our services businesses, control general and administrative expenses, and get more contributions to our growth from solutions on our *HealtheIntent* platform, which we expect to be accretive to our overall margins.

We are also focused on continuing to deliver strong levels of cash flow, which we expect to accomplish by continuing to grow earnings and prudently managing capital expenditures.

Results Overview

Bookings, which reflects the value of executed contracts for software, hardware, professional services and managed services, was $6.72 billion in 2018, which is an increase of 6% compared to $6.32 billion in 2017.

Revenues for 2018 increased 4% to $5.37 billion, compared to $5.14 billion in 2017. The increase in revenue reflects ongoing demand from new and existing clients for Cerner's solutions and services driven by their needs to keep up with regulatory requirements, adapt to changing reimbursement models, and deliver safer and more efficient care.

Net earnings for 2018 decreased 27% to $630 million, compared to $867 million in 2017. Diluted earnings per share decreased 26% to $1.89 in 2018, compared to $2.57 in 2017. The overall decrease in net earnings and diluted earnings per share was primarily a result of increased operating expenses, which includes the hiring of personnel to support revenue growth and a $45 million pre-tax charge to provide an allowance against certain disputed client receivables. Additionally, we had a lower effective tax rate in 2017, stemming from certain U.S. income tax reform enacted in December 2017.

We had cash collections of receivables of $5.49 billion in 2018 compared to $5.44 billion in 2017. Days sales outstanding was 79 days for the 2018 fourth quarter compared to 82 days for the 2018 third quarter and 72 days for the 2017 fourth quarter. Operating cash flows for 2018 were $1.45 billion compared to $1.31 billion in 2017.

Revenue Recognition

In the first quarter of 2018, we adopted new revenue recognition guidance as further discussed in Note (2) of the notes to consolidated financial statements. The impact of applying this new guidance (versus prior U.S. GAAP) increased 2018 revenues and earnings before income taxes by $207 million and $101 million, respectively. This impact is primarily driven by certain new contracts in 2018 where we made commitments for specified upgrades. Under the new revenue guidance, we are required to estimate stand-alone selling price when allocating transaction consideration to performance obligations, such as specified upgrades. Under prior U.S. GAAP, we could not establish vendor specific objective evidence of fair value for specified upgrades, which would have delayed the revenue recognition on the entire contract until the upgrades were delivered.

Health Care Information Technology Market Outlook

We have provided an assessment of the health care information technology market under "Health Care and Health Care IT Industry" in Part I, Item 1 "Business," which is incorporated herein by reference.

Results of Operations

Fiscal Year 2018 Compared to Fiscal Year 2017

(In thousands)	2018	% of Revenue	2017	% of Revenue	% Change
Revenues	$ 5,366,325	100%	$ 5,142,272	100%	4 %
Costs of revenue	937,348	17%	854,091	17%	10 %
Margin	4,428,977	83%	4,288,181	83%	3 %
Operating expenses					
Sales and client service	2,493,696	46%	2,276,821	44%	10 %
Software development	683,663	13%	605,046	12%	13 %
General and administrative	389,469	7%	355,267	7%	10 %
Amortization of acquisition-related intangibles	87,364	2%	90,576	2%	(4)%
Total operating expenses	3,654,192	68%	3,327,710	65%	10 %
Total costs and expenses	4,591,540	86%	4,181,801	81%	10 %
Operating earnings	774,785	14%	960,471	19%	(19)%
Other income, net	26,066		6,658		
Income taxes	(170,792)		(100,151)		
Net earnings	$ 630,059		$ 866,978		(27)%

Revenues & Backlog

Revenues increased 4% to $5.37 billion in 2018, as compared to $5.14 billion in 2017. The growth in revenues includes a $220 million increase in professional services revenue, driven by increased contributions from *Cerner ITWorks* and revenue cycle services. Refer to Note (2) of the notes to consolidated financial statements for further information regarding revenues disaggregated by our business models.

Backlog, which reflects contracted revenue that has not yet been recognized as revenue, was $15.25 billion as of December 29, 2018, of which we expect to recognize approximately 29% as revenue over the next 12 months. In the first quarter of 2018, we adopted new revenue recognition guidance as further discussed in Note (2) of the notes to consolidated financial statements. In connection with the adoption of such guidance, we modified our calculation of backlog as previously determined under Regulation S-K to represent the aggregate amount of transaction price allocated to performance obligations that are unsatisfied (or partially satisfied) to conform to the new revenue recognition guidance. Backlog amounts disclosed prior to the adoption of the new revenue recognition guidance have not been adjusted, and are not comparable to, the current period presentation.

We believe that backlog may not necessarily be a comprehensive indicator of future revenue as certain of our arrangements may be canceled (or conversely renewed) at our clients' option, thus contract consideration related to such cancellable periods has been excluded from our calculation of backlog. However, historically our experience has been that such cancellation provisions are rarely exercised. We expect to recognize approximately $525 million of revenue over the next 12 months under currently executed contracts related to such cancellable periods, which is not included in our calculation of backlog.

Costs of Revenue

Costs of revenue as a percent of revenues were 17% in both 2018 and 2017.

Costs of revenue include the cost of reimbursed travel expense, sales commissions, third party consulting services and subscription content and computer hardware, devices and sublicensed software purchased from manufacturers for delivery to clients. It also includes the cost of hardware maintenance and sublicensed software support subcontracted to the manufacturers. Such costs, as a percent of revenues, typically have varied as the mix of revenue (software, hardware, devices, maintenance, support, and services) carrying different margin rates changes from period to period. Costs of revenue does not include the costs of our client service personnel who are responsible for delivering our service offerings. Such costs are included in sales and client service expense.

Operating Expenses

Total operating expenses increased 10% to $3.65 billion in 2018, as compared to $3.33 billion in 2017.

- Sales and client service expenses as a percent of revenues were 46% in 2018, compared to 44% in 2017. These expenses increased 10% to $2.49 billion in 2018, from $2.28 billion in 2017. Sales and client service expenses include salaries and benefits of sales, marketing, support, and services personnel, depreciation and other expenses associated with our managed services business, communications expenses, unreimbursed travel expenses, expense for share-based payments, and trade show and advertising costs. The 2018 amount includes a pre-tax charge of $45 million to provide an allowance against certain client receivables with Fujitsu Services Limited ("Fujitsu"), as further discussed in Note (3) of the notes to consolidated financial statements. The remaining growth in sales and client service expenses is primarily due to the hiring of services personnel to support growth in services revenue.
- Software development expenses as a percent of revenues were 13% in 2018, compared to 12% in 2017. Expenditures for software development include ongoing development and enhancement of the *Cerner Millennium*® and *HealtheIntent* platforms, with a focus on supporting key initiatives to enhance physician experience, revenue cycle and population health solutions. A summary of our total software development expense in 2018 and 2017 is as follows:

	For the Years Ended	
(In thousands)	2018	2017
Software development costs	$ 747,128	$ 705,944
Capitalized software costs	(271,787)	(271,411)
Capitalized costs related to share-based payments	(1,906)	(2,737)
Amortization of capitalized software costs	210,228	173,250
Total software development expense	$ 683,663	$ 605,046

- General and administrative expenses as a percent of revenues were 7% in both 2018 and 2017. These expenses increased 10% to $389 million in 2018, from $355 million in 2017. General and administrative expenses include salaries and benefits for corporate, financial and administrative staffs, utilities, communications expenses, professional fees, depreciation and amortization, transaction gains or losses on foreign currency, expense for share-based payments, acquisition costs and related adjustments. The increase in general and administrative expenses is primarily due to increased expense associated with share-based payment awards.

- Amortization of acquisition-related intangibles as a percent of revenues was 2% in both 2018 and 2017. These expenses decreased 4% to $87 million in 2018, from $91 million in 2017. Amortization of acquisition-related intangibles includes the amortization of customer relationships, acquired technology, trade names, and non-compete agreements recorded in connection with our business acquisitions. The decrease in amortization of acquisition-related intangibles includes the impact of certain intangible assets becoming fully amortized.

Non-Operating Items

- Other income, net was $26 million in 2018, compared to $7 million in 2017. The increase is primarily attributable to increased interest on our cash and investment balances, due to rising interest rates.

- Our effective tax rate was 21% in 2018, compared to 10% in 2017. The increase in the effective tax rate in 2018 is primarily a result of impacts from certain U.S. income tax reform enacted in December 2017. Refer to Note (12) of the notes to consolidated financial statements for further information regarding our effective tax rate. We do not expect significant changes to our overall effective tax rate in 2019, from what is reported for 2018.

Operations by Segment

We have two operating segments: Domestic and Global. The Domestic segment includes revenue contributions and expenditures associated with business activity in the United States. The Global segment primarily includes revenue contributions and expenditures linked to business activity in Aruba, Australia, Austria, the Bahamas, Belgium, Bermuda, Brazil, Canada, Cayman Islands, Chile, Denmark, Egypt, England, Finland, France, Germany, India, Ireland, Kuwait, Luxembourg, Malaysia, Mexico, Netherlands, Norway, Portugal, Qatar, Romania, Saudi Arabia, Singapore, Slovakia, Spain, Sweden, Switzerland and the United Arab Emirates. Refer to Note (17) of the notes to consolidated financial statements for further information regarding our reportable segments.

The following table presents a summary of our operating segment information for the years ended 2018 and 2017:

(In thousands)	**2018**	***% of Segment Revenue***	**2017**	***% of Segment Revenue***	**% Change**
Domestic Segment					
Revenues	$ 4,730,266	100%	$ 4,575,171	100%	3%
Costs of revenue	827,904	18%	755,729	17%	10%
Operating expenses	2,164,465	46%	1,998,544	44%	8%
Total costs and expenses	2,992,369	63%	2,754,273	60%	9%
Domestic operating earnings	1,737,897	37%	1,820,898	40%	(5)%
Global Segment					
Revenues	636,059	100%	567,101	100%	12%
Costs of revenue	109,444	17%	98,362	17%	11%
Operating expenses	321,116	50%	264,196	47%	22%
Total costs and expenses	430,560	68%	362,558	64%	19%
Global operating earnings	205,499	32%	204,543	36%	—%
Other, net	(1,168,611)		(1,064,970)		10%
Consolidated operating earnings	$ 774,785		$ 960,471		(19)%

Domestic Segment

- Revenues increased 3% to $4.73 billion in 2018, from $4.58 billion in 2017. The growth in revenues includes a $181 million increase in professional services revenue, driven by increased contributions from *Cerner ITWorks* and revenue cycle services. Refer to Note (2) of the notes to consolidated financial statements for further information regarding revenues disaggregated by our business models.

- Costs of revenue as a percent of revenues were 18% in 2018, compared to 17% in 2017. The higher costs of revenue as a percent of revenues was primarily driven by higher third-party costs associated with services revenue.
- Operating expenses as a percent of revenues were 46% in 2018, compared to 44% in 2017. The higher operating expenses as a percent of revenues reflects the hiring of personnel to support revenue growth.

Global Segment

- Revenues increased 12% to $636 million in 2018, from $567 million in 2017. This increase was driven by growth across most of our business. Refer to Note (2) of the notes to consolidated financial statements for further information regarding revenues disaggregated by our business models.
- Costs of revenue as a percent of revenues were 17% in both 2018 and 2017.
- Operating expenses as a percent of revenues were 50% in 2018, compared to 47% in 2017. The increase as a percent of revenues is primarily due to a pre-tax charge of $45 million in 2018 to provide an allowance against certain client receivables with Fujitsu, as further discussed in Note (3) of the notes to consolidated financial statements.

Other, net

Operating results not attributed to an operating segment include expenses such as software development, general and administrative expenses, acquisition costs and related adjustments, share-based compensation expense, and certain amortization and depreciation. These expenses increased 10% from 2017 to 2018. The increase is primarily due to increased software development expenses, including increased amortization of capitalized software costs resulting from releases of new and enhanced solutions over the last four quarters.

Fiscal Year 2017 Compared to Fiscal Year 2016

(In thousands)	2017	% of Revenue	2016	% of Revenue	% Change
Revenues	$ 5,142,272	100%	$ 4,796,473	100%	7 %
Costs of revenue	854,091	17%	779,116	16%	10 %
Margin	4,288,181	83%	4,017,357	84%	7 %
Operating expenses					
Sales and client service	2,276,821	44%	2,071,926	43%	10 %
Software development	605,046	12%	551,418	11%	10 %
General and administrative	355,267	7%	392,454	8%	(9)%
Amortization of acquisition-related intangibles	90,576	2%	90,546	2%	— %
Total operating expenses	3,327,710	65%	3,106,344	65%	7 %
Total costs and expenses	4,181,801	81%	3,885,460	81%	8 %
Operating earnings	960,471	19%	911,013	19%	5 %
Other income, net	6,658		7,421		
Income taxes	(100,151)		(281,950)		
Net earnings	$ 866,978		$ 636,484		36 %

Revenues

Revenues increased 7% to $5.14 billion in 2017, as compared to $4.80 billion in 2016. The growth in revenues includes a $147 million increase in professional services revenue, driven by growth in implementation and consulting activities. Refer to Note (2) of the notes to consolidated financial statements for further information regarding revenues disaggregated by our business models.

Costs of Revenue

Costs of revenue as a percent of revenues were 17% in 2017, compared to 16% in 2016. The marginally higher costs of revenue as a percent of revenues was primarily due to higher third-party costs associated with technology resale.

Operating Expenses

Total operating expenses increased 7% to $3.33 billion in 2017, as compared to $3.11 billion in 2016.

- Sales and client service expenses as a percent of revenues were 44% in 2017, compared to 43% in 2016. These expenses increased 10% to $2.28 billion in 2017, from $2.07 billion in 2016. The growth in sales and client service expenses reflects hiring of services personnel to support the growth in services revenue.

- Software development expenses as a percent of revenues were 12% in 2017, compared to 11% in 2016. Expenditures for software development include ongoing development and enhancement of the *Cerner Millennium®* and *HealtheIntent* platforms, with a focus on supporting key initiatives to enhance physician experience, revenue cycle and population health solutions. A summary of our total software development expense in 2017 and 2016 is as follows:

	For the Years Ended	
(In thousands)	2017	2016
Software development costs	$ 705,944	$ 704,882
Capitalized software costs	(271,411)	(290,911)
Capitalized costs related to share-based payments	(2,737)	(2,785)
Amortization of capitalized software costs	173,250	140,232
Total software development expense	$ 605,046	$ 551,418

- General and administrative expenses as a percent of revenues were 7% in 2017, compared to 8% in 2016. These expenses decreased 9% to $355 million in 2017, from $392 million in 2016. The decrease in general and administrative expenses was primarily due to 2016 containing $36 million of expenses associated with a voluntary separation plan. Refer to Note (1) of the notes to consolidated financial statements for further detail regarding our 2016 voluntary separation plan.

- Amortization of acquisition-related intangibles as a percent of revenues was 2% in both 2017 and 2016. These expenses remained flat at $91 million in both 2017 and 2016.

Non-Operating Items

- Other income, net remained flat at $7 million in both 2017 and 2016.

- Our effective tax rate was 10% in 2017, compared to 31% in 2016. The decrease in the effective tax rate in 2017 is primarily a result of impacts from certain U.S. income tax reform enacted in December 2017, and the inclusion of net excess tax benefits as discrete items within the tax provision, upon our adoption of ASU 2016-09 in the first quarter of 2017. Refer to Note (12) of the notes to consolidated financial statements for further information regarding our effective tax rate.

Operations by Segment

The following table presents a summary of our operating segment information for the years ended 2017 and 2016:

(In thousands)	2017	*% of Segment Revenue*	2016	*% of Segment Revenue*	% Change
Domestic Segment					
Revenues	$ 4,575,171	100%	$ 4,245,097	100%	8%
Costs of revenue	755,729	17%	676,437	16%	12%
Operating expenses	1,998,544	44%	1,774,146	42%	13%
Total costs and expenses	2,754,273	60%	2,450,583	58%	12%
Domestic operating earnings	1,820,898	40%	1,794,514	42%	1%
Global Segment					
Revenues	567,101	100%	551,376	100%	3%
Costs of revenue	98,362	17%	102,679	19%	(4)%
Operating expenses	264,196	47%	246,243	45%	7%
Total costs and expenses	362,558	64%	348,922	63%	4%
Global operating earnings	204,543	36%	202,454	37%	1%
Other, net	(1,064,970)		(1,085,955)		(2)%
Consolidated operating earnings	$ 960,471		$ 911,013		5%

Domestic Segment

- Revenues increased 8% to $4.58 billion in 2017, from $4.25 billion in 2016. The growth in revenues includes a $141 million increase in professional services revenue, driven by growth in implementation and consulting activities. Refer to Note (2) of the notes to consolidated financial statements for further information regarding revenues disaggregated by our business models.
- Costs of revenue as a percent of revenues were 17% in 2017, compared to 16% in 2016. The marginally higher costs of revenue as a percent of revenues was primarily due to higher third-party costs associated with technology resale.
- Operating expenses as a percent of revenues were 44% in 2017, compared to 42% in 2016. The increase as a percent of revenues reflects hiring of services personnel to support the growth in services revenue.

Global Segment

- Revenues increased 3% to $567 million in 2017, from $551 million in 2016. The growth in revenues includes a $13 million increase in support and maintenance revenue. Refer to Note (2) of the notes to consolidated financial statements for further information regarding revenues disaggregated by our business models.
- Costs of revenue as a percent of revenues were 17% in 2017, compared to 19% in 2016. The lower costs of revenue as a percent of revenues was primarily driven by a lower mix of technology resale, which carries a higher cost of revenue.
- Operating expenses as a percent of revenues were 47% in 2017, compared to 45% in 2016. The increase as a percent of revenues is primarily due to an increase in non-personnel expenses.

Other, net

These expenses decreased 2% from 2016 to 2017. The decrease was primarily due to 2016 containing $36 million of expenses associated with a voluntary separation plan. Refer to Note (1) of the notes to consolidated financial statements for further detail regarding our 2016 voluntary separation plan.

Liquidity and Capital Resources

Our liquidity is influenced by many factors, including the amount and timing of our revenues, our cash collections from our clients and the amount we invest in software development, acquisitions, capital expenditures, and in recent years, our share repurchase programs.

Our principal sources of liquidity are our cash, cash equivalents, which primarily consist of money market funds, commercial paper and time deposits with original maturities of less than 90 days, and short-term investments. At the end of 2018, we had cash and cash equivalents of $374 million and short-term investments of $401 million, as compared to cash and cash equivalents of $371 million and short-term investments of $435 million at the end of 2017.

We maintain a $100 million multi-year revolving credit facility, which expires in October 2020. The facility provides an unsecured revolving line of credit for working capital purposes, along with a letter of credit facility. We have the ability to increase the maximum capacity to $200 million at any time during the facility's term, subject to lender participation. As of the end of 2018, we had no outstanding borrowings under this facility; however, we had $30 million of outstanding letters of credit, which reduced our available borrowing capacity to $70 million. Refer to Note (9) of the notes to consolidated financial statements for additional information regarding our credit facility.

We believe that our present cash position, together with cash generated from operations, short-term investments and, if necessary, our available line of credit, will be sufficient to meet anticipated cash requirements during 2019.

The following table summarizes our cash flows in 2018, 2017 and 2016:

	For the Years Ended		
(In thousands)	2018	2017	2016
Cash flows from operating activities	$ 1,454,009	$ 1,307,675	$ 1,245,637
Cash flows from investing activities	(828,937)	(1,005,851)	(789,774)
Cash flows from financing activities	(609,787)	(110,984)	(676,677)
Effect of exchange rate changes on cash	(12,082)	9,222	(10,447)
Total change in cash and cash equivalents	3,203	200,062	(231,261)
Cash and cash equivalents at beginning of period	370,923	170,861	402,122
Cash and cash equivalents at end of period	$ 374,126	$ 370,923	$ 170,861
Free cash flow (non-GAAP)	$ 733,388	$ 671,444	$ 492,514

Cash from Operating Activities

	For the Years Ended		
(In thousands)	2018	2017	2016
Cash collections from clients	$ 5,486,654	$ 5,444,531	$ 5,184,252
Cash paid to employees and suppliers and other	(4,032,498)	(3,932,398)	(3,665,592)
Cash paid for interest	(15,707)	(17,914)	(18,484)
Cash paid for taxes, net of refunds	15,560	(186,544)	(254,539)
Total cash from operations	$ 1,454,009	$ 1,307,675	$ 1,245,637

Cash flow from operations increased $146 million in 2018 compared to 2017, due primarily to net refunds of taxes. Cash flow from operations increased $62 million in 2017 compared to 2016, due primarily to an increase in cash impacting earnings, partially offset by an increase in cash used to fund working capital requirements. During 2018, 2017 and 2016, we received total client cash collections of $5.49 billion, $5.44 billion and $5.18 billion, respectively. Days sales outstanding was 79 days in the fourth quarter of 2018, compared to 82 days for the 2018 third quarter and 72 days for the 2017 fourth quarter. Revenues provided under support and maintenance agreements represent recurring cash flows. We expect these revenues to continue to grow as the base of installed systems grows.

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Cash from Investing Activities

(In thousands)	For the Years Ended 2018	2017	2016
Capital purchases	$ (446,928)	$ (362,083)	$ (459,427)
Capitalized software development costs	(273,693)	(274,148)	(293,696)
Purchases of investments, net of sales and maturities	(71,497)	(339,974)	(18,179)
Purchase of other intangibles	(36,819)	(29,646)	(18,472)
Total cash flows from investing activities	$ (828,937)	$ (1,005,851)	$ (789,774)

Cash flows from investing activities consist primarily of capital spending and short-term investment activities.

Our capital spending in 2018 was driven by capitalized equipment purchases primarily to support growth in our managed services business, investments in a cloud infrastructure to support cloud-based solutions, building and improvement purchases to support our facilities requirements and capitalized spending to support our ongoing software development initiatives. Capital purchases in 2018 were higher than 2017 levels, primarily driven by an increase in spending to support our facilities requirements, including commencement of construction on the next two phases of our Innovations Campus (office space development located in Kansas City, Missouri); along with increased capital purchases to support the growth in our managed services business. Total capital spending is expected to increase more than $75 million in 2019, primarily driven by spending to support our facilities requirements, including the continued construction of our Innovations Campus.

Short-term investment activity historically consists of the investment of cash generated by our business in excess of what is necessary to fund operations. Our 2016 and 2018 activity is impacted by higher levels of excess cash being used to repurchase shares of our common stock, as discussed further below. Additionally, on July 27, 2018 we acquired a minority interest in Essence Group Holdings Corporation for cash consideration of $266 million. Refer to Note (4) of the notes to consolidated financial statements for further information regarding this investment. We expect to continue seeking and completing strategic acquisitions or investments that are complementary to our business.

Cash from Financing Activities

(In thousands)	For the Years Ended 2018	2017	2016
Repayment of long-term debt	$ (75,000)	$ —	$ —
Cash from option exercises (net of taxes paid in connection with shares surrendered by associates)	81,476	65,121	25,672
Treasury stock purchases	(623,127)	(173,434)	(700,275)
Contingent consideration payments for acquisition of businesses	(1,691)	(2,671)	(2,074)
Other	8,555	—	—
Total cash flows from financing activities	$ (609,787)	$ (110,984)	$ (676,677)

In March 2018, we repaid our $75 million floating rate Series 2015-C Notes due February 15, 2022. Refer to Note (9) of the notes to consolidated financial statements for further information regarding our outstanding indebtedness.

Cash inflows from stock option exercises are dependent on a number of factors, including the price of our common stock, grant activity under our stock option and equity plans, and overall market volatility. We expect net cash inflows from stock option exercises to continue in 2019 based on the number of exercisable options at the end of 2018 and our current stock price. Refer to Note (14) of the notes to consolidated financial statements for additional information regarding our stock option and equity plans.

During 2018, 2017 and 2016, we repurchased 11.2 million shares of our common stock for total consideration of $644 million, 2.7 million shares of our common stock for total consideration of $173 million, and 13.7 million shares of our common stock for total consideration of $700 million, respectively. At the end of 2018, $283 million remains available for repurchase under our current repurchase program. We may continue to repurchase shares under this program in 2019, which will be dependent on a number of factors, including the price of our common stock. Although we may continue to repurchase shares, there is no assurance that we will repurchase up to the full amount remaining under the program. Refer to Note (14) of the notes to consolidated financial statements for further information regarding our share repurchase program.

Subject to declaration by the Board of Directors, the Company plans to initiate a quarterly cash dividend of $0.15 per share, with the first payment expected in the third quarter of 2019. Future dividends will be subject to the determination, declaration and discretion of the Board of Directors and compliance with our covenants under our credit facility. The Company anticipates that the cash used for future dividends and share repurchases will come primarily from cash from operations.

Free Cash Flow (Non-GAAP)

	For the Years Ended		
(In thousands)	2018	2017	2016
Cash flows from operating activities (GAAP)	$ 1,454,009	$ 1,307,675	$ 1,245,637
Capital purchases	(446,928)	(362,083)	(459,427)
Capitalized software development costs	(273,693)	(274,148)	(293,696)
Free cash flow (non-GAAP)	$ 733,388	$ 671,444	$ 492,514

Free cash flow increased $62 million in 2018, compared to 2017. This increase was primarily due to an increase in cash from operations, partially offset by increased capital purchases. Free cash flow increased $179 million in 2017, compared to 2016. This increase was primarily due to an increase in cash from operations, along with reduced capital purchases.

Free cash flow is a non-GAAP financial measure used by management along with GAAP results to analyze our earnings quality and overall cash generation of the business. We define free cash flow as cash flows from operating activities reduced by capital purchases and capitalized software development costs. The table above sets forth a reconciliation of free cash flow to cash flows from operating activities, which we believe is the GAAP financial measure most directly comparable to free cash flow. The presentation of free cash flow is not meant to be considered in isolation, nor as a substitute for, or superior to, GAAP results, and investors should be aware that non-GAAP measures have inherent limitations and should be read only in conjunction with our consolidated financial statements prepared in accordance with GAAP. Free cash flow may also be different from similar non-GAAP financial measures used by other companies and may not be comparable to similarly titled captions of other companies due to potential inconsistencies in the method of calculation. We believe free cash flow is important to enable investors to better understand and evaluate our ongoing operating results and allows for greater transparency in the review and understanding of our overall financial, operational and economic performance, because free cash flow takes into account certain capital expenditures necessary to operate our business.

Contractual Obligations, Commitments and Off Balance Sheet Arrangements

The following table represents a summary of our contractual obligations and commercial commitments at the end of 2018, except short-term purchase order commitments arising in the ordinary course of business.

	Payments Due by Period						
(In thousands)	**2019**	**2020**	**2021**	**2022**	**2023**	**2024 and thereafter**	**Total**
Balance sheet obligations[a]:							
Long-term debt obligations	$ —	$ 2,500	$ —	$ 226,100	$ 1,700	$ 208,862	$ 439,162
Interest on long-term debt obligations	14,315	14,315	14,315	10,738	7,160	10,740	71,583
Capital lease obligations	4,914	—	—	—	—	—	4,914
Interest on capital lease obligations	143	—	—	—	—	—	143
Other obligations:							
Operating lease obligations	29,739	27,669	22,904	17,240	10,166	17,743	125,461
Purchase obligations	138,851	102,773	24,746	15,517	15,486	26,924	324,297
Total	$ 187,962	$ 147,257	$ 61,965	$ 269,595	$ 34,512	$ 264,269	$ 965,560

(a) At the end of 2018, liabilities for unrecognized tax benefits were $19 million.

We have no off balance sheet arrangements as defined in Regulation S-K. The effects of inflation on our business during 2018, 2017 and 2016 were not significant.

Recent Accounting Pronouncements

Refer to Note (1) of the notes to consolidated financial statements for information regarding recently issued accounting pronouncements.

Critical Accounting Policies

We believe that there are several accounting policies that are critical to understanding our historical and future performance, as these policies affect the reported amount of revenue and other significant areas involving our judgments and estimates. These significant accounting policies relate to revenue recognition, software development, and income taxes. These accounting policies and our procedures related to these accounting policies are described in detail below and under specific areas within this MD&A. In addition, Note (1), Note (2), and Note (12) of the notes to consolidated financial statements expands upon discussion of our accounting policies for these areas.

Revenue Recognition

In the first quarter of 2018, we adopted Accounting Standards Update ("ASU") 2014-09, *Revenue from Contracts with Customers (Topic 606).* ASU 2014-09, as amended, replaced most existing revenue recognition guidance in U.S. GAAP. This new guidance requires a significant amount of judgments and estimates in implementing its five-step process to be followed in determining the amount and timing of revenue recognition and related disclosures. Refer to Note (2) of the notes to consolidated financial statements for further discussion regarding significant judgments involved in our application of ASU 2014-09.

Software Development Costs

Costs incurred internally in creating computer software solutions and enhancements to those solutions are expensed until completion of a detailed program design, which is when we determine that technological feasibility has been established. Thereafter, all software development costs are capitalized until such time as the software solutions and enhancements are available for general release, and the capitalized costs subsequently are reported at the lower of amortized cost or net realizable value.

Net realizable value is computed as the estimated gross future revenues from each software solution less the amount of estimated future costs of completing and disposing of that product. Because the development of projected net future revenues related to our software solutions used in our net realizable value computation is based on estimates, a significant reduction in our future revenues could impact the recovery of our capitalized software development costs. If we missed our estimates of net future revenues by 10%, the amount of our capitalized software development costs would not be impaired.

Capitalized costs are amortized based on current and expected net future revenue for each software solution with minimum annual amortization equal to the straight-line amortization over the estimated economic life of the software solution. We are amortizing capitalized costs over five years. The five-year period over which capitalized software development costs are amortized is an estimate based upon our forecast of a reasonable useful life for the capitalized costs. Historically, use of our software programs by our clients has exceeded five years and is capable of being used a decade or more.

We expect that major software information systems companies, large information technology consulting service providers and systems integrators and others specializing in the health care industry may offer competitive products or services. The pace of change in the HCIT market is rapid and there are frequent new product introductions, product enhancements and evolving industry standards and requirements. As a result, the capitalized software solutions may become less valuable or obsolete and could be subject to impairment.

Income Taxes
We make a number of assumptions and estimates in determining the appropriate amount of expense to record for income taxes. These assumptions and estimates consider the taxing jurisdictions in which we operate as well as current tax regulations. Accruals are established for estimates of tax effects for certain transactions, business structures and future projected profitability of our businesses based on our interpretation of existing facts and circumstances. If these assumptions and estimates were to change as a result of new evidence or changes in circumstances, the change in estimate could result in a material adjustment to the consolidated financial statements.

We have discussed the development and selection of these critical accounting estimates with the Audit Committee of our Board of Directors and the Audit Committee has reviewed our disclosure contained herein.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

We have global operations, and as a result, we are exposed to market risk related to foreign currency exchange rate fluctuations. Foreign currency fluctuations through December 29, 2018 have not had a material impact on our financial position or operating results. We currently do not use currency hedging instruments, though we actively monitor our exposure to foreign currency fluctuations and may use hedging transactions in the future if management deems it appropriate. We believe most of our global operations are naturally hedged for foreign currency risk as our foreign subsidiaries invoice their clients and satisfy their obligations primarily in their local currencies. There can be no guarantee that the impact of foreign currency fluctuations in the future will not have a material impact on our financial position or operating results.

Item 8. Financial Statements and Supplementary Data.

The Financial Statements and notes to consolidated financial statements required by this Item are submitted as a separate part of this report. See Note (18) to the consolidated financial statements for supplementary financial information.

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

N/A

Item 9A. Controls and Procedures.

a) Evaluation of Disclosure Controls and Procedures.

Our management is responsible for maintaining disclosure controls and procedures (as defined in the Exchange Act Rules 13a-15(e) and 15d-15(e)). We carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer ("CEO") and Chief Financial Officer ("CFO"), of the effectiveness of our disclosure controls and procedures as of the end of the period covered by this Annual Report (the "Evaluation Date"). Based upon that evaluation, our CEO and CFO have concluded that, as of the Evaluation Date, our disclosure controls and procedures were designed and were effective to provide reasonable assurance that the information required to be disclosed by us in our reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time period specified in SEC rules and forms and is accumulated and communicated to our management, including our CEO and CFO, to allow timely decisions regarding required disclosure.

b) Management's Report on Internal Control over Financial Reporting.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act). Our management assessed the effectiveness of our internal control over financial reporting as of December 29, 2018. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in its Internal Control-Integrated Framework (2013). Based on this assessment, our management has concluded that, as of December 29, 2018, our internal control over financial reporting was effective based on these criteria. Our independent registered public accounting firm that audited the consolidated financial statements included in this annual report has issued an audit report on the effectiveness of our internal control over financial reporting, which is included herein under "Report of Independent Registered Public Accounting Firm".

c) Changes in Internal Control over Financial Reporting.

During the fourth fiscal quarter ended December 29, 2018, progress continued on a plan that calls for modifications and enhancements to our internal controls over financial reporting in relation to our upcoming adoption of the new lease standard effective in the first quarter of 2019. Such plan resulted in changes to certain processes and procedures during the quarter. Specifically, we implemented/modified internal controls to address:

- Monitoring of the adoption process; and
- The gathering of information and evaluation of analysis used in the development of disclosures required prior to the new standard's adoption.

As we continue the implementation process, we expect that there will be additional changes in internal controls over financial reporting.

Except as disclosed above, there were no other changes in our internal controls over financial reporting during the fiscal quarter ended December 29, 2018, that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

d) Limitations on Controls.

Our management, including our CEO and CFO, have concluded that our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives and are effective at that reasonable assurance level. However, our management can provide no assurance that our disclosure controls and procedures or our internal control over financial reporting can prevent all errors and all fraud under all circumstances. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within the Company have been or will be detected. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Item 9B. Other Information.

N/A

PART III.

Item 10. Directors, Executive Officers and Corporate Governance.

The information under "Information Concerning Directors," "Meetings of the Board and Committees," "Section 16(a) Beneficial Ownership Reporting Compliance," "Corporate Governance: Code of Business Conduct and Ethics," "Consideration of Director Nominees," "Committees of the Board: Audit Committee" and "Certain Transactions" as it relates to family relationships as set forth in the Company's definitive proxy statement related to its 2019 annual meeting of stockholders (the "Proxy Statement"), which will be filed with the SEC not later than 120 days after the end of the Company's fiscal year pursuant to Regulation 14A, is incorporated herein by reference.

There have been no material changes to the procedures by which security holders may recommend nominees to our Board of Directors since our last disclosure thereof in our 2018 proxy statement.

The information required by this Item 10 regarding our Executive Officers is set forth under the caption "Executive Officers of the Registrant" in Part I above.

Item 11. Executive Compensation.

The information under "Committees of the Board: Compensation Committee," "Director Compensation," "2018 Director Compensation Table," "Compensation Committee Report," "Compensation Discussion and Analysis," "Summary Compensation Table," "2018 Grants of Plan-Based Awards," "Outstanding Equity Awards at 2018 Fiscal Year-End," "2018 Option Exercises and Stock Vested," "Potential Payments Under Termination or Change in Control," "Pay Ratio" and "Compensation Committee Interlocks and Insider Participation" set forth in the Proxy Statement, which will be filed with the SEC not later than 120 days after the end of the Company's fiscal year pursuant to Regulation 14A, is incorporated herein by reference.

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

The following table provides information about our common stock that may be issued under our equity compensation plans as of December 29, 2018:

(In thousands, except per share data)

Plan category	Securities to be issued upon exercise of outstanding options and rights (1)	Weighted average exercise price per share (2)	Securities available for future issuance(3)
Equity compensation plans approved by security holders (4)	22,674	$ 52.31	7,400
Equity compensation plans not approved by security holders	—	—	—
Total	22,674		7,400

(1) Includes grants of stock options, time-based and performance-based restricted stock and restricted stock units.

(2) Includes weighted-average exercise price of outstanding stock options only.

(3) Excludes securities to be issued upon exercise of outstanding options and rights.

(4) Includes the Stock Option Plan D, Stock Option Plan E, 2001 Long-Term Incentive Plan F, 2004 Long-Term Incentive Plan G and 2011 Omnibus Equity Incentive Plan. All new grants are made under the 2011 Omnibus Equity Incentive Plan, as the previous plans are no longer active.

The information under "Security Ownership of Certain Beneficial Owners and Management" set forth in the Proxy Statement, which will be filed with the SEC not later than 120 days after the end of the Company's fiscal year pursuant to Regulation 14A, is incorporated herein by reference.

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

The information under "Certain Transactions" and "Meetings of the Board and Committees" set forth in the Proxy Statement, which will be filed with the SEC not later than 120 days after the end of the Company's fiscal year pursuant to Regulation 14A, is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services.

The information under "Relationship with Independent Registered Public Accounting Firm" set forth in the Proxy Statement, which will be filed with the SEC not later than 120 days after the end of the Company's fiscal year pursuant to Regulation 14A, is incorporated herein by reference.

PART IV.

Item 15. Exhibits, Financial Statement Schedules.

a) Financial Statements and Exhibits

(1) Consolidated Financial Statements:

Reports of Independent Registered Public Accounting Firm

Consolidated Balance Sheets - As of December 29, 2018 and December 30, 2017

Consolidated Statements of Operations -Years Ended December 29, 2018, December 30, 2017 and December 31, 2016

Consolidated Statements of Comprehensive Income - Years Ended December 29, 2018, December 30, 2017 and December 31, 2016

Consolidated Statements of Cash Flows - Years Ended December 29, 2018, December 30, 2017 and December 31, 2016

Consolidated Statements of Changes in Shareholders' Equity - Years Ended December 29, 2018, December 30, 2017 and December 31, 2016

Notes to Consolidated Financial Statements

(2) Financial Statement Schedules

All schedules are omitted because they are not required or the required information is shown in the financial statements or notes thereto.

b) Exhibits

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Exhibit Number	Exhibit Description	Incorporated by Reference Form	Exhibit(s)	Filing Date SEC File No./Film No.	Filed Herewith
3.1	Third Restated Certificate of Incorporation of Cerner Corporation	10-K	3(a)	2/11/2015	
3.2	Amended & Restated Bylaws of Cerner Corporation (effective March 2, 2018)	8-K	3.1	3/6/2018	
4	Specimen stock certificate	10-K	4(a)	2/28/2007 000-15386/07658265	
10.1*	2006 Form of Indemnification Agreement for use between the Registrant and its Directors	10-K	10(a)	2/28/2007 000-15386/07658265	
10.2*	2010 Form of Indemnification Agreement for use between the Registrant and its Directors and Section 16 Officers	8-K	99.1	6/3/2010 000-15386/10875957	
10.3*	Executive Employment Agreement between Cerner Corporation and Brent Shafer	10-K	10.3	2/12/2018	
10.4*	Relocation Agreement between Cerner Corporation and Brent Shafer	10-Q	10.2	5/3/2018	
10.5*	Amended & Restated Aircraft Time Sharing Agreement between Cerner Corporation and Brent Shafer	10-Q	10.1	10/26/2018	
10.6*	Amended & Restated Executive Employment Agreement between Cerner Corporation and Clifford W. Illig	8-K/A	10.1	8/17/2017	
10.7*	Amended Employment Agreement between Cerner Corporation and Zane M. Burke	8-K	10.1	9/11/2017	
10.8*	Separation Agreement between Cerner Corporation and Zane M. Burke	10-Q	10.2	10/26/2018	
10.9*	Amended Employment Agreement between Cerner Corporation and Michael R. Nill	8-K	10.2	9/11/2017	
10.10*	Amended Employment Agreement between Cerner Corporation and Jeffrey A. Townsend	8-K	10.3	9/11/2017	
10.11*	Relocation Agreement between Cerner Corporation and Jeffrey A. Townsend	10-Q	10.10	10/27/2017	
10.12*	Amended Employment Agreement between Cerner Corporation and Marc G. Naughton	8-K	10.4	9/11/2017	
10.13*	Amended Employment Agreement between Cerner Corporation and John Peterzalek				X
10.14*	Amended Stock Option Plan D of Registrant dated December 8, 2000	10-K	10(f)	3/30/2001 000-15386/1586224	
10.15*	Amended Stock Option Plan E of Registrant dated December 8, 2000	10-K	10(g)	3/30/2001 000-15386/1586224	

10.16*	Cerner Corporation Associate Equity Participation Program Non-Qualified Stock Option Agreement				X
10.17*	Cerner Corporation 2001 Long-Term Incentive Plan F	DEF 14A	Annex I	4/16/2001 000-15386/1603080	

10.18*	Cerner Corporation 2001 Long-Term Incentive Plan F Nonqualified Stock Option Agreement	10-K	10(v)	3/17/2005 000-15386/05688830	
10.19*	Cerner Corporation 2001 Long-Term Incentive Plan F Nonqualified Stock Option Grant Certificate	10-Q	10(a)	11/10/2005 000-15386/051193974	
10.20*	Cerner Corporation 2004 Long-Term Incentive Plan G (as amended on December 3, 2007)	10-K	10(g)	2/27/2008 000-15386/08646565	
10.21*	Cerner Corporation 2004 Long-Term Incentive Plan G Nonqualified Stock Option Grant Certificate	10-K	10(q)	2/27/2008 000-15386/08646565	
10.22*	Cerner Corporation 2011 Omnibus Equity Incentive Plan (As Amended and Restated May 22, 2015)	8-K	10.2	5/27/2015	
10.23*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Director Restricted Stock Agreement	10-Q	10.2	5/6/2016	
10.24*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Performance Based Restricted Stock Agreement	10-K	10(u)	2/8/2013 000-15386/13586825	
10.25*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Performance Based Restricted Stock Agreement	10-Q	10.3	5/6/2016	
10.26*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Performance Based Restricted Stock Agreement	10-Q	10.4	10/27/2017	
10.27*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Time Based Restricted Stock Agreement	10-Q	10.4	5/6/2016	
10.28*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Time Based Restricted Stock Agreement	10-Q	10.3	10/27/2017	
10.29*	Cerner Corporation 2011 Omnibus Equity Incentive Plan-Non-Qualified Stock Option Grant Certificate	10-K	10(v)	2/8/2013 000-15386/13586825	
10.30*	Cerner Corporation 2011 Omnibus Equity Incentive Plan-Non-qualified Stock Option Grant Certificate	10-Q	10.5	5/6/2016	
10.31*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Non-Qualified Stock Option Grant Certificate	10-Q	10.2	8/3/2016	
10.32*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Non-Qualified Stock Option Grant Certificate	10-Q	10.2	10/27/2017	
10.33*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Time-Based Restricted Stock Unit Agreement	10-Q	10.2	4/28/2017	
10.34*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Time-Based Restricted Stock Unit Agreement	10-Q	10.5	10/27/2017	
10.35*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Performance-Based Restricted Stock Unit Agreement	10-Q	10.3	4/28/2017	
10.36*	Cerner Corporation 2011 Omnibus Equity Incentive Plan - Performance-Based Restricted Stock Unit Agreement	10-Q	10.6	10/27/2017	
10.37*	Cerner Corporation 2001 Associate Stock Purchase Plan as Amended and Restated January 1, 2019				X
10.38*	Cerner Corporation 2018 Performance Compensation Plan (effective January 1, 2018)	8-K	10.1	3/6/2018	

10.39*	2018 Executive Performance Agreement - Section 16 Officer	8-K	10.2	3/6/2018
10.40	Interparty Agreement, dated January 19, 2010, among Kansas Unified Development, LLC, OnGoal, LLC and Cerner Corporation	8-K	99.1	1/25/2010 000-15386/10543089

10.41	Master Sale and Purchase Agreement between Siemens AG and Cerner Corporation dated August 5, 2014	10-Q	2.1	10/24/2014 000-15386/141172425	
10.42	Amendment Agreement to the Master Sale and Purchase Agreement between Siemens AG and Cerner Corporation dated February 2, 2015	8-K	10.1	2/2/2015	
10.43	Master Note Purchase Agreement between Cerner Corporation and the Purchasers listed in Schedule A thereto dated December 4, 2014	8-K	10.1	12/5/2014 000-15386/141269611	
10.44	Third Amended and Restated Credit Agreement, dated October 30, 2015, among Cerner Corporation and U.S. Bank National Association, Bank of America, N.A. and Commerce Bank, N.A.	8-K	10.1	11/3/2015	
21	Subsidiaries of Registrant				X
23	Consent of Independent Registered Public Accounting Firm				X
31.1	Certification of D. Brent Shafer pursuant to Section 302 of Sarbanes-Oxley Act of 2002				X
31.2	Certification of Marc G. Naughton pursuant to Section 302 of Sarbanes-Oxley Act of 2002				X
32.1	Certification of D. Brent Shafer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of Sarbanes-Oxley Act of 2002				X
32.2	Certification of Marc G. Naughton pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of Sarbanes-Oxley Act of 2002				X
101.INS	XBRL Instance Document				X
101.SCH	XBRL Taxonomy Extension Schema Document				X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document				X
101.LAB	XBRL Taxonomy Extension Labels Linkbase Document				X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document				X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document				X

* Indicates a management contract or compensatory plan or arrangement required to be identified by Part IV, Item 15(a)(3).

PLEASE NOTE: Pursuant to the rules and regulations of the Securities and Exchange Commission, we have filed or incorporated by reference the agreements referenced above as exhibits to this annual report on Form 10-K. The agreements have been filed to provide investors with information regarding their respective terms. The agreements are not intended to provide any other factual information about the Company or its business or operations. In particular, the assertions embodied in any representations, warranties and covenants contained in the agreements may be subject to qualifications with respect to knowledge and materiality different from those applicable to investors and may be qualified by information in confidential disclosure schedules not included with the exhibits. These disclosure schedules may contain information that modifies, qualifies and creates exceptions to the representations, warranties and covenants set forth in the agreements. Moreover, certain representations, warranties and covenants in the agreements may have been used for the purpose of allocating risk between the parties, rather than establishing matters as facts. In addition, information concerning the subject matter of the representations, warranties and covenants may have changed after the date of the respective agreement, which subsequent information may or may not be fully reflected in the Company's public disclosures. Accordingly, investors should not rely on the representations, warranties and covenants in the agreements as characterizations of the actual state of facts about the Company or its business or operations on the date hereof.

Item 16. Form 10-K Summary.

None.

SIGNATURES

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

CERNER CORPORATION

Date: February 8, 2019

By: /s/ Brent Shafer
D. Brent Shafer
Chairman of the Board and
Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated:

Signature and Title	Date
/s/ Brent Shafer Brent Shafer, Chairman of the Board and Chief Executive Officer (Principal Executive Officer)	February 8, 2019
/s/ Marc G. Naughton Marc G. Naughton, Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 8, 2019
/s/ Michael R. Battaglioli Michael R. Battaglioli, Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 8, 2019
/s/ Gerald E. Bisbee, Jr. Gerald E. Bisbee, Jr., Ph.D., Director	February 8, 2019
/s/ Denis A. Cortese Denis A. Cortese, M.D., Director	February 8, 2019
/s/ Mitchell E. Daniels Mitchell E. Daniels, Director	February 8, 2019
/s/ Linda M. Dillman Linda M. Dillman, Director	February 8, 2019
/s/ Julie L. Gerberding Julie L. Gerberding, M.D., Director	February 8, 2019
/s/ William D. Zollars William D. Zollars, Director	February 8, 2019

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Cerner Corporation:

Opinion on Internal Control Over Financial Reporting

We have audited Cerner Corporation and subsidiaries' (the "Company") internal control over financial reporting as of December 29, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 29, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 29, 2018 and December 30, 2017, the related consolidated statements of operations, comprehensive income, cash flows, and changes in shareholders' equity for each of the years in the three-year period ended December 29, 2018, and the related notes (collectively, the consolidated financial statements), and our report dated February 8, 2019 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/KPMG LLP
Kansas City, Missouri
February 8, 2019

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Cerner Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Cerner Corporation and subsidiaries (the "Company") as of December 29, 2018 and December 30, 2017, the related consolidated statements of operations, comprehensive income, cash flows, and changes in shareholders' equity for each of the years in the three-year period ended December 29, 2018, and the related notes (collectively, the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 29, 2018 and December 30, 2017, and the results of its operations and its cash flows for each of the years in the three-year period ended December 29, 2018, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 29, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 8, 2019 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Changes in Accounting Principle

As discussed in note 2 to the consolidated financial statements, the Company changed its method of accounting for revenue transactions with customers in 2018 due to the adoption of Accounting Standards Update 2014-09, "Revenue from Contracts with Customers (Topic 606)". The Company also changed its method of accounting for certain share-based payment award transactions in 2017 due to the adoption of Accounting Standards Update 2016-09 "Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting".

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/KPMG LLP

We have served as the Company's auditor since 1983.

Kansas City, Missouri
February 8, 2019

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CERNER CORPORATION AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
As of December 29, 2018 and December 30, 2017

(In thousands, except share data)	2018	2017
Assets		
Current assets:		
Cash and cash equivalents	$ 374,126	$ 370,923
Short-term investments	401,285	434,844
Receivables, net	1,183,494	1,042,781
Inventory	25,029	15,749
Prepaid expenses and other	334,870	515,930
Total current assets	2,318,804	2,380,227
Property and equipment, net	1,743,575	1,603,319
Software development costs, net	894,512	822,159
Goodwill	847,544	853,005
Intangible assets, net	405,305	479,753
Long-term investments	300,046	196,837
Other assets	198,850	134,011
Total assets	$ 6,708,636	$ 6,469,311
Liabilities and Shareholders' Equity		
Current liabilities:		
Accounts payable	$ 293,534	$ 218,996
Current installments of long-term debt and capital lease obligations	4,914	11,585
Deferred revenue	399,189	311,337
Accrued payroll and tax withholdings	195,931	183,770
Other accrued expenses	69,122	63,907
Total current liabilities	962,690	789,595
Long-term debt and capital lease obligations	438,802	515,130
Deferred income taxes	336,379	336,446
Other liabilities	42,376	42,792
Total liabilities	1,780,247	1,683,963
Shareholders' Equity:		
Common stock, $.01 par value, 500,000,000 shares authorized, 362,212,843 shares issued at December 29, 2018 and 359,204,864 shares issued at December 30, 2017	3,622	3,592
Additional paid-in capital	1,559,562	1,380,371
Retained earnings	5,576,525	4,938,866
Treasury stock, 37,905,013 shares at December 29, 2018 and 26,743,517 shares at December 30, 2017	(2,107,768)	(1,464,099)
Accumulated other comprehensive loss, net	(103,552)	(73,382)
Total shareholders' equity	4,928,389	4,785,348
Total liabilities and shareholders' equity	$ 6,708,636	$ 6,469,311

See notes to consolidated financial statements.

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CERNER CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
For the years ended December 29, 2018, December 30, 2017 and December 31, 2016

	For the Years Ended		
(In thousands, except per share data)	2018	2017	2016
Revenues	$ 5,366,325	$ 5,142,272	$ 4,796,473
Costs and expenses:			
Costs of revenue	937,348	854,091	779,116
Sales and client service	2,493,696	2,276,821	2,071,926
Software development (Includes amortization of $210,228, $173,250 and $140,232, respectively)	683,663	605,046	551,418
General and administrative	389,469	355,267	392,454
Amortization of acquisition-related intangibles	87,364	90,576	90,546
Total costs and expenses	4,591,540	4,181,801	3,885,460
Operating earnings	774,785	960,471	911,013
Other income, net	26,066	6,658	7,421
Earnings before income taxes	800,851	967,129	918,434
Income taxes	(170,792)	(100,151)	(281,950)
Net earnings	$ 630,059	$ 866,978	$ 636,484
Basic earnings per share	$ 1.91	$ 2.62	$ 1.88
Diluted earnings per share	$ 1.89	$ 2.57	$ 1.85
Basic weighted average shares outstanding	330,084	331,373	337,740
Diluted weighted average shares outstanding	333,572	337,999	343,653

See notes to consolidated financial statements.

CERNER CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
For the years ended December 29, 2018, December 30, 2017 and December 31, 2016

(In thousands)	For the Years Ended 2018	2017	2016
Net earnings	$ 630,059	$ 866,978	$ 636,484
Foreign currency translation adjustment and other (net of taxes (benefit) of $(645), $4,909 and $2,092, respectively)	(30,575)	37,463	(33,871)
Unrealized holding gain (loss) on available-for-sale investments (net of taxes (benefit) of $132, $(416) and $37, respectively)	405	(680)	60
Comprehensive income	$ 599,889	$ 903,761	$ 602,673

See notes to consolidated financial statements.

CERNER CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
For the years ended December 29, 2018, December 30, 2017 and December 31, 2016

	For the Years Ended		
(In thousands)	**2018**	**2017**	**2016**
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net earnings	$ 630,059	$ 866,978	$ 636,484
Adjustments to reconcile net earnings to net cash provided by operating activities:			
Depreciation and amortization	642,591	580,723	504,236
Share-based compensation expense	95,423	83,019	74,536
Provision for deferred income taxes	34,428	47,409	(11,517)
Changes in assets and liabilities:			
Receivables, net	(207,785)	(32,836)	78,258
Inventory	(9,307)	(972)	(666)
Prepaid expenses and other	156,216	(191,369)	(66,658)
Accounts payable	65,202	6,960	(13,197)
Accrued income taxes	(27,849)	18,358	64,073
Deferred revenue	81,538	(3,114)	1,555
Other accrued liabilities	(6,507)	(67,481)	(21,467)
Net cash provided by operating activities	1,454,009	1,307,675	1,245,637
CASH FLOWS FROM INVESTING ACTIVITIES:			
Capital purchases	(446,928)	(362,083)	(459,427)
Capitalized software development costs	(273,693)	(274,148)	(293,696)
Purchases of investments	(623,293)	(632,048)	(482,078)
Sales and maturities of investments	551,796	292,074	463,899
Purchase of other intangibles	(36,819)	(29,646)	(18,472)
Net cash used in investing activities	(828,937)	(1,005,851)	(789,774)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Repayment of long-term debt	(75,000)	—	—
Proceeds from exercise of stock options	91,349	76,705	63,794
Payments to taxing authorities in connection with shares directly withheld from associates	(9,873)	(11,584)	(38,122)
Treasury stock purchases	(623,127)	(173,434)	(700,275)
Contingent consideration payments for acquisition of businesses	(1,691)	(2,671)	(2,074)
Other	8,555	—	—
Net cash used in financing activities	(609,787)	(110,984)	(676,677)
Effect of exchange rate changes on cash and cash equivalents	(12,082)	9,222	(10,447)
Net increase (decrease) in cash and cash equivalents	3,203	200,062	(231,261)
Cash and cash equivalents at beginning of period	370,923	170,861	402,122
Cash and cash equivalents at end of period	$ 374,126	$ 370,923	$ 170,861

See notes to consolidated financial statements.

CERNER CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY
For the years ended December 29, 2018, December 30, 2017 and December 31, 2016

	Common Stock		Additional	Retained	Treasury	Accumulated Other
(In thousands)	Shares	Amount	Paid-in Capital	Earnings	Stock	Comprehensive Loss, Net
Balance at January 2, 2016	**350,323**	**$ 3,503**	**$ 1,075,782**	**$ 3,457,843**	**$ (590,390)**	**$ (76,354)**
Exercise of stock options (including net-settled option exercises)	3,408	34	27,747	—	—	—
Employee share-based compensation expense	—	—	74,536	—	—	—
Employee share-based compensation net excess tax benefit	—	—	52,848	—	—	—
Other comprehensive income (loss)	—	—	—	—	—	(33,811)
Treasury stock purchases	—	—	—	—	(700,275)	—
Net earnings	—	—	—	636,484	—	—
Balance at December 31, 2016	**353,731**	**3,537**	**1,230,913**	**4,094,327**	**(1,290,665)**	**(110,165)**
Exercise of stock options (including net-settled option exercises)	5,474	55	66,439	—	—	—
Employee share-based compensation expense	—	—	83,019	—	—	—
Cumulative effect of accounting change (ASU 2016-16)	—	—	—	(22,439)	—	—
Other comprehensive income (loss)	—	—	—	—	—	36,783
Treasury stock purchases	—	—	—	—	(173,434)	—
Net earnings	—	—	—	866,978	—	—
Balance at December 30, 2017	**359,205**	**3,592**	**1,380,371**	**4,938,866**	**(1,464,099)**	**(73,382)**
Exercise of stock options (including net-settled option exercises)	3,008	30	83,768	—	—	—
Employee share-based compensation expense	—	—	95,423	—	—	—
Cumulative effect of accounting change (ASU 2014-09)	—	—	—	7,600	—	—
Other comprehensive income (loss)	—	—	—	—	—	(30,170)
Treasury stock purchases	—	—	—	—	(643,669)	—
Net earnings	—	—	—	630,059	—	—
Balance at December 29, 2018	**362,213**	**$ 3,622**	**$ 1,559,562**	**$ 5,576,525**	**$ (2,107,768)**	**$ (103,552)**

See notes to consolidated financial statements.

CERNER CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(1) Basis of Presentation, Nature of Operations and Summary of Significant Accounting Policies

Basis of Presentation

The consolidated financial statements include all the accounts of Cerner Corporation ("Cerner," the "Company," "we," "us" or "our") and its subsidiaries. All significant intercompany transactions have been eliminated in consolidation.

The consolidated financial statements were prepared using accounting principles generally accepted in the United States of America ("GAAP"). These principles require us to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities and the reported amounts of revenues and expenses. Actual results could differ from those estimates.

Our fiscal year ends on the Saturday closest to December 31. Fiscal years 2018, 2017 and 2016 each consisted of 52 weeks and ended on December 29, 2018, December 30, 2017 and December 31, 2016, respectively. All references to years in these notes to consolidated financial statements represent fiscal years unless otherwise noted.

Nature of Operations

We design, develop, market, install, host and support health care information technology, health care devices, hardware and content solutions for health care organizations and consumers. We also provide a wide range of value-added services, including implementation and training, remote hosting, operational management services, revenue cycle services, support and maintenance, health care data analysis, clinical process optimization, transaction processing, employer health centers, employee wellness programs and third party administrator services for employer-based health plans.

Factors Impacting Comparability of Financial Statements

As of December 29, 2018, we have separately presented deferred income taxes in our consolidated balance sheets and reclassified other non-current liabilities to the caption "other liabilities". While this reporting change did not impact our consolidated results, prior period reclassifications have been made to conform to the current period presentation.

Voluntary Separation Plans

In the fourth quarter of 2016, we adopted a voluntary separation plan ("2016 VSP") for eligible associates. This 2016 VSP was available to U.S. associates who met a minimum level of combined age and tenure. Associates who elected to participate in the 2016 VSP received financial benefits commensurate with their tenure and position, along with vacation payout and medical benefits. The irrevocable acceptance period for associates electing to participate in the 2016 VSP ended in December 2016. During 2016, we recorded pre-tax charges for the 2016 VSP of $36 million, which are included in general and administrative expense in our consolidated statements of operations. At the end of 2016, this program was complete.

In January 2019, we adopted a new voluntary separation plan ("2019 VSP") for eligible associates. Generally, this 2019 VSP is available to U.S. associates who meet a minimum level of combined age and tenure, excluding, among others, or executive officers. Associates who elect to participate in the 2019 VSP will receive financial benefits commensurate with their tenure and position, along with vacation payout, medical benefits, and accelerated vesting of certain share-based payment awards. Eligible associates will have until February 13, 2019 to indicate interest in participation. For those associates approved to participate, their voluntary departure date will be in April 2019. We expect to record expense related to the 2019 VSP in 2019, once we know the level of associate participation.

Supplemental Disclosures of Cash Flow Information

	For the Years Ended		
(In thousands)	**2018**	**2017**	**2016**
Cash paid during the year for:			
Interest (including amounts capitalized of $12,710, $10,387, and $14,852, respectively)	$ 15,707	$ 17,914	$ 18,484
Income taxes, net of refunds	(15,560)	186,544	254,539

Summary of Significant Accounting Policies

(a) Revenue Recognition - Refer to Note (2) for discussion regarding new revenue guidance adopted in the first quarter of 2018.

(b) Cash Equivalents - Cash equivalents consist of short-term marketable securities with original maturities less than 90 days.

(c) Available-for-sale Investments – Our short-term available-for-sale investments are primarily invested in time deposits, commercial paper, government and corporate bonds, with maturities of less than one year. Our long-term available-for-sale investments are primarily invested in government and corporate bonds with maturities of less than two years.

Available-for-sale securities are recorded at fair value with the unrealized gains and losses reflected in accumulated other comprehensive loss until realized. Realized gains and losses from the sale of available-for-sale securities, if any, are determined on a specific identification basis.

We regularly review investment securities for impairment based on both quantitative and qualitative criteria that include the extent to which cost exceeds fair value, the duration of any market decline, and the financial health of and specific prospects for the issuer. Unrealized losses that are other than temporary are recognized in earnings.

Premiums are amortized and discounts are accreted over the life of the security as adjustments to interest income for our investments. Interest income is recognized when earned.

Refer to Note (4) and Note (5) for further description of these assets and their fair value.

(d) Concentrations - The majority of our cash and cash equivalents are held at three major financial institutions. The majority of our cash equivalents consist of money market funds. Deposits held with banks may exceed the amount of insurance provided on such deposits. Generally these deposits may be redeemed upon demand.

(e) Inventory - Inventory consists primarily of computer hardware and sublicensed software, held for resale. Inventory is recorded at the lower of cost (first-in, first-out) or net realizable value.

(f) Property and Equipment - We account for property and equipment in accordance with Accounting Standards Codification Topic ("ASC") 360, *Property, Plant, and Equipment*. Property, equipment and leasehold improvements are stated at cost. Depreciation of property and equipment is computed using the straight-line method over periods of one to 50 years. Amortization of leasehold improvements is computed using a straight-line method over the shorter of the lease terms or the useful lives, which range from periods of one to 15 years.

(g) Software Development Costs - Software development costs are accounted for in accordance with ASC 985-20, *Costs of Software to be Sold, Leased or Marketed*. Software development costs incurred internally in creating computer software products are expensed until technological feasibility has been established upon completion of a detailed program design. Thereafter, all software development costs incurred through the software's general release date are capitalized and subsequently reported at the lower of amortized cost or net realizable value. Capitalized costs are amortized based on current and expected future revenue for each software solution with minimum annual amortization equal to the straight-line amortization over the estimated economic life of the solution. We amortize capitalized software development costs over five years.

(h) Goodwill - We account for goodwill under the provisions of ASC 350, *Intangibles – Goodwill and Other*. Goodwill is not amortized but is evaluated for impairment annually or whenever there is an impairment indicator. All goodwill is assigned to a reporting unit, where it is subject to an annual impairment assessment. Based on these evaluations, there was no impairment of goodwill in 2018, 2017 or 2016. Refer to Note (7) for more information on goodwill and other intangible assets.

(i) Intangible Assets - We account for intangible assets in accordance with ASC 350, *Intangibles – Goodwill and Other*. Amortization of finite-lived intangible assets is computed using the straight-line method over periods of three to 30 years.

(j) Income Taxes - Income taxes are accounted for in accordance with ASC 740, *Income Taxes*. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Refer to Note (12) for additional information regarding income taxes.

(k) Earnings per Common Share - Basic earnings per share ("EPS") excludes dilution and is computed, in accordance with ASC 260, *Earnings Per Share*, by dividing income available to common shareholders by the weighted-average number of common shares outstanding for the period. Diluted EPS reflects the potential dilution that could occur if securities or other contracts to issue stock were exercised or converted into common stock or resulted in the issuance of common stock that then shared in our earnings. Refer to Note (13) for additional details of our earnings per share computations.

(l) Accounting for Share-based Payments - We recognize all share-based payments to associates, directors and consultants, including grants of stock options, restricted stock and performance shares, in the financial statements as compensation cost based on their fair value on the date of grant, in accordance with ASC 718, *Compensation-Stock Compensation*. This compensation cost is recognized over the vesting period on a straight-line basis for the fair value of awards that actually vest. Refer to Note (14) for a detailed discussion of share-based payments.

In 2017 we adopted Accounting Standards Update ("ASU") 2016-09, *Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting.* ASU 2016-09 impacted several aspects of our accounting for share-based payment award transactions, including: (1) accounting and cash flow classification for excess tax benefits and deficiencies, (2) forfeitures, and (3) tax withholding requirements and cash flow classification.

Prior to the adoption of ASU 2016-09, when associates exercised stock options, or upon the vesting of restricted stock awards, we recognized any related excess tax benefits or deficiencies (the difference between the deduction for tax purposes and the cumulative compensation cost recognized in the consolidated financial statements) in additional paid-in capital ("APIC"). During 2016 we recognized net excess tax benefits in APIC of $53 million. Under the new guidance, all excess tax benefits and tax deficiencies are recognized as a component of income tax expense. They are not estimated when determining the annual estimated effective tax rate; instead, they are recorded as discrete items in the reporting period they occur. This provision of the new guidance was required to be applied prospectively, and prior periods were not retrospectively adjusted.

We utilize the treasury stock method for calculating diluted earnings per share. Prior to the adoption of ASU 2016-09, this method assumed that any net excess tax benefits generated from the hypothetical exercise of dilutive options were used to repurchase outstanding shares. Assumed share repurchases for net excess tax benefits included in our calculation of diluted earnings per share for 2016 were 2.0 million shares. Under the new guidance, net excess tax benefits generated from the hypothetical exercise of dilutive options are excluded from the calculation of diluted earnings per share. Therefore, the denominator in our diluted earnings per share calculation has increased (comparatively). This provision of the new guidance was required to be applied prospectively, and prior periods were not retrospectively adjusted.

(m) Voluntary Separation Benefits - We account for voluntary separation benefits in accordance with the provisions of ASC 712, *Compensation-Nonretirement Postemployment Benefits*. Voluntary separation benefits are recorded to expense when the associates irrevocably accept the offer and the amount of the termination liability is reasonably estimable.

(n) Foreign Currency - In accordance with ASC 830, *Foreign Currency Matters*, assets and liabilities of non-U.S. subsidiaries whose functional currency is the local currency are translated into U.S. dollars at exchange rates prevailing at the balance sheet date. Revenues and expenses are translated at average exchange rates during the year. The net exchange differences resulting from these translations are reported in accumulated other comprehensive loss. Gains and losses resulting from foreign currency transactions are included in the consolidated statements of operations.

(o) Collaborative Arrangements - In accordance with ASC 808, *Collaborative Arrangements*, third party costs incurred and revenues generated by arrangements involving joint operating activities of two or more parties that are each actively involved and exposed to risks and rewards of the activities are classified in the consolidated statements of operations on a gross basis only if we are determined to be the principal participant in the arrangement. Otherwise, third party revenues and costs generated by collaborative arrangements are presented on a net basis. Payments between participants are recorded and classified based on the nature of the payments.

(p) Accounting Pronouncements Adopted in 2018

Revenue Recognition. In the first quarter of 2018, we adopted new revenue guidance. Refer to Note (2) for further details.

Financial Instruments. In January 2016, the Financial Accounting Standards Board ("FASB") issued ASU 2016-01, *Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*, which was subsequently amended in February 2018 by ASU 2018-03, *Technical Corrections and Improvements to Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. This new guidance addresses certain aspects of recognition, measurement, presentation, and disclosure of financial instruments. Such guidance impacts how we account for our investments reported under the cost method of accounting as follows:

- Equity investments (except those accounted for under the equity method of accounting or those that result in consolidation of the investee) are required to be measured at fair value with changes in fair value recognized in net earnings. However, an entity may choose to measure equity investments that do not have readily determinable fair values at cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer.

- The impairment assessment of equity investments without readily determinable fair values will require a qualitative assessment to identify impairment. When a qualitative assessment indicates that impairment exists, an entity is required to measure the investment at fair value.

We adopted this new guidance effective for our first quarter of 2018. Provisions within the guidance applicable to the Company were required to be applied prospectively. We have elected to measure our cost method investments that do not have readily determinable fair values at cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. At December 29, 2018, we had cost method investments of $277 million, which do not have readily determinable fair values. Such investments are included in long-term investments in our consolidated balance sheets. We did not record any changes in the measurement of such investments during 2018.

Internal-Use Software. In August 2018, the FASB issued ASU 2018-15, *Intangibles - Goodwill and Other - Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract (a consensus of the FASB Emerging Issues Task Force)*. Such guidance aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. ASU 2018-15 is effective for the Company in the first quarter of 2020, with early adoption permitted, and either prospective or retrospective application accepted. The Company adopted the standard early, in the third quarter of 2018, and elected prospective application. The adoption of such guidance did not have a material impact on our consolidated financial statements and related disclosures.

(q) Recently Issued Accounting Pronouncements

Leases. In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*, which introduces a new model that requires most leases to be reported on the balance sheet and aligns many of the underlying principles of the new lessor model with those in the new revenue recognition standard. The standard requires the use of the modified retrospective (cumulative effect) transition approach. ASU 2016-02 is effective for the Company in the first quarter of 2019, with early adoption permitted. We are currently evaluating the effect that ASU 2016-02 will have on our consolidated financial statements and related disclosures.

In July 2018, the FASB issued ASU 2018-11, *Leases (Topic 842): Targeted Improvements*, which includes new transition guidance for the adoption of ASU 2016-02. Such guidance creates an additional transition method allowing entities to use the effective date of ASU 2016-02 as the date of initial application on transition. Under this method, entities will not be required to recast comparative periods when transitioning to the new guidance. Entities will also not be required to present comparative period disclosures under the new guidance in the period of adoption. We expect to select this new transition method upon our adoption in the first quarter of 2019.

In the fourth quarter of 2018, we continued our analysis of contractual arrangements that may qualify as leases under the new standard. We currently expect the most significant impact of this new guidance will be the recognition of right-of-use assets and lease liabilities for our operating leases of office space. Refer to Note (16) where we disclose aggregate minimum future payments under these arrangements of $125 million at the end of 2018.

Our analysis and evaluation of the new standard will continue through the effective date in the first quarter of 2019. We must complete our analysis of contractual arrangements, quantify all impacts of this new guidance, and evaluate related disclosures. We must also implement any necessary changes/modifications to processes, accounting systems, and internal controls.

Credit Losses on Financial Instruments. In June 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, which provides new guidance regarding the measurement and recognition of credit impairment for certain financial assets. Such guidance will impact how we determine our allowance for estimated uncollectible receivables and evaluate our available-for-sale investments for impairment. ASU 2016-13 is effective for the Company in the first quarter of 2020, with early adoption permitted in the first quarter of 2019. We are currently evaluating the effect that ASU 2016-13 will have on our consolidated financial statements and related disclosures, and we do not expect to early adopt.

Callable Debt Securities. In March 2017, the FASB issued ASU 2017-08, *Receivables - Nonrefundable Fees and Other Costs (Subtopic 310-20): Premium Amortization on Purchased Callable Debt Securities*, which shortens the amortization period for certain investments in callable debt securities purchased at a premium by requiring the premium be amortized to the earliest call date. Such guidance will impact how premiums are amortized on our available-for-sale investments. ASU 2017-08 is effective for the Company in the first quarter of 2019, with early adoption permitted. The standard requires the use of the modified retrospective (cumulative effect) transition approach. We do not expect ASU 2017-08 to have a material impact on our consolidated financial statements and related disclosures.

Accumulated Other Comprehensive Income. In February 2018, the FASB issued ASU 2018-02, *Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*, which allows a reclassification from accumulated other comprehensive income ("AOCI") to retained earnings for "stranded tax effects" resulting from certain U.S. tax reform enacted in December 2017. Such "stranded tax effects" were created when deferred tax assets and liabilities related to items in AOCI were remeasured at the lower U.S. corporate tax rate in the period of enactment. ASU 2018-02 is effective for the Company in the first quarter of 2019, with early adoption permitted. The guidance in this ASU is to be applied either in the period of adoption or retrospectively to each period (or periods) in which the effect of the change in the U.S. corporate tax rate was recognized. We are currently evaluating the effect that ASU 2018-02 will have on our consolidated financial statements and related disclosures.

Collaborative Arrangements. In November 2018, the FASB issued ASU 2018-18, *Collaborative Arrangements (Topic 808): Clarifying the Interaction between Topic 808 and Topic 606*, which clarifies when transactions between participants in a collaborative arrangement are within the scope of the FASB's new revenue standard (Topic 606). Such guidance clarifies revenue recognition and financial statement presentation for transactions between collaboration participants. ASU 2018-18 is effective for the Company in the first quarter of 2020, with early adoption permitted. The standard requires retrospective application to the date we adopted Topic 606, December 31, 2017. We are currently evaluating the effect that ASU 2018-18 will have on our consolidated financial statements and related disclosures, and we have not determined if we will early adopt.

(2) Revenue Recognition

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)*, which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. ASU 2014-09 replaced most existing revenue recognition guidance in U.S. GAAP. The new standard introduces a five-step process to be followed in determining the amount and timing of revenue recognition. It also provides guidance on accounting for costs incurred to obtain or fulfill contracts with customers, and establishes disclosure requirements which are more extensive than those required under prior U.S. GAAP.

ASU 2014-09, as amended ("Topic 606"), was effective for the Company in the first quarter of 2018. We selected the modified retrospective (cumulative effect) transition method of adoption. Such method provides that the cumulative effect from prior periods upon applying the new guidance to contracts which were not complete as of the adoption date be recognized in our consolidated balance sheets as of December 31, 2017, including an adjustment to retained earnings. A summary of such cumulative effect adjustment is as follows:

(In thousands)		Increase / (Decrease)
Receivables, net	$	(79,492)
Prepaid expenses and other		(2,253)
Other assets		81,157
Accounts payable		(9,361)
Deferred income taxes		1,173
Retained earnings		7,600

Prior periods were not retrospectively adjusted. The impact of applying Topic 606 (versus prior U.S. GAAP) increased 2018 revenues and earnings before income taxes by $207 million and $101 million, respectively. This impact is primarily driven by certain new contracts in 2018, which include certain specified upgrades for which we are required to estimate stand-alone selling price when allocating transaction consideration to performance obligations. Under prior U.S. GAAP, we would not have been able to establish vendor specific objective evidence ("VSOE") of fair value for such items, and thus would have delayed the timing of revenue recognition for such contracts.

The application of Topic 606 (versus prior U.S. GAAP) did not have a significant impact on other line items in our consolidated statements of operations, statements of comprehensive income, and statements of cash flows in 2018. Additionally, the application of Topic 606 did not have a significant impact on our consolidated balance sheet as of December 29, 2018.

Revenue Recognition Policy

We enter into contracts with customers that may include various combinations of our software solutions and related services, which are generally capable of being distinct and accounted for as separate performance obligations. The predominant model of customer procurement involves multiple deliverables and includes a software license agreement, project-related implementation and consulting services, software support, hosting services, and computer hardware. We allocate revenues to each performance obligation within an arrangement based on estimated relative stand-alone selling price. Revenue is then recognized for each performance obligation upon transfer of control of the software solution or services to the customer in an amount that reflects the consideration we expect to receive.

Generally, we recognize revenue under Topic 606 for each of our performance obligations as follows:

- Perpetual software licenses - We recognize perpetual software license revenues when control of such licenses are transferred to the client ("point in time"). We determine the amount of consideration allocated to this performance obligation using the residual approach.

- Software as a service - We recognize software as a service ratably over the related hosting period ("over time").

- Time-based software and content license fees - We recognize a license component of time-based software and content license fees upon delivery to the client ("point in time") and a non-license component (i.e. support) ratably over the respective contract term ("over time").

- Hosting - Remote hosting recurring services are recognized ratably over the hosting service period ("over time"). Certain of our hosting arrangements contain fees deemed to be a "material right" under Topic 606. We recognize such fees over the term that will likely affect the client's decision about whether to renew the related hosting service ("over time").

- Services - We recognize revenue for fixed fee services arrangements over time, utilizing a labor hours input method. For fee-for-service arrangements, we recognize revenue over time as hours are worked at the rates clients are invoiced, utilizing the "as invoiced" practical expedient available in Topic 606. For stand-ready services arrangements, we recognize revenue ratably over the related service period.

- Support and maintenance - We recognize support and maintenance fees ratably over the related contract period ("over time").
- Hardware - We recognize hardware revenues when control of such hardware/devices is transferred to the client ("point in time").
- Transaction processing - We recognize transaction processing revenues ratably as we provide such services ("over time").

Such revenues are recognized net of any taxes collected from customers and subsequently remitted to governmental authorities.

Disaggregation of Revenue

The following table presents revenues disaggregated by our business models:

	For the Years Ended								
	2018			2017[1]			2016[1]		
(In thousands)	Domestic Segment	Global Segment	Total	Domestic Segment	Global Segment	Total	Domestic Segment	Global Segment	Total
Licensed software	$ 573,034	$ 40,544	$ 613,578	$ 563,524	$ 48,666	$ 612,190	$ 499,422	$ 49,697	$ 549,119
Technology resale	208,722	36,354	245,076	248,524	25,069	273,593	246,694	27,781	274,475
Subscriptions	300,555	25,154	325,709	446,426	22,963	469,389	416,311	26,057	442,368
Professional services	1,574,407	237,056	1,811,463	1,393,056	198,793	1,591,849	1,251,726	192,852	1,444,578
Managed services	1,060,081	94,860	1,154,941	970,609	76,523	1,047,132	909,584	71,993	981,577
Support and maintenance	921,336	196,780	1,118,116	856,304	190,352	1,046,656	838,745	177,066	1,015,811
Reimbursed travel	92,131	5,311	97,442	96,728	4,735	101,463	82,615	5,930	88,545
Total revenues	$ 4,730,266	$ 636,059	$ 5,366,325	$ 4,575,171	$ 567,101	$ 5,142,272	$ 4,245,097	$ 551,376	$ 4,796,473

[1]As noted above, prior period amounts were not adjusted upon our adoption of Topic 606.

The following table presents our revenues disaggregated by timing of revenue recognition:

	For the Year Ended		
	2018		
(In thousands)	Domestic Segment	Global Segment	Total
Revenue recognized over time	$ 4,271,934	$ 569,780	$ 4,841,714
Revenue recognized at a point in time	458,332	66,279	524,611
Total revenues	$ 4,730,266	$ 636,059	$ 5,366,325

Transaction Price Allocated to Remaining Performance Obligations

As of December 29, 2018, the aggregate amount of transaction price allocated to performance obligations that are unsatisfied (or partially unsatisfied) for executed contracts approximates $15.25 billion, of which we expect to recognize approximately 29% of the revenue over the next 12 months and the remainder thereafter.

Contract Liabilities

Our payment arrangements with clients typically include an initial payment due upon contract signing and date-based licensed software payment terms and payments based upon delivery for services, hardware and sublicensed software. Customer payments received in advance of satisfaction of the related performance obligations are deferred as contract liabilities. Such amounts are classified in our consolidated balance sheets as deferred revenue. During 2018, substantially all of our contract liability balance at the beginning of such period was recognized in revenues.

Costs to Obtain or Fulfill a Contract

We have determined the only significant incremental costs incurred to obtain contracts with clients within the scope of Topic 606 are sales commissions paid to our associates. We record sales commissions as an asset, and amortize to expense ratably over the remaining performance periods of the related contracts with remaining performance obligations. At December 29, 2018, our consolidated balance sheet includes an $86 million asset related to sales commissions to be expensed in future periods, which is included in other assets.

In 2018, we recognized $41 million of amortization related to this sales commissions asset, which is included in costs of revenue in our consolidated statements of operations.

Significant Judgments when Applying Topic 606

Our contracts with clients typically include various combinations of our software solutions and related services. Determining whether such software solutions and services are considered distinct performance obligations that should be accounted for separately versus together may require significant judgment. Specifically, judgment is required to determine whether software licenses are distinct from services and hosting included in an arrangement.

Contract transaction price is allocated to performance obligations using estimated stand-alone selling price. Judgment is required in estimating stand-alone selling price for each distinct performance obligation. We determine stand-alone selling price maximizing observable inputs such as stand-alone sales when they exist or substantive renewal prices charged to clients. In instances where stand-alone selling price is not observable, we utilize an estimate of stand-alone selling price. Such estimates are derived from various methods that include: cost plus margin, historical pricing practices, and the residual approach, which requires a considerable amount of judgment.

The labor hours input method used for our fixed fee services performance obligation is dependent on our ability to reliably estimate the direct labor hours to complete a project, which may span several years. We utilize our historical project experience and detailed planning process as a basis for our future estimates to complete current projects.

Certain of our arrangements contain variable consideration. We do not believe our estimates of variable consideration to be significant to our determination of revenue recognition.

Practical Expedients

We have reflected the aggregate effect of all contract modifications occurring prior to the Topic 606 adoption date when (i) identifying the satisfied and unsatisfied performance obligations, (ii) determining the transaction price, and (iii) allocating the transaction price to the satisfied and unsatisfied performance obligations.

Revenue Recognition - 2017 and Prior

Prior to the adoption of Topic 606, we recognized software related revenue in accordance with the provisions of ASC 985-605, *Software - Revenue Recognition* and non-software related revenue in accordance with ASC 605, *Revenue Recognition*. In general, revenue was recognized when all of the following criteria were met:

- Persuasive evidence of an arrangement existed;

- Delivery had occurred or services had been rendered;
- Our fee was fixed or determinable; and
- Collection of the revenue was reasonably assured.

For multiple element arrangements that contained software and non-software elements, we allocated revenue to software and software-related elements as a group and any non-software element separately. After the arrangement consideration had been allocated to the non-software elements, revenue was recognized when the basic revenue recognition criteria were met for each element. For the group of software and software-related elements, revenue was recognized under the guidance applicable to software transactions.

Since we did not have VSOE of fair value on software licenses within our multiple element arrangements, we recognized revenue on our software and software-related elements using the residual method. Under the residual method, license revenue was recognized in a multiple-element arrangement when VSOE of fair value existed for all of the undelivered elements in the arrangement, when software was delivered, installed and all other conditions to revenue recognition were met. We allocated revenue to each undelivered element in a multiple-element arrangement based on the element's respective fair value, with the fair value determined by the price charged when that element was sold separately. Specifically, we determined the fair value of (i) the software support, hardware maintenance, sublicensed software support, remote hosting, subscriptions and software as a service portions of the arrangement based on the substantive renewal price for those services charged to clients; (ii) the professional services (including training and consulting) portion of the arrangement based on the hourly rates that we charged for these services when sold apart from a software license; and (iii) the sublicensed software based on its price when sold separately from the software. The residual amount of the fee after allocating revenue to the fair value of the undelivered elements was attributed to the licenses for software solutions. If evidence of the fair value could not be established for the undelivered elements of a license agreement using VSOE, the entire amount of revenue under the arrangement was deferred until those elements were delivered or VSOE of fair value was established.

We also entered into arrangements that included multiple non-software deliverables. For each element in a multiple element arrangement that did not contain software-related elements to be accounted for as a separate unit of accounting, the following were met: the delivered products or services had value to the client on a stand-alone basis; and for an arrangement that includes a general right of return relative to the delivered products or services, delivery or performance of the undelivered product or service was considered probable and is substantially controlled by the Company. We allocated the arrangement consideration to each element based on the selling price hierarchy of VSOE of fair value, if it existed, or third-party evidence ("TPE") of selling price. If neither VSOE nor TPE were available, we used estimated selling price.

For certain arrangements, revenue for software, implementation services and, in certain cases, support services for which VSOE of fair value could not be established were accounted for as a single unit of accounting. If VSOE of fair value could not be established for both the implementation services and the support services, the entire arrangement fee was recognized ratably over the period during which the implementation services were expected to be performed or the support period, whichever was longer, beginning with delivery of the software, provided that all other revenue recognition criteria were met.

(3) Receivables

Receivables consist of client receivables and the current portion of amounts due under sales-type leases.

Client receivables represent recorded revenues that have either been billed, or for which we have an unconditional right to invoice and receive payment in the future. We periodically provide long-term financing options to creditworthy clients through extended payment terms. Generally, these extended payment terms provide for date-based payments over a fixed period, not to exceed the term of the overall arrangement. Thus, our portfolio of client contracts contains a financing component, which is recognized over time as a component of other income, net in our consolidated statements of operations.

Lease receivables represent our net investment in sales-type leases resulting from the sale of certain health care devices to our clients.

We perform ongoing credit evaluations of our clients and generally do not require collateral from our clients. We provide an allowance for estimated uncollectible accounts based on specific identification, historical experience and our judgment.

A summary of net receivables is as follows:

(In thousands)	2018	2017
Client receivables	$ 1,237,127	$ 1,082,886
Less: Allowance for doubtful accounts	64,561	52,786
Client receivables, net of allowance	1,172,566	1,030,100
Current portion of lease receivables	10,928	12,681
Total receivables, net	$ 1,183,494	$ 1,042,781

A reconciliation of the beginning and ending amount of our allowance for doubtful accounts is as follows:

(in thousands)	2018	2017	2016
Allowance for doubtful accounts - beginning balance	$ 52,786	$ 43,028	$ 48,119
Additions charged to costs and expenses	25,529	29,248	5,060
Deductions[(a)]	(13,754)	(19,490)	(10,151)
Allowance for doubtful accounts - ending balance	$ 64,561	$ 52,786	$ 43,028

[(a)] Deductions in 2017 include a $13 million reclassification to other non-current assets.

Lease receivables represent our net investment in sales-type leases resulting from the sale of certain health care devices to our clients. The components of our net investment in sales-type leases are as follows:

(In thousands)	2018	2017
Minimum lease payments receivable	$ 11,854	$ 20,425
Less: Unearned income	926	1,447
Total lease receivables	10,928	18,978
Less: Long-term receivables included in other assets	—	6,297
Current portion of lease receivables	$ 10,928	$ 12,681

During the second quarter of 2008, Fujitsu Services Limited's ("Fujitsu") contract as the prime contractor in the National Health Service ("NHS") initiative to automate clinical processes and digitize medical records in the Southern region of England was terminated. This gave rise to the termination of our subcontract for the project. We continue to be in dispute with Fujitsu regarding Fujitsu's obligation to pay amounts due upon termination, including our client receivables and damages for pre-termination losses. Part of the process required final resolution of disputes between Fujitsu and the NHS regarding the prime contract termination, which has now occurred. In 2018 we initiated the formal dispute resolution procedure under the subcontract, with the non-binding alternative dispute resolution procedures concluding in the fourth quarter of 2018. The Company must now resolve the issues based on the formal processes provided for in the subcontract. In the fourth quarter of 2018 we recorded a pre-tax charge of $45 million to provide an allowance against the disputed client receivables, reflecting the uncertainty in collection of such receivables and related litigation risk resulting from the conclusion of the non-binding alternative dispute resolution procedures. Such pre-tax charge is included in sales and client service expense in our consolidated statements of operations. As of December 29, 2018, it remains unlikely that our matter with Fujitsu will be resolved in the next 12 months. Therefore, these client receivables remain classified in other long-term assets at December 29, 2018. While the ultimate collectability of the client receivables pursuant to this process is uncertain, we believe that we have valid and equitable grounds for recovery of such amounts. Nevertheless, it is possible that our estimates regarding collectability of such amounts might materially change as the parties proceed through the formal phases of the subcontract dispute resolution procedure.

During 2018 and 2017, we received total client cash collections of $5.49 billion and $5.44 billion, respectively.

(4) Investments

Available-for-sale investments at the end of 2018 were as follows:

(In thousands)	Adjusted Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Cash equivalents:				
Money market funds	$ 76,471	$ —	$ —	$ 76,471
Time deposits	71,461	—	—	71,461
Commercial paper	10,000	—	—	10,000
Total cash equivalents	157,932	—	—	157,932
Short-term investments:				
Time deposits	31,947	—	—	31,947
Commercial paper	75,445	—	(91)	75,354
Government and corporate bonds	294,941	1	(958)	293,984
Total short-term investments	402,333	1	(1,049)	401,285
Long-term investments:				
Government and corporate bonds	18,247	—	(55)	18,192
Total available-for-sale investments	$ 578,512	$ 1	$ (1,104)	$ 577,409

Available-for-sale investments at the end of 2017 were as follows:

(In thousands)	Adjusted Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Cash equivalents:				
Money market funds	$ 99,472	$ —	$ —	$ 99,472
Time deposits	60,226	—	—	60,226
Government and corporate bonds	850	—	—	850
Total cash equivalents	160,548	—	—	160,548
Short-term investments:				
Time deposits	40,186	—	—	40,186
Commercial paper	147,646	2	(139)	147,509
Government and corporate bonds	247,626	—	(477)	247,149
Total short-term investments	435,458	2	(616)	434,844
Long-term investments:				
Government and corporate bonds	185,478	—	(1,026)	184,452
Total available-for-sale investments	$ 781,484	$ 2	$ (1,642)	$ 779,844

Investments reported under the cost method of accounting as of December 29, 2018 and December 30, 2017 were $277 million and $11 million, respectively. Investments reported under the equity method of accounting were $5 million and $2 million at December 29, 2018 and December 30, 2017, respectively.

We sold available-for-sale investments for proceeds of $45 million and $29 million in 2018 and 2017, respectively, resulting in insignificant gains/losses in each period.

Essence Group Holdings Corporation

On July 27, 2018, we acquired a minority interest in Essence Group Holdings Corporation ("Essence Group") for cash consideration of $266 million under a Stock Purchase Agreement ("SPA") dated July 9, 2018. Such investment is presented in long-term investments in our consolidated balance sheets and is accounted for under the cost method of accounting.

Concurrently with the execution of the SPA, we announced a strategic operating relationship with Lumeris Healthcare Outcomes, LLC ("Lumeris"), a subsidiary of Essence Group, pursuant to which we will collaborate to bring to market an EHR-agnostic offering, *Maestro Advantage™*, designed to help providers who participate in value-based arrangements, including Medicare Advantage and provider-sponsored health plans, control costs and improve outcomes. Additionally, we sold certain solutions to Lumeris for an aggregate contract value of $28 million, of which we recognized $5 million as revenue in 2018.

(5) Fair Value Measurements

We determine fair value measurements used in our consolidated financial statements based upon the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value hierarchy distinguishes between (1) market participant assumptions developed based on market data obtained from independent sources (observable inputs) and (2) an entity's own assumptions about market participant assumptions developed based on the best information available in the circumstances (unobservable inputs). The fair value hierarchy consists of three broad levels, which gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy are described below:

- Level 1 – Valuations based on quoted prices in active markets for identical assets or liabilities that the entity has the ability to access.
- Level 2 – Valuations based on quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable data for substantially the full term of the assets or liabilities.
- Level 3 – Valuations based on inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The following table details our financial assets measured and recorded at fair value on a recurring basis at the end of 2018:

(In thousands)

		Fair Value Measurements Using		
Description	**Balance Sheet Classification**	**Level 1**	**Level 2**	**Level 3**
Money market funds	Cash equivalents	$ 76,471	$ —	$ —
Time deposits	Cash equivalents	—	71,461	—
Commercial paper	Cash equivalents	—	10,000	—
Time deposits	Short-term investments	—	31,947	—
Commercial paper	Short-term investments	—	75,354	—
Government and corporate bonds	Short-term investments	—	293,984	—
Government and corporate bonds	Long-term investments	—	18,192	—

The following table details our financial assets measured and recorded at fair value on a recurring basis at the end of 2017:

(In thousands)

Description	Balance Sheet Classification	Fair Value Measurements Using Level 1	Level 2	Level 3
Money market funds	Cash equivalents	$ 99,472	$ —	$ —
Time deposits	Cash equivalents	—	60,226	—
Government and corporate bonds	Cash equivalents	—	850	—
Time deposits	Short-term investments	—	40,186	—
Commercial paper	Short-term investments	—	147,509	—
Government and corporate bonds	Short-term investments	—	247,149	—
Government and corporate bonds	Long-term investments	—	184,452	—

We estimate the fair value of our long-term, fixed rate debt using a Level 3 discounted cash flow analysis based on current borrowing rates for debt with similar maturities. We estimate the fair value of our long-term, variable rate debt using a Level 3 discounted cash flow analysis based on LIBOR rate forward curves. The fair value of our long-term debt, including current maturities, at the end of 2018 and 2017 was approximately $431 million and $519 million, respectively. The carrying amount of such debt at the end of 2018 and 2017 was $425 million and $500 million, respectively.

(6) Property and Equipment

A summary of property, equipment and leasehold improvements stated at cost, less accumulated depreciation and amortization, is as follows:

(In thousands)	Depreciable Lives (Yrs)	2018	2017
Computer and communications equipment	1 — 5	$ 1,686,747	$ 1,511,445
Land, buildings and improvements	12 — 50	1,239,122	1,051,658
Leasehold improvements	1 — 15	214,697	216,586
Furniture and fixtures	5 — 12	132,180	123,945
Capital lease equipment	3 — 5	—	3,197
Other equipment	3 — 20	1,255	1,161
		3,274,001	2,907,992
Less accumulated depreciation and leasehold amortization		1,530,426	1,304,673
Total property and equipment, net		$ 1,743,575	$ 1,603,319

Depreciation and leasehold amortization expense for 2018, 2017 and 2016 was $323 million, $290 million and $246 million, respectively.

(7) Goodwill and Other Intangible Assets

The changes in the carrying amounts of goodwill were as follows:

(In thousands)	Domestic	Global	Total
Balance at the end of 2016	$ 782,664	$ 61,536	$ 844,200
Foreign currency translation adjustment and other	—	8,805	8,805
Balance at the end of 2017	782,664	70,341	853,005
Foreign currency translation adjustment and other	—	(5,461)	(5,461)
Balance at the end of 2018	$ 782,664	$ 64,880	$ 847,544

A summary of net intangible assets is as follows:

(In thousands)	2018 Gross Carrying Amount	2018 Accumulated Amortization	2017 Gross Carrying Amount	2017 Accumulated Amortization
Customer lists	$ 465,909	$ 229,545	$ 472,697	$ 195,190
Purchased software	361,964	311,738	369,728	282,141
Internal use software	143,520	78,633	114,574	60,924
Trade names	40,025	21,275	41,224	16,961
Other	47,905	12,827	46,581	9,835
Total	$ 1,059,323	$ 654,018	$ 1,044,804	$ 565,051
Intangible assets, net		$ 405,305		$ 479,753

Amortization expense for 2018, 2017 and 2016 was $109 million, $118 million and $118 million, respectively.

Estimated aggregate amortization expense for each of the next five years is as follows:

(In thousands)	
2019	$ 113,566
2020	65,184
2021	58,314
2022	53,071
2023	43,927

(8) Software Development

Information regarding our software development costs is included in the following table:

(In thousands)	For the Years Ended 2018	2017	2016
Software development costs	$ 747,128	$ 705,944	$ 704,882
Capitalized software development costs	(273,693)	(274,148)	(293,696)
Amortization of capitalized software development costs	210,228	173,250	140,232
Total software development expense	$ 683,663	$ 605,046	$ 551,418

Accumulated amortization as of the end of 2018 and 2017 was $1.5 billion and $1.3 billion, respectively.

(9) Long-term Debt and Capital Lease Obligations

The following is a summary of indebtedness outstanding:

(In thousands)	2018	2017
Senior Notes	$ 425,000	$ 500,000
Capital lease obligations	4,914	13,068
Other	14,162	14,162
Debt and capital lease obligations	444,076	527,230
Less: debt issuance costs	(360)	(515)
Debt and capital lease obligations, net	443,716	526,715
Less: current portion	(4,914)	(11,585)
Long-term debt and capital lease obligations	$ 438,802	$ 515,130

Senior Notes

In January 2015, we issued $500 million aggregate principal amount of unsecured Senior Notes ("Senior Notes"), pursuant to a Master Note Purchase Agreement dated December 4, 2014. The issuance consisted of $225 million of 3.18% Series 2015-A Notes due February 15, 2022, $200 million of 3.58% Series 2015-B Notes due February 14, 2025, and $75 million in floating rate Series 2015-C Notes due February 15, 2022. Interest is payable semiannually on February 15th and August 15th in each year, commencing on August 15, 2015 for the Series 2015-A Notes and Series 2015-B Notes. The debt issuance costs in the table above relate to the issuance of these Senior Notes. The Master Note Purchase Agreement contains certain leverage and interest coverage ratio covenants and provides certain restrictions on our ability to borrow, incur liens, sell assets, and other customary terms. Proceeds from the Senior Notes are available for general corporate purposes.

In March 2018, we repaid our $75 million floating rate Series 2015-C Notes due February 15, 2022.

Capital Leases

Our capital lease obligations are primarily related to the procurement of hardware and health care devices.

Other

Other indebtedness includes estimated amounts payable through September 2025, under an agreement entered into in September 2015.

Credit Facility

In October 2015, we amended and restated our revolving credit facility. The amended facility provides a $100 million unsecured revolving line of credit for working capital purposes, which includes a letter of credit facility, expiring in October 2020. We have the ability to increase the maximum capacity to $200 million at any time during the facility's term, subject to lender participation. Interest is payable at a rate based on prime, LIBOR, or the U.S. federal funds rate, plus a spread that varies depending on the leverage ratios maintained. The agreement provides certain restrictions on our ability to borrow, incur liens, sell assets and pay dividends and contains certain cash flow and liquidity covenants. As of the end of 2018, we had no outstanding borrowings under this facility; however, we had $30 million of outstanding letters of credit, which reduced our available borrowing capacity to $70 million.

Covenant Compliance

As of December 29, 2018, we were in compliance with all debt covenants.

Minimum annual payments under existing capital lease obligations and maturities of indebtedness outstanding at the end of 2018 are as follows:

	Capital Lease Obligations					
(In thousands)	Minimum Lease Payments	Less: Interest	Principal	Senior Notes	Other	Total
2019	$ 5,057	$ 143	$ 4,914	$ —	$ —	$ 4,914
2020	—	—	—	—	2,500	2,500
2021	—	—	—	—	—	—
2022	—	—	—	225,000	1,100	226,100
2023	—	—	—	—	1,700	1,700
2024 and thereafter	—	—	—	200,000	8,862	208,862
Total	$ 5,057	$ 143	$ 4,914	$ 425,000	$ 14,162	$ 444,076

(10) Contingencies

We accrue estimates for resolution of any legal and other contingencies when losses are probable and reasonably estimable, in accordance with ASC 450, *Contingencies*.

The terms of our software license agreements with our clients generally provide for a limited indemnification of such clients against losses, expenses and liabilities arising from third party claims based on alleged infringement by our solutions of an intellectual property right of such third party. The terms of such indemnification often limit the scope of and remedies for such indemnification obligations and generally include a right to replace or modify an infringing solution. To date, we have not had to reimburse any of our clients for any judgments or settlements to third parties related to these indemnification provisions pertaining to intellectual property infringement claims. For several reasons, including the lack of a sufficient number of prior indemnification claims and the lack of a monetary liability limit for certain infringement cases under the terms of the corresponding agreements with our clients, we cannot determine the maximum amount of potential future payments, if any, related to such indemnification provisions.

Refer to Note (3) with regard to our dispute with Fujitsu.

In addition to commitments and obligations in the ordinary course of business, we are involved in various other legal proceedings and claims that arise in the ordinary course of business, including for example, employment and client disputes and litigation alleging solution and implementation defects, personal injury, intellectual property infringement, violations of law and breaches of contract and warranties. Many of these proceedings are at preliminary stages and many seek an indeterminate amount of damages. At this time, we do not believe the range of potential losses under such claims to be material to our consolidated financial statements.

No less than quarterly, we review the status of each significant matter and assess our potential financial exposure. We accrue a liability for an estimated loss if the potential loss from any legal proceeding or claim is considered probable and the amount can be reasonably estimated. Significant judgment is required in both the determination of probability and the determination as to whether the amount of an exposure is reasonably estimable, and accruals are based only on the information available to our management at the time the judgment is made. Furthermore, the outcome of legal proceedings is inherently uncertain, and we may incur substantial defense costs and expenses defending any of these matters. Should any one or a combination of more than one of these proceedings be successful, or should we determine to settle any one or a combination of these matters, we may be required to pay substantial sums, become subject to the entry of an injunction or be forced to change the manner in which we operate our business, which could have a material adverse impact on our business, results of operations, cash flows or financial condition.

(11) Other Income

A summary of non-operating income and expense is as follows:

(In thousands)	For the Years Ended 2018	2017	2016
Interest income	$ 34,211	$ 18,933	$ 15,252
Interest expense	(7,987)	(8,012)	(4,479)
Other	(158)	(4,263)	(3,352)
Other income, net	$ 26,066	$ 6,658	$ 7,421

(12) Income Taxes

Income tax expense (benefit) for 2018, 2017 and 2016 consists of the following:

(In thousands)	For the Years Ended 2018	2017	2016
Current:			
Federal	$ 89,551	$ 37,708	$ 252,795
State	24,804	4,878	31,642
Foreign	22,009	10,156	9,030
Total current expense	136,364	52,742	293,467
Deferred:			
Federal	31,129	13,676	(18,014)
State	8,144	23,278	(2,103)
Foreign	(4,845)	10,455	8,600
Total deferred expense (benefit)	34,428	47,409	(11,517)
Total income tax expense	$ 170,792	$ 100,151	$ 281,950

Temporary differences between the financial statement carrying amounts and tax basis of assets and liabilities that give rise to significant portions of deferred income taxes at the end of 2018 and 2017 relate to the following:

(In thousands)	2018	2017
Deferred tax assets:		
Accrued expenses	$ 31,273	$ 23,295
Tax credits and separate return net operating losses	22,826	26,304
Share-based compensation	60,901	56,263
Other	14,951	17,754
Gross deferred tax assets	129,951	123,616
Less: Valuation Allowance	(1,404)	—
Total deferred tax assets	128,547	123,616
Deferred tax liabilities:		
Software development costs	(229,624)	(208,494)
Depreciation and amortization	(131,516)	(96,492)
Prepaid expenses	(39,154)	(21,214)
Contract and service revenues and costs	(35,933)	(65,043)
Other	(6,199)	(10,400)
Total deferred tax liabilities	(442,426)	(401,643)
Net deferred tax liability	$ (313,879)	$ (278,027)

At the end of 2018, we had net operating loss carry-forwards from foreign jurisdictions of $30 million that are available to offset future taxable income with no expiration. In addition, we had a state income tax credit carry-forward of $12 million available to offset income tax liabilities through 2030. We expect to fully utilize the net operating loss and tax credit carry-forwards in future periods.

At the end of 2018, we had not provided tax on the cumulative undistributed earnings of certain foreign subsidiaries of approximately $69 million, because it is our intention to reinvest these earnings indefinitely. The unrecognized deferred tax liability relating to these earnings is approximately $15 million.

The effective income tax rates for 2018, 2017, and 2016 were 21%, 10%, and 31%, respectively. These effective rates differ from the U.S. federal statutory rate of 21% for 2018 and 35% for 2017 and 2016 as follows:

	For the Years Ended		
(In thousands)	2018	2017	2016
Tax expense at statutory rates	$ 168,179	$ 338,495	$ 321,452
State income tax, net of federal benefit	25,321	22,214	22,644
Tax credits	(19,737)	(17,727)	(23,881)
Foreign rate differential	(4,851)	(26,379)	(16,468)
Share-based compensation	(1,696)	(62,501)	—
Change in U.S. tax rate	—	(170,999)	—
Deemed mandatory repatriation	—	25,114	—
Permanent differences	6,224	(10,700)	(20,330)
Other, net	(2,648)	2,634	(1,467)
Total income tax expense	$ 170,792	$ 100,151	$ 281,950

H.R. 1, *An Act to provide for reconciliation pursuant to titles II and V* of the concurrent resolution on the budget for fiscal year 2018 ("U.S. Tax Reform"), was enacted on December 22, 2017. U.S. Tax reform provides for, among other things, the reduction of the U.S. corporate tax rate from 35% to 21%, effective January 1, 2018. The impact of U.S. Tax Reform on our 2017 tax rate includes the impact of the revaluation of our net deferred tax liability to the lower enacted tax rate, and the impact of mandatory deemed repatriation. U.S. Tax Reform impacts our 2018 tax rate through the reduced federal statutory tax rate, partially offset by the repeal of the permanent domestic production deduction and increases to permanently nondeductible expenses, as well as a new global intangible low-taxed income ("GILTI") inclusion. We have elected to account for GILTI in the period in which it is incurred, and therefore have not provided any deferred tax impacts of GILTI in our consolidated financial statements for 2017 or 2018.

Relevant accounting guidance provides that the impact of the enactment of U.S. Tax Reform may be provisionally recorded in 2017 and adjusted during a measurement period of up to one year. As of December 30, 2017, we provisionally recorded certain impacts of U.S. Tax Reform including the adjustment to our net deferred tax liability arising from the reduction in the federal tax rate as well as the impact of mandatory deemed repatriation. Adjustments to these provisional amounts that we recorded in 2018 did not have a significant impact on our consolidated financial statements. Our accounting for the effects of the enactment of U.S. Tax Reform is now complete.

A reconciliation of the beginning and ending amount of unrecognized tax benefit is presented below:

(In thousands)	2018	2017	2016
Unrecognized tax benefit - beginning balance	$ 15,287	$ 9,769	$ 4,878
Gross decreases - tax positions in prior periods	—	(1,734)	—
Gross increases - tax positions in prior periods	1,591	7,252	—
Gross increases - tax positions in current year	2,370	—	6,945
Settlements	(541)	—	(1,859)
Currency translation	(19)	—	(195)
Unrecognized tax benefit - ending balance	$ 18,688	$ 15,287	$ 9,769

If recognized, $11 million of the unrecognized tax benefit will favorably impact our effective tax rate. It is reasonably possible that our unrecognized tax benefits may decrease by up to $11 million within the next twelve months. Our federal returns have been examined by the Internal Revenue Service through 2014. Our federal returns are open for examination for 2015 and thereafter, and our 2016 return is currently under examination. We have various state and foreign returns under examination.

The ending amounts of accrued interest and penalties related to unrecognized tax benefits were $3 million in 2018 and $2 million in 2017. We classify interest and penalties as income tax expense in our consolidated statement of operations, and our income tax expense for 2018 includes $1 million of interest and penalties.

The foreign portion of our earnings before income taxes was $89 million, $126 million, and $86 million in 2018, 2017, and 2016 respectively, and the remaining portion was domestic.

(13) Earnings Per Share

A reconciliation of the numerators and the denominators of the basic and diluted per share computations are as follows:

	2018			2017			2016		
(In thousands, except per share data)	Earnings (Numerator)	Shares (Denominator)	Per-Share Amount	Earnings (Numerator)	Shares (Denominator)	Per-Share Amount	Earnings (Numerator)	Shares (Denominator)	Per-Share Amount
Basic earnings per share:									
Income available to common shareholders	$ 630,059	330,084	$ 1.91	$ 866,978	331,373	$ 2.62	$ 636,484	337,740	$ 1.88
Effect of dilutive securities:									
Stock options and non-vested shares	—	3,488		—	6,626		—	5,913	
Diluted earnings per share:									
Income available to common shareholders including assumed conversions	$ 630,059	333,572	$ 1.89	$ 866,978	337,999	$ 2.57	$ 636,484	343,653	$ 1.85

Options to purchase 12.9 million, 10.6 million and 9.4 million shares of common stock at per share prices ranging from $50.04 to $73.40, $50.04 to $73.40 and $47.38 to $73.40, were outstanding at the end of 2018, 2017 and 2016, respectively, but were not included in the computation of diluted earnings per share because they were anti-dilutive.

(14) Share-Based Compensation and Equity

Stock Option and Equity Plans

As of the end of 2018, we had five fixed stock option and equity plans in effect for associates and directors. This includes one plan from which we could issue grants, the Cerner Corporation 2011 Omnibus Equity Incentive Plan (the "Omnibus Plan"); and four plans from which no new grants are permitted, but some awards remain outstanding (Plans D, E, F, and G).

Awards under the Omnibus Plan may consist of stock options, stock appreciation rights, restricted stock, restricted stock units, performance shares, performance units, performance grants and bonus shares. At the end of 2018, 7.4 million shares remain available for awards. Stock options granted under the Omnibus Plan are exercisable at a price not less than fair market value on the date of grant. Stock options under the Omnibus Plan typically vest over a period of five years and are exercisable for periods of up to 10 years.

Stock Options

The fair market value of each stock option award granted in 2018 is estimated on the date of grant using the Black-Scholes-Merton ("BSM") pricing model. The pricing model requires the use of the following estimates and assumptions:

- Expected volatilities under the BSM model are based on an equal weighting of implied volatilities from traded options on our common shares and historical volatility.
- The expected term of stock options granted is the period of time for which an option is expected to be outstanding beginning on the grant date. Our calculation of expected term takes into account the contractual term of the option, as well as the effects of employees' historical exercise patterns; groups of associates (executives and non-executives) that have similar historical behavior are considered separately for valuation purposes.
- The risk-free rate is based on the zero-coupon U.S. Treasury bond with a term consistent with the expected term of the awards.

The weighted-average assumptions used to estimate the fair market value of stock options were as follows:

	For the Years Ended		
	2018	2017	2016
Expected volatility (%)	27.0%	26.7%	29.4%
Expected term (yrs)	7	7	7
Risk-free rate (%)	2.8%	2.1%	1.5%

Stock option activity for 2018 was as follows:

(In thousands, except per share data)	Number of Shares	Weighted-Average Exercise Price	Aggregate Intrinsic Value	Weighted-Average Remaining Contractual Term (Yrs)
Outstanding at beginning of year	21,332	$ 49.40		
Granted	3,598	58.35		
Exercised	(2,660)	35.37		
Forfeited and expired	(478)	62.46		
Outstanding at end of year	21,792	52.31	$ 118,831	6.28
Exercisable at end of year	11,045	$ 44.60	$ 118,054	4.48

(In thousands, except for grant date fair values)	For the Years Ended 2018	2017	2016
Weighted-average grant date fair values	$ 20.13	$ 20.50	$ 18.31
Total intrinsic value of options exercised	$ 74,530	$ 252,277	$ 177,375
Cash received from exercise of stock options	91,349	76,705	63,794
Tax benefit realized upon exercise of stock options	17,233	85,657	64,347

As of the end of 2018, there was $148 million of total unrecognized compensation cost related to stock options granted under all plans. That cost is expected to be recognized over a weighted-average period of 3.23 years.

Non-vested Shares and Share Units

Non-vested shares and share units are valued at fair market value on the date of grant and will vest provided the recipient has continuously served on the Board of Directors through such vesting date or, in the case of an associate, provided that service and/or performance measures are attained. The expense associated with these grants is recognized over the period from the date of grant to the vesting date.

Non-vested share and share unit activity for 2018 was as follows:

(In thousands, except per share data)	Number of Shares	Weighted-Average Grant Date Fair Value
Outstanding at beginning of year	799	$ 66.76
Granted	537	59.34
Vested	(432)	65.77
Forfeited	(22)	62.94
Outstanding at end of year	882	$ 62.82

(In thousands, except for grant date fair values)	For the Years Ended 2018	2017	2016
Weighted average grant date fair values for shares granted during the year	$ 59.34	$ 66.97	$ 57.22
Total fair value of shares vested during the year	$ 26,264	$ 11,050	$ 12,221

As of the end of 2018, there was $32 million of total unrecognized compensation cost related to non-vested share and share unit awards granted under all plans. That cost is expected to be recognized over a weighted-average period of 1.94 years.

Associate Stock Purchase Plan

We established an Associate Stock Purchase Plan ("ASPP") in 2001, which qualifies under Section 423 of the Internal Revenue Code. Each individual employed by us and associates of our U.S. based subsidiaries, except as provided below, are eligible to participate in the ASPP ("Participants"). The following individuals are excluded from participation: (a) persons who, as of the beginning of a purchase period under the Plan, have been continuously employed by us or our domestic subsidiaries for less than two weeks; (b) persons who, as of the beginning of a purchase period, own directly or indirectly, or hold options or rights to acquire under any agreement or Company plan, an aggregate of 5% or more of the total combined voting power or value of all outstanding shares of all classes of Company common stock; and, (c) persons who are customarily employed by us for less than 20 hours per week or for less than five months in any calendar year. Participants may elect to make contributions from 1% to 20% of compensation to the ASPP, subject to annual limitations determined by the Internal Revenue Service. Participants may purchase Company common stock at a 15% discount on the last business day of the option period. The purchase of Company common stock is made through the ASPP on the open market and subsequently reissued to Participants. The difference between the open market purchase and the Participant's purchase price is recognized as compensation expense, as such difference is paid by Cerner, in cash.

Share-Based Compensation Cost

Our stock option and non-vested share and share unit awards qualify for equity classification. The costs of our ASPP, along with participant contributions, are recorded as a liability until open market purchases are completed. The amounts recognized in the consolidated statements of operations with respect to stock options, non-vested shares and share units and ASPP are as follows:

	For the Years Ended		
(In thousands)	2018	2017	2016
Stock option and non-vested share and share unit compensation expense	$ 95,423	$ 83,019	$ 74,536
Associate stock purchase plan expense	6,082	6,277	6,537
Amounts capitalized in software development costs, net of amortization	914	(327)	(482)
Amounts charged against earnings, before income tax benefit	$ 102,419	$ 88,969	$ 80,591
Amount of related income tax benefit recognized in earnings	$ 21,371	$ 25,265	$ 24,749

Preferred Stock

As of the end of 2018 and 2017, we had 1.0 million shares of authorized but unissued preferred stock, $0.01 par value.

Treasury Stock

In May 2017, our Board of Directors authorized a share repurchase program that allows the Company to repurchase up to $500 million of shares of our common stock, excluding transaction costs. In May 2018, our Board of Directors approved an amendment to the repurchase program that was authorized in May 2017. Under the amendment, the Company was authorized to repurchase up to an additional $500 million of shares of our common stock, for an aggregate of $1 billion, excluding transaction costs. The repurchases are to be effectuated in the open market, by block purchase, in privately negotiated transactions, or through other transactions managed by broker-dealers. No time limit was set for the completion of the program. During 2018, we repurchased 11.2 million shares for total consideration of $644 million under the program. The shares were recorded as treasury stock and accounted for under the cost method. No repurchased shares have been retired. At December 29, 2018, $283 million remains available for repurchase under the outstanding program.

During 2017 and 2016, we repurchased 2.7 million and 13.7 million shares of our common stock for total consideration of $173 million and $700 million, respectively. These shares were recorded as treasury stock and accounted for under the cost method. No repurchased shares have been retired.

(15) Foundations Retirement Plan

The Cerner Corporation Foundations Retirement Plan (the "Plan") was established under Section 401(k) of the Internal Revenue Code. All associates age 18 and older and who are not a member of an excluded class are eligible to participate. Participants may elect to make pre-tax and Roth (post-tax) contributions from 1% to 80% of eligible compensation to the Plan, subject to annual limitations determined by the Internal Revenue Service. Participants may direct contributions into mutual funds, a stable value fund, a Company stock fund, or a self-directed brokerage account. The Plan has a first tier discretionary match that is made on behalf of participants in an amount equal to 33% of the first 6% of the participant's salary contribution. The Plan's first tier discretionary match expenses were $31 million, $29 million and $28 million for 2018, 2017 and 2016, respectively.

The Plan also provides for a second tier matching contribution that is purely discretionary, the payment of which will depend on overall Company performance and other conditions. If approved by the Compensation Committee, contributions by the Company will be tied to attainment of established financial metric goals, such as earnings per share for the year. Participants who defer 2% of their paid base salary, are actively employed as of the last day of the Plan year and are employed before October 1st of the Plan year are eligible to receive the second tier discretionary match contribution, if any such second tier matching contribution is approved by the Compensation Committee. For the years ended 2018 and 2016 we expensed $10 million and $8 million, respectively, for the second tier discretionary distributions.

(16) Commitments

Leases

We are committed under operating leases primarily for office and data center space through December 2029. Rent expense for office and warehouse space for our regional and global offices for 2018, 2017 and 2016 was $31 million, $31 million and $29 million, respectively. Aggregate minimum future payments under these non-cancelable operating leases are as follows:

(In thousands)	Operating Lease Obligations
2019	$ 29,739
2020	27,669
2021	22,904
2022	17,240
2023	10,166
2024 and thereafter	17,743
	$ 125,461

Other Obligations

We have purchase commitments with various vendors, and minimum funding commitments under collaboration agreements through 2037. Aggregate future payments under these commitments are as follows:

(In thousands)	Purchase Obligations
2019	$ 138,851
2020	102,773
2021	24,746
2022	15,517
2023	15,486
2024 and thereafter	26,924
	$ 324,297

(17) Segment Reporting

We have two operating segments, Domestic and Global. Revenues are derived primarily from the sale of clinical, financial and administrative information solutions and services. The cost of revenues includes the cost of third party consulting services, computer hardware, devices and sublicensed software purchased from manufacturers for delivery to clients. It also includes the cost of hardware maintenance and sublicensed software support subcontracted to the manufacturers. Operating expenses incurred by the geographic business segments consist of sales and client service expenses including salaries of sales and client service personnel, expenses associated with our managed services business, marketing expenses, communications expenses and unreimbursed travel expenses. "Other" includes expenses that have not been allocated to the operating segments, such as software development, general and administrative expenses, acquisition costs and related adjustments, share-based compensation expense, and certain amortization and depreciation. Performance of the segments is assessed at the operating earnings level by our chief operating decision maker, who is our Chief Executive Officer. Items such as interest, income taxes, capital expenditures and total assets are managed at the consolidated level and thus are not included in our operating segment disclosures. Accounting policies for each of the reportable segments are the same as those used on a consolidated basis.

The following table presents a summary of our operating segments and other expense for 2018, 2017 and 2016:

(In thousands)	Domestic	Global	Other	Total
2018				
Revenues	$ 4,730,266	$ 636,059	$ —	$ 5,366,325
Costs of revenue	827,904	109,444	—	937,348
Operating expenses	2,164,465	321,116	1,168,611	3,654,192
Total costs and expenses	2,992,369	430,560	1,168,611	4,591,540
Operating earnings (loss)	$ 1,737,897	$ 205,499	$ (1,168,611)	$ 774,785

(In thousands)	Domestic	Global	Other	Total
2017				
Revenues	$ 4,575,171	$ 567,101	$ —	$ 5,142,272
Costs of revenue	755,729	98,362	—	854,091
Operating expenses	1,998,544	264,196	1,064,970	3,327,710
Total costs and expenses	2,754,273	362,558	1,064,970	4,181,801
Operating earnings (loss)	$ 1,820,898	$ 204,543	$ (1,064,970)	$ 960,471

(In thousands)	Domestic	Global	Other	Total
2016				
Revenues	$ 4,245,097	$ 551,376	$ —	$ 4,796,473
Costs of revenue	676,437	102,679	—	779,116
Operating expenses	1,774,146	246,243	1,085,955	3,106,344
Total costs and expenses	2,450,583	348,922	1,085,955	3,885,460
Operating earnings (loss)	$ 1,794,514	$ 202,454	$ (1,085,955)	$ 911,013

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(18) Quarterly Results (unaudited)

Selected quarterly financial data for 2018 and 2017 is set forth below:

(In thousands, except per share data)	Revenues	Earnings Before Income Taxes	Net Earnings	Basic Earnings Per Share	Diluted Earnings Per Share
2018					
First Quarter	$ 1,292,861	$ 200,079	$ 160,001	$ 0.48	$ 0.48
Second Quarter	1,367,727	214,884	169,357	0.51	0.51
Third Quarter	1,340,073	214,099	169,381	0.51	0.51
Fourth Quarter[(a)]	1,365,664	171,789	131,320	0.40	0.40
Total	$ 5,366,325	$ 800,851	$ 630,059		

(a) Fourth quarter results include a pre-tax charge of $45 million to provide an allowance against certain client receivables with Fujitsu, as further discussed in Note (3).

(In thousands, except per share data)	Revenues	Earnings Before Income Taxes	Net Earnings	Basic Earnings Per Share	Diluted Earnings Per Share
2017					
First Quarter	$ 1,260,486	$ 243,010	$ 173,213	$ 0.52	$ 0.52
Second Quarter	1,291,994	252,049	179,683	0.54	0.53
Third Quarter	1,276,007	250,415	177,424	0.53	0.52
Fourth Quarter [(b)]	1,313,785	221,655	336,658	1.02	1.00
Total	$ 5,142,272	$ 967,129	$ 866,978		

(b) Fourth quarter results include the impact of certain U.S. income tax reform enacted in December 2017 as further described in Note (12).

Exhibit 10.13

CERNER EXECUTIVE SEVERANCE AGREEMENT

This Cerner Executive Severance Agreement (this “Executive Severance Agreement”), effective as of December 14, 2017 (the “Effective Date”), is a supplement to and amendment of the employment agreement dated July 14, 2003 between John T. Peterzalek (“you”/“your”) and Cerner Corporation, a Delaware corporation (“Cerner”).

RECITALS

A. You are the Executive Vice President, Worldwide Client Relationships of Cerner and have been employed by Cerner since July 14, 2003. You have been the Executive Vice President, Worldwide Client Relationships of Cerner since October 1, 2017.

B. You entered into an employment agreement with Cerner dated July 14, 2003 (your “Employment Agreement”) and a mutual arbitration agreement with Cerner dated November 23, 2015.

C. You and Cerner wish to amend your Employment Agreement by adding contractual severance terms as set forth in this Executive Severance Agreement.

D. In consideration for your continuing employment with Cerner, the restricted stock granted to you on December 14, 2017, the potential severance payments and potential acceleration of the vesting of outstanding equity incentive awards described herein, the potential benefits to you in the event of a Change in Control, and other good and valuable consideration, the receipt and sufficiency of which you and Cerner hereby acknowledge, you and Cerner hereby agree to the following supplemental terms and conditions to your Employment Agreement.

E. Definitions of capitalized terms used but not otherwise defined herein can be found in Appendix A.

AGREEMENT

In consideration of the mutual covenants, promises, and obligations set forth herein, the parties agree to amend and supplement your Employment Agreement as follows:

1. PARAGRAPH 2 MODIFICATION. Paragraph 2 of your Employment Agreement is deleted in its entirety and replaced with the following:

2. EMPLOYMENT RELATIONSHIP; SEVERANCE AND BENEFITS.

A. Type. To the extent permitted by law, your employment relationship with Cerner is “at will,” which means that you may resign from Cerner at any time, for any reason or for no reason at all, and without advance notice (except as described below). It also means that Cerner may terminate your employment at any time - for any legally permitted reason or for no reason at all and without advance notice, subject to Cerner’s potential obligations to you under Paragraph 2.C below.

B. Resignation and Termination.

1. Termination by Cerner. Cerner may terminate your employment (i) at any time with or without Cause, or (ii) upon your Disability. Your employment with Cerner shall be deemed automatically terminated upon your death. Upon a termination of your employment by Cerner with Cause, due to your death or on account of Disability (each an “Ineligible Severance Event”), Cerner shall pay you within thirty (30) days following your last day of employment (x) any accrued but unpaid base salary, (y) any owed reimbursements for unreimbursed business expenses properly incurred by you prior to your termination date, which shall be subject to and paid in accordance with Cerner’s expense reimbursement policy; and (z) such employee benefits (including equity compensation or cash bonuses earned as of the termination date but not yet paid), if any, to which you may be entitled under Cerner's employee benefit plans as of

your termination date; provided that, in no event shall you be entitled to any payments in the nature of any other severance or termination payments (such as under Cerner's Enhanced Severance Pay Plan). Those amounts described in this Paragraph 2.B.1 (x), (y) and (z) are referred to herein collectively as the "Accrued Amounts." Payment upon termination of your employment by Cerner for any reason other than an Ineligible Severance Event is covered by Paragraph 2.C.

2. Termination by You. You may resign from your employment with Cerner at any time upon written notice to Cerner of your intention to resign from employment. Any resignation notice must be submitted to Cerner at least thirty (30) days prior to your intended last day of employment. Cerner, however, reserves the right either to accelerate your last day of employment or to allow your intended last day of employment to stand. If you resign with fewer than thirty (30) days' notice, or if you actually leave Cerner's employ prior to expiration of the notice period without the permission of Cerner, then you agree that (to the extent permitted by law) no Accrued Amounts from the date you submitted your resignation notice to your last day of employment will be owed or paid to you by Cerner. All other Accrued Amounts will be paid. You may also terminate your employment hereunder upon written notice to Cerner in the event of a Constructive Termination (before a Change in Control) or for Good Reason (after a Change in Control) and, subject to you satisfying your obligations under Paragraph 2.C.3 (Severance Agreement and Release), be entitled to certain severance and benefit compensation as provided in Paragraph 2.C.

   You agree to report to Cerner the identity of your new employer (if any) and the nature of your proposed duties for that employer.

C. Severance and Benefits.

1. Non-Change in Control - Termination by Cerner for other than an Ineligible Severance Event or Resignation following Constructive Termination. Subject to you satisfying your obligations under Paragraph 2.C.3. (Severance Agreement and Release), if, prior to a Change in Control or at any time after twelve (12) months following a Change in Control, (i) Cerner terminates your employment other than in connection with an Ineligible Severance Event or (ii) you resign from employment following a Constructive Termination, Cerner will within sixty (60) days (or later if required by Code Section 409A) of your termination of employment:

   a. Pay you your Accrued Amounts; and

   b. Commence severance payments to you equal to the sum of (i) two (2) year's base salary (based on your annual base salary at the time of your termination), plus (ii) two (2) times the average annual cash bonus you received from Cerner during the three (3) years preceding the termination of your employment, less (iii) normal tax and payroll deductions. Such severance pay will be payable pro rata during the twenty-four (24) month severance term on Cerner's regular paydays; and

   c. Commence payments to you having an aggregate value equal to twenty-four (24) times the difference between the monthly COBRA continuation premium cost to cover you and your dependents (to the extent covered under Cerner's health, vision and dental the plans on the date of your termination of employment) under Cerner's health, vision and dental plans in effect as of the date of your termination and the monthly amount you were paying for such coverage at the effective date of your termination. Such payments will be payable pro rata during the twenty-four (24) month severance term on Cerner's regular paydays. Notwithstanding the foregoing, if Cerner making payments under this Paragraph 2.C.1.c would violate the nondiscrimination rules applicable to non-grandfathered plans under the Affordable Care Act or result in the imposition of penalties under the Affordable Care Act, the parties agree to reform this Paragraph 2.C.1.c in a manner as is necessary to comply with the Affordable Care Act; and

   d. With respect to outstanding equity awards, fully vest and, if applicable pay or deliver immediately, or a later date in conformity with Code Section 409A, any shares or other property relating to any equity incentive awards granted to you under any Cerner equity incentive plans after June 1, 2005. For purposes of this Paragraph 2.C.1.d, any performance-based award shall become vested or settled assuming an "at-target" level of goal achievement had been attained.

2. Change in Control - Termination by Cerner for other than an Ineligible Severance Event or Resignation for Good Reason. Subject to you satisfying your obligations under Paragraph 2.C.3 (Severance Agreement and Release), if there is a Change in Control of Cerner and within twelve (12) months following the date such Change in Control becomes effective Cerner terminates your employment for any reason other than on account of an Ineligible Severance Event or you resign from employment with Good Reason, then Cerner will, within sixty (60) days (or later if required by Code Section 409A) of your termination of employment:

a. Pay you your Accrued Amounts;

b. Commence severance payments to you equal to the sum of (i) two (2) years' base salary (based on your annual base salary at the time of your termination or resignation), plus (ii) two (2) times the average annual cash bonus you received from Cerner during the three (3) years preceding the termination or resignation of your employment, less (iii) normal tax and payroll deductions. Such severance pay will be payable in lump sum within sixty (60) days of the effective date of the termination of your employment;

c. Commence payments to you having an aggregate value equal to twenty-four (24) times the difference between the monthly COBRA continuation premium cost to cover you and your dependents (to the extent covered under Cerner's health, vision and dental plans on the date of your termination of employment) under Cerner's health, vision and dental plans in effect as of the date of your termination and the monthly amount you were paying for such coverage at the effective date of your termination. Such payments will be payable pro rata during the twenty-four (24) month severance term on Cerner's regular paydays. Notwithstanding the foregoing, if Cerner's making payments under this Paragraph 2.C.2.c would violate the nondiscrimination rules applicable to non-grandfathered plans under the Affordable Care Act or result in the imposition of penalties under the Affordable Care Act, the parties agree to reform this Paragraph 2.C.2.c in a manner as is necessary to comply with the Affordable Care Act; and

d. Fully vest all outstanding unvested equity incentive awards granted to you under any Cerner equity incentive plans after June 1, 2005. For purposes of this Paragraph 2.C.2.d, any performance-based award shall become vested or settled assuming an "at-target" level of goal achievement had been attained.

3. Severance Agreement and Release. As a condition to your receiving severance in accordance with this Paragraph 2.C, upon your resignation or the termination of your employment, you agree to promptly execute and not revoke a written severance agreement, which release will be provided to you within ten (10) days of your termination date, containing normal and customary provisions, including but not limited to, a release releasing Cerner from any claims against Cerner related to your employment with Cerner that you might have at the time of or following the termination of your employment, and reasonable and customary representations and warranties.

4. Forfeiture and Reimbursement. Further, notwithstanding anything to the contrary in this Executive Severance Agreement, if you breach any confidentiality, non-competition or other material provision in your Employment Agreement following the termination of your employment with Cerner, Cerner's obligation, if applicable, to deliver severance payments and benefits to you under this Paragraph 2.C, and the vesting of any equity incentive awards described in this Paragraph 2.C, will cease immediately, you will reimburse Cerner the amount of severance payments delivered to you by Cerner prior to such breach by you, and you will forfeit to Cerner all equity incentive awards (or the proceeds of exercised awards) that vested based on or after such termination of your employment and prior to your breach.

5. ERISA Claims Review Procedures. To the extent any severance payments described in this Paragraph 2.C are covered by the Employee Retirement Income Security Act of 1974, as amended, Claims Review Procedures are available from Cerner.

6. Compliance with Section 409A.

a. General Compliance. This Executive Severance Agreement and any severance payments contemplated to be made hereunder is intended to comply with Section 409A or an exemption thereunder and shall be construed and administered in accordance with Section 409A. Notwithstanding any other provision of this Executive Severance Agreement, payments provided under this Executive Severance Agreement may only be made upon an event and in a manner that complies with Section 409A or an applicable exemption. Any payments under this Executive Severance Agreement that may be excluded from Section 409A either as separation pay due to an involuntary separation from service or as a short-term deferral shall be excluded from Section 409A to the maximum extent possible. For purposes of Section 409A, each installment payment provided under this Executive Severance Agreement shall be treated as a separate payment. Any payments to be made under this Executive Severance Agreement upon a termination of employment shall only be made upon a "separation from service" under Section 409A. Notwithstanding the foregoing, Cerner makes no representations that the payments and benefits provided under this Executive Severance Agreement comply with Section 409A, and in no event shall Cerner be liable for all or any portion of any taxes, penalties, interest, or other expenses that may be incurred by you on account of non-compliance with Section 409A.

b. Specified Employees. Notwithstanding any other provision of this Executive Severance Agreement, if any payment or benefit provided to you in connection with your termination of employment is determined to constitute "nonqualified deferred compensation" within the meaning of Section 409A and you are determined to be a "specified employee" as defined in Section 409A(a)(2)(b)(i), then such payment or benefit shall not be paid until the first payroll date to occur following the six-month anniversary of the your termination date or, if earlier, on your death (the "Specified Employee Payment Date"). The aggregate of any payments that would otherwise have been paid before the Specified Employee Payment Date shall be paid to you in a lump sum on the Specified Employee Payment Date and thereafter, any remaining payments shall be paid without delay in accordance with their original schedule.

c. Reimbursements. To the extent required by Section 409A, each reimbursement or in-kind benefit provided under this Executive Severance Agreement shall be provided in accordance with the following:

i. the amount of expenses eligible for reimbursement, or in-kind benefits provided, during each calendar year cannot affect the expenses eligible for reimbursement, or in-kind benefits to be provided, in any other calendar year;

ii. any reimbursement of an eligible expense shall be paid to you on or before the last day of the calendar year following the calendar year in which the expense was incurred; and

iii. any right to reimbursements or in-kind benefits under this Executive Severance Agreement shall not be subject to liquidation or exchange for another benefit.

D. Partial Accelerated Vesting upon a Change in Control. In connection with a Change in Control, 50% of each outstanding and unvested equity incentive award granted to you under any Cerner equity incentive plan after June 1, 2005 and prior to the date of the Change in Control becomes effective will become vested on the date the Change in Control becomes effective. The remaining 50% of each such outstanding equity incentive award that has not yet vested will continue to vest according to its vesting schedule (unless your employment is terminated for any reason other than in connection with an Ineligible Severance Event or you resign for Good Reason within twelve (12) months following the date the Change in Control becomes effective, in which case 100% of such award will become vested as provided above in Paragraph 2.C.2; or in the event your employment is terminated for any reason other than in connection with an Ineligible Severance Event or a Constructive Termination at any time after twelve (12) months following a Change in Control, in which case 100% of such award will become vested as provided above in Paragraph 2.C.1). For purposes of this Paragraph 2.D, any performance-based award which becomes 50% vested upon a Change in Control shall mean that an "at-target" level of goal achievement had been attained with respect to 50% of the award.

E. Modified 280G Carve-Back. Notwithstanding anything contained in this Executive Severance Agreement to the contrary, if on an after-tax basis the aggregate payments and benefits paid pursuant to Paragraph 2.C.2 or Paragraph 2.D would be larger if the portion of such payments and benefits constituting "parachute payments" under Code Section 280G were reduced by the minimum amount necessary to avoid the imposition of the excise tax under Code Section 4999, then such payments and benefits shall be reduced by the minimum amount necessary to avoid such excise tax. Any such reduction shall occur in a manner that maximizes your economic position. In applying this principle, the reduction shall be made in a manner consistent with the requirements of Section 409A, and where two economically equivalent amounts are subject to reduction but payable at different times, such amounts shall be reduced on a pro rata basis but not below zero. Any determination required under this Paragraph 2.E shall be made in writing in good faith by an accounting firm selected by Cerner, which is reasonably acceptable to you (the "Accountants"). Cerner and you shall provide the Accountants with such information and documents as the Accountants may reasonably request in order to make a determination under this Paragraph 2.E. Cerner shall be responsible for all fees and expenses of the Accountants.

F. 409(a) Modifications. Notwithstanding anything to the contrary herein, Cerner may modify your Employment Agreement and this Executive Severance Agreement from time to time without your consent if Cerner's legal counsel deems doing so to be advisable to comply with Section 409A of the Code and you agree that any such modifications shall be binding upon you.

G. Relocation. Cerner may pay or reimburse you for certain reasonable costs associated with any relocation required by Cerner in conjunction with a position with Cerner pursuant to the terms of Cerner's published relocation policy, as may be amended from time to time. In the event that Cerner pays or reimburses you for any relocation costs, you agree to repay such sums to Cerner in accordance with the terms of the relocation policy in effect at the time of your move if (i) you voluntarily resign from employment with Cerner for any reason within two (2) years of the date your relocation is complete or (ii) Cerner terminates your employment due to your dishonesty, illegal conduct or breach of Cerner's policies or this Agreement within two (2) years of the date your relocation is complete. You further agree that Cerner may, at its discretion, deduct from your paycheck(s), including your final paycheck, any such sums required to be repaid under this provision and that you will repay Cerner any outstanding balance owed within 30 days of your employment termination. Regardless of the duration stated herein, nothing contained in this provision shall create employment for a definite term or otherwise modify the parties "at will" relationship set forth in Paragraph 2.A of this Agreement. This allowance applies to full-time associates on a discretionary basis and only applies to part-time associates as specifically made eligible.

H. Other Assistance. Cerner may pay or reimburse you for certain reasonable costs associated with Other Assistance Programs in which Cerner provides assistance, pursuant to the terms of such Other Assistance Programs' policies, as may be amended from time to time. In the event that Cerner pays or reimburses you for any costs associated with such Other Assistance Programs, you agree to repay such sums to Cerner in accordance with the terms of the applicable Other Assistance Programs policy in effect at the time of you participation in such Other Assistance Program if (i) you voluntarily resign from employment with Cerner for any reason within two (2) years of the date of your participation in the application Program is complete, or (ii) Cerner terminates your employment due to your dishonesty, illegal conduct, or breach of Cerner's policies or this Agreement within two (2) years of the date you participation in the applicable program is complete. You further agree that Cerner may, at its discretion, deduct from your paycheck(s), including your final paycheck, any such sums required to be repaid under this provision and that you will repay Cerner any outstanding balance owed within 30 days of your employment termination. Regardless of the duration stated herein, nothing contained in this provision shall create employment for a definite term or otherwise modify the parties "at will" relationship set forth in paragraph 2.A. of this Agreement. This allowance applies to full-time employees on a discretionary basis and only applies to part-time associates as specifically made eligible.

I. Sales Associate/Cerner Consulting Provisions. If you are employed by Cerner in a sales capacity or in certain Cerner Consulting roles, additional provisions incorporated as Attachment IV to this Agreement are applicable to your employment relationship.

2. PARAGRAPH 3 MODIFICATION. The following is added to Paragraph 3 of your Employment Agreement:

Nothing in this paragraph (i) prohibits you from using or disclosing Confidential Information in connection with reporting possible violations of law or regulation to any governmental agency or entity or attorney in accordance with any whistleblower protection provisions of applicable law or regulation including 18 U.S.C. § 1833 or (ii) requires notification or prior approval by Cerner of any reporting described in clause (i). However, any disclosure must be made in accordance with the applicable law or regulation and in a manner that limits-to the furthest extent possible-disclosure of Confidential Information.

3. ENTIRE AGREEMENT AND PRIOR AGREEMENTS.
We agree that your Employment Agreement, as amended by this Executive Severance Agreement, otherwise remains in full force and effect. This Executive Severance Agreement represents your entire agreement with Cerner concerning the subject matter hereof and cancels, terminates and supersedes any of your previous oral or written understandings or agreements with Cerner or with any director, officer or representative of Cerner with respect to the subject matter hereof. Without limitation, the severance benefits and payments eligible to be provided under this Executive Severance Agreement supersede and replace any benefits or payments you might otherwise be eligible to receive under your Employment Agreement, the Cerner Enhanced Severance Pay Plan, any successor thereto, or any other broad-based Cerner severance plan or policy which otherwise would be applicable to you.

This Cerner Executive Severance Agreement is executed as of this 14 day of December, 2017.

/s/ John T. Peterzalek
John T. Peterzalek

Cerner Corporation

By: /s/ Julia M. Wilson
Julia M. Wilson
Executive Vice President and Chief People Officer

APPENDIX A

DEFINITION OF TERMS

CAUSE means your material breach of your Employment Agreement, fraud against Cerner, misappropriation of Cerner's assets, dishonesty, embezzlement from Cerner, theft from Cerner, material neglect of your duties and responsibilities hereunder, your arrest and indictment for a crime involving drug abuse, violence, dishonesty or theft, your taking any action or omitting to take any action that results in a violation of the Sarbanes-Oxley Act of 2002, or any related statutes, laws or regulations or material breach of Cerner's policies.

CHANGE IN CONTROL means:

(i) The acquisition by any individual, entity or group (a "Person") within the meaning of Section 12(d)(3) or 13(d)(2) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), of beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of 35% or more of either: (A) the then outstanding shares of common stock of Cerner (the "Outstanding Cerner Common Stock"), or (B) the combined voting power of the then outstanding voting securities of Cerner entitled to vote generally in the election of directors (the "Outstanding Cerner Voting Securities"); provided, however, that for purposes of this subsection (i), the following acquisitions shall not constitute a Change in Control: (X) any acquisition directly from Cerner, (Y) any acquisition by Cerner, or (Z) any acquisition by any employee benefit plan (or related trust) sponsored or maintained by Cerner or any corporation controlled by Cerner; or

(ii) Individuals who, as of the date hereof, constitute the Cerner Board (the "Incumbent Board") cease for any reason to constitute at least a majority of the Board; provided, however, that any individual becoming a director subsequent to the date hereof whose election, or nomination for election by Cerner's shareholders, was approved by a vote of at least a majority of the directors then comprising the Incumbent Board shall be considered as though such individual were a member of the Incumbent Board, but excluding, for this purpose, any such individual whose initial assumption of office occurs as a result of an actual or threatened election contest with respect to the election or removal of directors or other actual or threatened solicitation of proxies or consents by or on behalf of a Person other than the Board; or

(iii) Consummation of a reorganization, merger or consolidation or sale or other disposition of all or substantially all of the assets of Cerner (a "Business Combination"), in each case, unless, following such Business Combination, (A), all or substantially all of the individuals and entities who were the beneficial owners, respectively, of the Outstanding Cerner Common Stock and Outstanding Cerner Voting Securities immediately prior to such Business Combination beneficially own, directly or indirectly, more than 50% of, respectively, the then outstanding shares of common stock and the combined voting power of the then outstanding voting securities entitled to vote generally in the election of directors, as the case may be, of Cerner resulting from such Business Combination (including, without limitation, a corporation which as a result of such transaction owns Cerner or all or substantially all of Cerner's assets either directly or through one or more subsidiaries) in substantially the same proportions as their ownership, immediately prior to such Business Combination of the Outstanding Cerner Common Stock and Outstanding Cerner Voting Securities, as the case may be, (B) no Person (excluding any employee benefit plan (or related trust) of Cerner or such corporation resulting from such Business Combination) beneficially owns, directly or indirectly, 35% or more of, respectively, the then outstanding shares of common stock of Cerner resulting from such Business Combination or the combined voting power of the then outstanding voting securities of such corporation except to the extent that such ownership existed prior to the Business Combination, and (C) at least a majority of the members of the Board of Directors of Cerner resulting from such Business Combination were members of the Incumbent Board at the time of the execution of the initial agreement, or of the action of the board, providing for such Business Combination; or

(iv) Approval by the shareholders of Cerner of a complete liquidation or dissolution of Cerner.

CONSTRUCTIVE TERMINATION means the occurrence of any of the following without your consent: (1) a material, adverse change in your authority, position, duties, or responsibilities (other than temporarily while you are physically or mentally incapacitated or as required by applicable law) or reporting structure such that you no longer report to the Chief Executive Officer, President or the Board of Directors, (2) a material reduction in your base salary or target bonus opportunity, (3) a relocation of the principal location at which you are required to perform your duties to more than twenty-five (25) miles from the Kansas City metropolitan area and which is adverse to you, or (4) any other action or inaction that constitutes a material breach by Cerner of your Employment Agreement. You cannot terminate your employment on account of a Constructive Termination unless you have provided written notice to Cerner of the existence of the circumstances providing grounds for termination on account of a Constructive Termination within thirty (30) days of the initial existence of such grounds and Cerner has had at least thirty (30) days from the date on which such notice is provided to cure such circumstances. If you do not terminate your employment on account of a Constructive Termination within ninety (90) days after the first occurrence of the applicable grounds, then you will be deemed to have waived your right to terminate on account of a Constructive Termination with respect to such grounds.

DISABILITY means a physical or mental illness, as determined by an accredited physician, which causes you to be unable to perform your duties hereunder for ninety (90) consecutive days, or for an aggregate of ninety (90) days during any period of twelve (12) consecutive months.

GOOD REASON means the occurrence of any of the following, without your consent: (1) a material, adverse change in your authority, duties, position or responsibilities (other than temporarily while you are physically or mentally incapacitated or as required by applicable law) or reporting structure such that you no longer report to the Chief Executive Officer, President or the Board of Directors, (2) a material reduction in your base salary or target bonus opportunity, (3) a relocation of the principal location at which you are required to perform your duties to more than twenty-five (25) miles from the Kansas City metropolitan area and which is adverse to you, or (4) any other action or inaction that constitutes a material breach by Cerner of your Employment Agreement. You cannot terminate your employment on account of a Good Reason unless you have provided written notice to Cerner of the existence of the circumstances providing grounds for termination on account of a Good Reason within thirty (30) days of the initial existence of such grounds and Cerner has had at least thirty (30) days from the date on which such notice is provided to cure such circumstances. If you do not terminate your employment on account of a Good Reason within ninety (90) days after the first occurrence of the applicable grounds, then you will be deemed to have waived your right to terminate on account of a Good Reason with respect to such grounds.

CERNER ASSOCIATE EMPLOYMENT AGREEMENT

This Cerner Associate Employment Agreement describes the formal employment relationship between

John T. Peterzalek

and Cerner Corporation, a Delaware corporation

This Agreement is effective on the 14 day of July, 2003.

1. CERNER'S LETTER OFFERING EMPLOYMENT TO YOU.

At the time you accepted employment with Cerner, you received an offer letter outlining or confirming the specifics of Cerner's offer of employment to you. The position, terms, compensation, benefits and other provisions of that offer letter represent the initial conditions of your Cerner employment. The offer letter is incorporated into this Agreement as Attachment I. Any amendments or changes to the offer letter are included as part of Attachment II to this Agreement, and supersede the terms in the offer letter. Cerner reserves the right to modify at anytime the conditions of your employment by Cerner. Except where specifically set forth otherwise, all terms and conditions of this Agreement apply to both full-time and part-time associates.

2. EMPLOYMENT RELATIONSHIP.

A. Formation. By signing this Agreement, you represent that every material fact contained in your resume and application for employment with Cerner is true and accurate to the best of your knowledge and belief. You also agree that falsification of your resume or application is grounds for immediate discharge.

B. Type. To the extent permitted by law, your employment relationship with Cerner is "at will", which means that you may resign from Cerner at any time, for any reason, or for no reason at all, and without advance notice (except as described below). It also means that Cerner may terminate your employment at any time, for any legally permitted reason, or for no reason at all, and without advance notice.

C. Resignation and Termination. You agree to cooperate with Cerner by participating fully in an exit interview in the event you leave the employ of Cerner. You agree to give Cerner written notice of your intention to resign from employment at least ten (10) business days prior to the last day you intend to work at Cerner. To facilitate the provisions of paragraphs 7 and 8 of this agreement, you also agree to report to Cerner, in conjunction with your written notice of intent, the identity of your new employer (if any) and the nature of your proposed duties for that employer. Cerner, however, reserves the right either to accelerate your intended effective termination date to an earlier actual date or to allow your intended effective termination date to stand.

If you resign, however, with fewer than ten (10) business days notice, or if you actually leave Cerner's employ prior to expiration of the ten business days notice period and without the permission of Cerner, then you agree that (to the extent permitted by law) no vacation pay, salary or other compensation otherwise due, from the date of your resignation notice until the time of your approved effective termination date, will be owed or paid to you by Cerner. Failure to provide a two week notice period may affect your future rehire ability with Cerner.

If you are a full-time associate and Cerner terminates your employment within the first 12 months of employment (and unless the termination was due to your dishonesty, illegal conduct, or breach of Cerner's policies or this Agreement), Cerner will pay you in conjunction with such termination the equivalent of twelve (12) months of base salary (exclusive of commissions, advances against commissions, bonus and other non-salary compensation and Associate benefits). If your employment is terminated after one (1) year but less than two (2) years of service (and unless the termination was due to your dishonesty, illegal conduct, or breach of Cerner's policies or this Agreement), you will receive six (6) months of base salary (exclusive of commissions, advances against commissions, bonus and other nonsalary compensation and Associate benefits) as a severance benefit. If you are terminated after two (2) years of service you will receive the standard executive severance benefit for your level in accordance with the severance plan in place at that time.

In the event your termination occurs during a performance period associated with a documented bonus or incentive compensation plan, any final payments to you as a result of your participation in such plan will be determined by the documented procedures of the plan.

Cerner may pay or reimburse you for certain reasonable costs associated with any relocation required by Cerner in conjunction with a position with Cerner pursuant to the terms of Cerner's published relocation policy, as may be amended from time to time. In the event that Cerner pays or reimburses you for any relocation costs, you agree to repay such sums to Cerner in accordance with the terms of the relocation policy in effect at the time of your move if (i) you voluntarily resign from employment with Cerner for any reason within two (2) years of the date your relocation is complete or (ii) Cerner terminates your employment due to your dishonesty, illegal conduct, or breach of Cerner's policies or this Agreement within two (2) years of the date your relocation is complete. You further agree that Cerner may, at its discretion, deduct from your paycheck(s), including your final paycheck, any such sums required to be repaid under this provision and that you will repay Cerner any outstanding balance owed within 30 days of your employment termination. Regardless of the duration stated herein, nothing contained in this provision shall create employment for a definite term or otherwise modify the parties "at will" relationship set forth in paragraph 2.B. of this Agreement. This allowance applies to full-time associates on a discretionary basis and only applies to part-time associates as specifically made eligible.

Cerner may pay or reimburse you for certain reasonable costs associated with Other Assistance Programs in which Cerner provides assistance, pursuant to the terms of such Other Assistance Programs' policies, as may be amended from time to time. In the event that Cerner pays or reimburses you for any costs associated with such Other Assistance Programs, you agree to repay such sums to Cerner in accordance with the terms of the applicable Other Assistance Programs policy in effect at the time of you participation in such Other Assistance Program if (i) you voluntarily resign from employment with Cerner for any reason within two (2) years of the date of your participation in the application Program is complete, or (ii) Cerner terminates your employment due to your dishonesty, illegal conduct, or breach of Cerner's policies or this Agreement within two (2) years of the date you participation in the applicable program is complete. You further agree that Cerner may, at its discretion, deduct from your paycheck(s), including your final paycheck, any such sums required to be repaid under this provision and that you will repay Cerner any outstanding balance owed within 30 days of your employment termination. Regardless of the duration stated herein, nothing contained in this provision shall create employment for a definite term or otherwise modify the parties "at will" relationship set forth in paragraph 2.B. of this Agreement. This allowance applies to full-time employees on a discretionary basis and only applies to part-time associates as specifically made eligible.

In the event Cerner terminates your employment, Cerner reserves the right to set the effective date of such termination. Upon your resignation or the termination of your employment, you agree to promptly execute a Termination Statement in the form of Attachment III.

D. SALES ASSOCIATE/CERNER CONSULTING PROVISIONS. If you are employed by Cerner in a sales capacity or in certain Cerner Consulting roles, additional provisions incorporated as Attachment IV to this Agreement are applicable to your employment relationship.

3. AGREEMENT NOT TO DISCLOSE OR TO USE CONFIDENTIAL INFORMATION.

You agree that you will forever maintain the confidentiality of Confidential Information. You will never disclose Confidential Information except to persons who have both the right and need to know it, and then only for the purpose and in the course of performing Cerner duties, or of permitting or assisting in the authorized use of Cerner products and services. In the event your employment with Cerner terminates (voluntarily or involuntarily), you will promptly deliver to Cerner all Confidential Information, including any Confidential Information on any laptop, computer or other communication equipment used by you during your employment with Cerner.

The above statement includes an agreement to abide by Cerner's internal security and privacy policies as well as all client security and privacy policies that are relevant to your job position. As an associate of a healthcare information technology provider, you may have access to confidential patient information, which may be protected by federal, state and/or local laws. You agree to maintain the confidentiality of all such confidential patient information, including but not limited to health, medical, financial or personal information, in any form, and you agree not to use any such information in any manner other than as expressly permitted by all applicable rules and regulations.

You are aware that Cerner does not expect nor does it want you to disclose trade secrets or other confidential information of any of your former employers, and you acknowledge that it is your responsibility not to disclose to Cerner any information in the nature of a trade secret which would violate your legal obligation to others.

4. NON-CERNER EMPLOYMENT.

Except for those part-time associates, hired to work less than 40 hours per week, employment at Cerner is a full-time responsibility. As a full-time associate, it is Cerner's expectation that you devote your full time and attention to meet your Cerner responsibilities and that you will not engage in any other employment activities which would detract from or conflict with your ability to carry out your duties at Cerner.

As a part-time associate, it is Cerner's expectation that you devote the required time and attention necessary to meet your Cerner responsibilities. You may engage in other employment activities so long as these activities are not in direct competition with Cerner, and so long as these activities do not detract from or conflict with your ability to carry out your duties at Cerner.

5. NEW PRODUCTS AND IDEAS.

With respect to New Products and Ideas that you develop, author, or conceive in whole or in part while employed at Cerner, plus for one year thereafter, you agree to keep accurate, complete and timely records of such New Products and Ideas, and will promptly disclose and fully describe such New Products and Ideas in writing to Cerner. You further agree to maintain all information respecting any New Products and Ideas as Confidential Information and shall not disclose such information to any party outside of Cerner without the express written approval of an officer of Cerner.

You agree to assign and transfer to Cerner, without further consideration, your entire right, title and interest in and to all such New Products and Ideas including any patents, copyrights, trade secrets and other proprietary rights in the same. You waive any and all moral rights and similar rights of copyright holders in other countries, including but not limited to rights of attribution and integrity, which you would otherwise have in any New Products and Ideas.

You agree to execute promptly at Cerner's expense, a written assignment of title to Cerner, and all letters (and applications for letters) of patent and copyright, in all countries, for any New Products or Ideas required to be assigned by this Agreement. You also agree to assist Cerner or its nominee in every reasonable way (at Cerner's request and expense, but at no charge to Cerner), both during and after your time of employment at Cerner, in vesting and defending title to the New Products and Ideas in and for Cerner, in any and all countries, including the obtainment and preservation of patents, copyrights, trade secrets and other proprietary rights.

This Section does not apply to your new products and ideas which do not relate directly to the business of Cerner, and which are developed entirely on your own time.

6. PRIOR INVENTIONS.

Any and all patented and unpatented inventions, new products and ideas which you made prior to your employment by Cerner are excluded from the scope of this Agreement and are documented on Attachment V, Inventory of Prior Inventions.

7. NON-COMPETITION AND NON-SOLICITATION.

For a period of two (2) years after the voluntary or involuntary termination of your employment with Cerner:

A. You will tell any prospective new employer, prior to accepting employment that this Employment Agreement exists.

B. If you have worked for Cerner in a sales capacity, you will not provide services to any Conflicting Organization in connection with the marketing, sale or promotion of any Conflicting Product to any person or organization upon whom you called or whose account you supervised on behalf of Cerner any time during the last three (3) years of your employment by Cerner.

C. If you have worked for Cerner in a non-sales capacity during the last three years of your employment by Cerner, you will not provide services directly or indirectly related to your employment at Cerner to any Conflicting Organization in the United States or in any country in which Cerner has a business interest. However, you may accept employment with a large Conflicting Organization whose business is diversified, and with a portion of its business that is not a Conflicting Organization, provided that Cerner, prior to your acceptance of such employment, shall receive separate written assurances satisfactory to Cerner from such Conflicting Organization and from you that you will not render services directly or indirectly in connection with any Conflicting Product.

D. Notwithstanding the foregoing, nothing contained in this Paragraph 7 shall prohibit you (after your termination of employment with Cerner) from taking a position with a general consulting organization whose only Conflicting Product is the provision of consulting services to the healthcare industry, so long as you personally do not thereby provide or assist in providing consulting services to a Client with respect to any Cerner product, process or service or any Conflicting Product.

E. You agree not, on behalf of yourself or on behalf of any other person, entity, or organization, to employ, solicit for employment, or otherwise seek to employ or retain any Cerner associate or employee, or any employee of a Cerner client company, or in any way assist or facilitate any such employment, solicitation, or retention effort.

8. <u>POST-TERMINATION PAYMENTS BY CERNER.</u>

If you are unable to obtain employment within three (3) months after termination of your employment at Cerner due solely to the non-competition restrictions imposed on you by Paragraph 7 of this Agreement, the provision of Paragraph 7 shall continue to bind you only so long as Cerner shall make to you monthly payments equivalent, on an annualized basis, to your average earnings during the last three years of your Cerner employment (or of your average Cerner earnings, if you were employed fewer than 3 years), for each month of such unemployment.

You will, during each month of such unemployment, make conscientious and aggressive efforts to find employment. You will also, within ten days after the end of each calendar month, give Cerner a detailed written account of your efforts to obtain employment. In your monthly written account, you will identify each Conflicting Organization with which you have sought employment. Cerner shall, at Cerner's option, be relieved of making a monthly payment to you for any month during which you fail to seek employment conscientiously and aggressively, and to account to Cerner as described above. Cerner is obligated to make such payments to you upon your fulfillment of the conditions set forth above beginning in the 4th month of your unemployment and continuing for the following twenty (20) consecutive months (for a total of 21 monthly payments), unless Cerner gives you:

A. Written permission to accept available employment, or

B. A written release from the non-competition obligations set forth in Paragraph 7 of this Agreement.

9. <u>PUBLICITY RELEASE.</u>

You consent and agree to the use of your name, voice and picture (including but not limited to use in still photographs, videotape and film formats, and both during and after your period of employment at Cerner) for advertising, promotional, public relations, and other business purposes (including its and their use in newspapers, brochures, magazines, journals and films or videotapes) by Cerner.

10. CERNER PROPERTY.

You understand that you may be assigned various items of Cerner property and equipment to help you carry out your Cerner responsibilities, including but not limited to keys, credit cards, access cards, Cerner Confidential Information (as defined in this Agreement), laptops, computer related and other office equipment, wireless telephone, pagers and/or other computer or communication devices ("Cerner Property"). When such Cerner Property is issued, you will formally acknowledge receipt of it when requested to do so and will take all reasonable precautions and actions necessary to safeguard and maintain it in normal operating condition. You further agree to accept financial responsibility for damage or wear to the Cerner Property you are issued beyond that associated with normal business use. You will notify Cerner immediately of any such damage or loss. If your employment with Cerner terminates (for any reason), you will immediately return to Cerner all Cerner Property which you have been issued or which otherwise belongs to Cerner. You understand that Cerner's vacation policy states that upon termination, for whatever reason, vacation pay will be paid out in accordance with the policy only after Cerner has received all Cerner Property issued to you or then in your possession. You agree to reimburse Cerner for any attorneys' fees and other collection charges incurred by Cerner in the events it becomes necessary to file a replevin or other legal action to recover the Cerner Property from you.

11. SYSTEMS AND PHYSICAL SECURITY.

You understand the importance of both systems and physical security to the daily operations of Cerner and to the protection of business information. You will, therefore, comply with and assist in the vigorous enforcement of all policies, practices, and procedures which may be developed to ensure the integrity of Cerner systems and facilities. Further, you understand that willful violation of such policies, practices, and procedures may result in termination of your employment.

12. PRIOR EMPLOYMENT RELATIONSHIPS AND OBLIGATIONS.

By accepting employment with Cerner, you represent to Cerner that you are not subject to any non-competition or confidentiality agreements that your employment and activities at Cerner would violate. You also represent and agree that you will not disclose to Cerner, or induce Cerner to use, any proprietary or confidential information belonging to any previous employer or to others.

13. REMEDIES.

By signing this Agreement, you agree that the promises you have made in it are of a special nature, and that any breach, violation or evasion by you of the terms of this Agreement will result in immediate and irreparable harm to Cerner. It will also cause damage to Cerner in amounts difficult to ascertain. Accordingly, Cerner shall be entitled to the remedies of injunction and specific performance, as well as to all other legal and equitable remedies which may be available to Cerner.

14. INDEMNIFICATION.

You agree to indemnify and hold Cerner harmless from and against any damages, liability, actions, suits or other claims arising out of your breach of this Agreement.

15. MODIFICATION.

This Agreement may not be modified in any respect, except by a written agreement executed by you and Cerner. However, Cerner may from time to time publish and adopt supplementary policies with respect to the subject matter of this Agreement, and you agree that such supplementary policies shall be binding upon you.

16. NOTICES.

Any notice required or permitted to be given pursuant to the terms of the Agreement shall be sufficient if given in writing and if personally delivered by receipted hand delivery to you or to Cerner, or if deposited in the United States Mail, postage prepaid, first class or certified mail, to you at your residence address or to Cerner's Corporate headquarters address or to such other addresses as each party may give the other party notice in accordance with this Agreement.

17. TERM OF THIS AGREEMENT.

This Agreement begins as noted above and will continue in perpetuity, even though your employment can be terminated by you or by Cerner as described elsewhere herein.

18. GOVERNING LAW; JURISDICTION.

This Agreement will be governed by, construed, interpreted, and its validity determined, under the laws of the State of Missouri. You and Cerner each hereby irrevocably and unconditionally submits to the nonexclusive jurisdiction of any Missouri state court or federal court of the United States of America sitting in Kansas City, Missouri and any appellate court from any thereof, in any action or proceeding arising out of or relating to this Agreement.

19. SEVERABILITY.

If any provision of this Agreement is held to be unenforceable, then this Agreement will be deemed amended to the extent necessary to render the otherwise unenforceable provision, and the rest of this Agreement, valid and enforceable.

20. ENTIRE AGREEMENT AND PRIOR AGREEMENTS.

You hereby acknowledge receipt of a signed counterpart of this Agreement and acknowledge that it is your entire agreement with Cerner concerning the subject matter. This Agreement cancels, terminates, and supersedes any of your previous oral or written understandings or agreements with Cerner or with any officer or representative of Cerner with respect to your employment with Cerner.

21. SUCCESSORS.

This Agreement shall be binding upon Cerner's successors and assigns. This Agreement shall also be binding upon your heirs, spouse, assigns and legal representatives.

****

This Employment Agreement is executed this 14 day of July, 2003.

/s/ John T. Peterzalek
Associate

Cerner Corporation

/s/ Cerner Representative
Cerner Human Resources

APPENDIX A

DEFINITION OF TERMS

CERNER CORPORATION and CERNER mean Cerner Corporation, the Delaware corporation. The terms also cover all of Cerner Corporation's parent, subsidiary and affiliate corporations and business enterprises, both presently existing and subsequently created or acquired. Such affiliate corporation may be directly or indirectly controlled by Cerner or related to Cerner by equity ownership.

CLIENT means any actual or potential customer or licensee of Cerner.

CONFIDENTIAL INFORMATION means Cerner, Client and Vendor trade secrets. It also means other Cerner, Cerner Associate, Client, and Vendor information which is not generally known, and is proprietary to Cerner Corporation or to Cerner Associates, Clients, and Vendors. It includes, but is not limited to, research, design, development, installation, purchasing, accounting, marketing, selling, servicing, finance, business systems, business practices, documentation, methodology, procedures, manuals {both internal and user), program listings, source codes, working papers, Client and Vendor lists, marketing and sales materials not otherwise available to the general public, sales activity information, computer programs and software, compensation plans, your personal compensation, performance evaluations, patient information and other client-related data, and all other non-public information of Cerner and its Associates, Clients, and Vendors.

CONFLICTING ORGANIZATION means any person or organization engaged (or about to become engaged) in research, development, installation, marketing, selling, or servicing with respect to a Conflicting Product.

CONFLICTING PRODUCT means any product, process or service which is the same as, similar to, or competes with any Cerner product, process or service with which you worked during the last three years of your employment by Cerner, or about which you have acquired Confidential Information.

NEW PRODUCTS AND IDEAS means discoveries, computer programs, improvements, works of authorship, designs, methods, ideas and products (whether or not they are described in writing, reduced to practice, patentable or copyrightable) which results from any work performed by you for Cerner, or involve the use of any Cerner equipment, supplies, facilities or Confidential Information, or relate directly to the business of Cerner, or relate to Cerner's actual or demonstrably anticipated research or development.

OTHER ASSISTANCE PROGRAMS means programs that Cerner may pay or reimburse you for certain reasonable costs incurred and also provide for Cerner's recovery of such amounts as specified in the policies of such Other Assistance Programs, as may be amended from time to time. Other Assistance Programs include, but are not limited to: tuition assistance, specialty external training, and immigration assistance. Cerner reserves the right to establish future assistance programs and designate such programs as Other Assistance Programs for purposes of inclusion under paragraph 2.C. of this Agreement.

VENDOR means any actual or potential licensor, supplier, contractor, agent, consultant or other purveyor of products or services to Cerner.

APPENDIX B

SUMMARY OF ATTACHMENTS

The following documents, if noted, are incorporated as attachments to this Employment Agreement.

Included	Not Included	Attachment	Description
X		I	Original Offer Letter
		II	Offer Letter Amendments
X		III	Termination Statement
X		IV	Sales Associate Provisions
		V	Inventory of Prior Inventions

ATTACHMENT III

TERMINATION STATEMENT

I represent that I have complied with all the provisions of the Cerner Associate Employment Agreement entered into between Cerner Corporation and me on the _________________ day of -___________, ______ in that:

1. I have not improperly disclosed or otherwise misused any of the Confidential Information covered by such Agreement. I shall continue to comply with all the continuing terms of the Agreement, including but not limited to the non-disclosure and (for the required term) non-compete provisions, and also including but not limited to the reporting of any New Products and Ideas conceived or made by me as covered by the Agreement.

2. I do not have in my possession, nor have I taken with me or failed to return, any records, plans, information, drawings, designs, documents, manuals, formulae, statistics, correspondence, client and vendor lists, specifications, blueprints, reproductions, sketches, notes, reports, proposals, or other documents or materials, or copies of them, or any equipment (including any laptops, computer equipment, office equipment, wireless telephone, pagers and/or other computer or communication devices provided to you by Cerner), credit cards or other property belonging to Cerner or its Clients or Vendors. I have returned to Cerner (or will return within 10 calendar days or earlier if requested by Cerner) all material and information compiled or received by me during the term of such employment. I have returned (or will return within 10 calendar days or earlier if requested by Cerner) all Confidential Information, as specified by such Agreement, and all correspondence and other writings. I have returned (or will return within 10 calendar days or earlier if requested by Cerner) all keys and other means of access to Cerner's premises. Failure to return such Cerner Property as defined in Section 10 of my Employment Agreement will result in any vacation pay that is due to me under the terms of Cerner's vacation policy to be withheld until the return to Cerner of all such Cerner Property.

3. I understand and agree that, with regard to all provisions of this Agreement relating to non-disclosure, non-solicitation, and confidentiality of information, such provisions shall not cease as of this termination but shall continue in full force and effect in perpetuity or as otherwise indicated within this Agreement. In compliance with the Agreement, I shall continue to preserve as confidential all Confidential Information as defined in the Agreement.

____
Associate Signature Printed Name & Associate #

____
Date

____
Termination Date

Cerner Corporation

____
By

____
Title

ATTACHMENT IV

SALES ASSOCIATE AND CERNER CONSULTING PROVISIONS

The following provisions are incorporated into this Employment Agreement for all associates who are responsible for sales activities related to Cerner products and certain associates in the Cerner Consulting group.

Should my employment by Cerner Corporation terminate for any reason, I understand and agree that:

1. Cerner reserves the right to offset any advances made to me against commissions or other amounts which I owe to Cerner, against available but unpaid salary, commissions payable, accrued vacation, expense reimbursement, or any other forms of compensation or reimbursement which may be owed to me. Any such offsets will be clearly documented by Cerner before they are processed. In addition, I agree that I will pay to Cerner the amount of any remaining balance owed to Cerner Corporation after the foregoing deductions, within 30 days of the end of my employment.

2. Any commissions to which I might otherwise be entitled will be payable to me only if the associated contract for products or services has been completed and fully executed by both parties, and if all deposit monies related to such contract have been paid in full by the client and received by Cerner prior to my last date of employment, in accordance with the terms of my Cerner Performance Plan. Cerner will not unreasonably delay or withhold execution of such contracts for the purpose of avoiding a commission payment to me, if it would otherwise be due.

3. Commissions, bonuses or other incentive-based compensation which may have accrued but are not payable as of my termination date because of the payment schedule defined for such compensation in the related Cerner Performance Plan will be paid to me according to the provisions of such Plan. Such payment will be subject to the offsets described in item 1 above and will apply only to items otherwise payable within one year following my termination date.

____
Associate

____
Date

____
Termination Date

Cerner Corporation

____
By

____
Title

Exhibit 10.16

CERNER CORPORATION ASSOCIATE EQUITY PARTICIPATION PROGRAM
NON-QUALIFIED STOCK OPTION AGREEMENT

(Continued from the "Face" of this certificate)

WITNESSETH:

WHEREAS, the Stock Option Committee of the Board of Directors of the Company (the “Committee”) has determined that the Optionee is eligible to receive an option to purchase shares of common stock of the Company under the Company's Non-Qualified Stock Option Plan D or Plan E (the "Plan"), as so indicated on the Face;

NOW, THEREFORE, in consideration of the mutual promises and covenants herein contained and other good and valuable consideration, the parties hereto do hereby agree as follows:

1. **Incorporation of the Plan**. A copy of the Plan is incorporated herein by reference and all of the terms, conditions and provisions contained therein shall be deemed to be contained in this Agreement.

2. **Grant of Option**. Pursuant to the authorization of the Committee, and subject to the terms, conditions and provisions contained in this Agreement, the Company hereby grants to the Optionee an option (the "Option") to purchase from the Company all or any part of an aggregate number of shares of Company common stock designated as "Option Shares" on the other side hereof ("Face") at a price per share equal to the Exercise Price on the Face.

The number of shares of common stock subject to the Option and the Exercise Price per share shall be appropriately adjusted to reflect any stock dividends, stock splits, split ups or combinations of outstanding shares of common stock of the Company. The date first written above shall be deemed to be the Granting Date of this Option.

3. **Term of Option**: The Optionee may purchase all or any portion of the shares subject to each installment listed in the Vesting Schedule on the Face hereof at any time on or after the Exercise Dates listed therein and before the Expiration Date (or any earlier termination date).

This option shall expire with respect to all shares of Company common stock subject hereto twenty-five years from the Granting Date (the “Expiration Date"), unless it shall be terminated at an earlier date in accordance with this Agreement.

This Option shall expire as to all unexercised shares immediately upon termination of the Associate's employment with the Company or any of its subsidiaries except that in the event such employment is terminated by reason of the Optionee’s death or disability, the Optionee, or Optionee's estate, shall have thirty (30) calendar days following such date to exercise this Option as to the number of shares exercisable on such date.

4. **Exercise of Option**. This Option may be exercised by Optionee delivering to the Company a written notice of exercise along with a payment in the amount of the Exercise Price for such shares plus the amount of any applicable federal, state or local taxes to be remitted by the Company in connection with such exercise. The payment for the Exercise Price for the shares may be made:

(a) In cash;

(b) By delivery to the Company of that number of shares of Cerner common stock having a fair market value on the date of exercise equal to the sum of the exercise price of the options to be exercised; or

(c) By surrendering on the date of exercise that number of options which, when multiplied by the excess of the fair market value of the stock which is subject to the surrendered option on the date of exercise over the Exercise Price for said options, results in a product which is equal to the sum of the Exercise Price of the remaining options being exercised.

5. **Investment Purpose**. By accepting this Option, the Optionee agrees that any and all shares of stock purchased upon the exercise of this Option will be purchased for Investment purposes, and not with a view to any distribution

thereof, and that each notice of the exercise of any portion of this Option shall be accompanied by a representation in writing signed by the Optionee (or by the person or persons entitled to exercise the Option in the event of the death of the Optionee) that the share of stock are being purchased in good faith for personal investment purposes, and not with a view to any distribution thereof.

When a registration statement filed with the Securities and Exchange Commission regarding the shares of common stock subject to this option agreement (the "Registration Statement") becomes effective, the investment representation contained in this section will no longer be applicable.

6. **Stock Restrictions**. Until such time as the Registration Statement becomes effective, the Optionee further agrees that:

(a) Each stock certificate issued pursuant to the exercise of the Option granted hereby shall bear a legend to the effect that the shares represented thereby have not been registered under the Securities Act of 1933, and may not be transferred except in accordance with the provisions of this Agreement.

(b) The shares of the stock acquired upon the exercise of this Option may be transferred, in whole or in part, only if in the opinion of counsel for the Company such proposed transfer may be effected without registration under the Securities Act of 1933 and appropriate state securities laws or such registration has been effected. Prior to the transfer of any such shares the holder thereof shall furnish the Company written notice of the intention to effect such transfer, which notice shall include the manner and circumstances of the proposed transfer and such other matters as the Company may request.

The Optionee shall promptly comply with any request by the Company for information concerning any disposition by the Optionee of any shares acquired pursuant to this Option which the Company may need in connection with an income tax return or any other return or report which it may be required to file with any governmental agency.

7. **Notices**. Any notices or other communications required or allowed to be made or given to the Company under the terms of this Agreement shall be addressed to the Company in care of its President at its offices at 2800 Rockcreek Parkway, North Kansas City, Missouri 64117, and any notice to be given to the Optionee shall be addressed to the Optionee at the address given beneath the signature hereto. Either party hereto may from time to time change the address to which notices are to be sent to such party by giving written notice of such change to the other party. Any notice hereunder shall be deemed to have been duly given five business days after registered and deposited, postage and registry fee prepaid, in a post office regularly maintained by the United States Government.

8. **Binding Effect and Assignment**. This Agreement shall bind the parties hereto but shall not be assignable by Optionee without the express written consent of Company.

9. **Governing Law**. This Agreement shall be construed in accordance with the laws of the Stale of Missouri.

IN WITNESS WHEREOF, the Company has caused this Agreement to be executed on its Face by its officers hereunto duly authorized and its corporate seal to be hereunto affixed, and the Optionee has hereunto set hand on its Face as of the day and year first above written.

Exhibit 10.37

CERNER CORPORATION
2001 ASSOCIATE STOCK PURCHASE PLAN
(AMENDED AND RESTATED JANUARY 1, 2019)

SECTION 1. PURPOSE OF PLAN

The Cerner Corporation 2001 Associate Stock Purchase Plan (the “Plan”) is designed to encourage and assist associates of Cerner Corporation (“Cerner”) and Cerner's U.S. based subsidiaries (collectively with Cerner, the "Company"), to acquire an equity interest in Cerner through the purchase of shares of Cerner common stock, par value $.01 per share (“Common Stock”). This Plan is intended to constitute an “employee stock purchase plan” within the meaning of Section 423 of the Internal Revenue Code (the “Code”).

SECTION 2. ADMINISTRATION OF THE PLAN

The Plan shall be administered by Cerner’s Board of Directors (the “Board”) or by a committee of the Board (the “Committee”) appointed by the Board and serving at its pleasure (the Board or any such Committee being herein referred to as the “Administrator”). Until such time as the Board shall determine otherwise, the Compensation Committee of the Board shall serve as Administrator. The Administrator shall have full power and authority, not inconsistent with the express provisions of the Plan, to administer and interpret the Plan, including the authority to:

(i) grant options and authorize the issuance of shares;

(ii) make and amend all rules, regulations, guidelines, procedures and policies for administering the Plan;

(iii) decide all questions and settle all disputes that may arise in connection with the Plan;

(iv) appoint persons and entities to act as designated representatives on the Administrator’s behalf in administering the Plan pursuant to its provisions (in which case the term “Administrator” as used herein shall include such persons or entities to the extent of such appointment);

(v) establish accounts with a person or entity appointed pursuant to (iv) above (“Custodian”) to hold Common Stock purchased under the Plan (“Stock Account”);

(vi) cause Cerner to enter into a written agreement with the Custodian setting forth the terms and conditions upon which Stock Accounts shall be governed (“Custodial Agreement”); and

(vii) require Participants to hold shares of Common Stock under the Plan in Stock Accounts (in which case each Participant’s decision to participate in the Plan shall constitute the appointment of such Custodian as custodial agent for the purpose of holding such shares) until such time as shall be specified in the Custodial Agreement.

All interpretations, decisions and determinations made by the Administrator shall be binding on all persons concerned.

SECTION 3. NATURE AND NUMBER OF SHARES

The Common Stock subject to issuance under the terms of the Plan shall be authorized but unissued shares or previously issued shares reacquired and held by Cerner. The aggregate number of shares that may be issued under the Plan shall not exceed 16,000,000 shares (which takes into account Cerner's two 2-for-1 stock splits in 2011 and 2013) of Common Stock. The number of shares of Common Stock which a Participant may purchase in an offering under the Plan may be reduced if the offering is over-subscribed. No Option granted under the Plan shall permit a Participant to purchase shares of Common Stock which, if added together with the total number of shares of Common Stock purchased by all other Participants in such offering would exceed the total number of shares of Common Stock remaining available under the Plan. If the Committee determines that, on a particular Purchase Date, the number of shares of Common Stock with respect to which Options are to be exercised exceeds the number of shares of Common Stock then available under the Plan, the Participants shall receive a pro rata allocation of the shares of Common Stock remaining available for purchase in as uniform a manner as possible and as the Committee determines to be equitable.

In the event of any reorganization, recapitalization, stock split, reverse stock split, stock dividend, combination of shares, exchange of shares, merger, consolidation, offering of rights or other similar change in the capital structure of Cerner, the Board or the Committee may make such adjustment, if any, as it deems appropriate in the number, kind and purchase price of the shares available for purchase under the Plan and in the maximum number of shares which may be issued under the Plan.

SECTION 4. ELIGIBILITY

Each individual employed the Company, including associates employed by its U.S. based subsidiaries ("Associate"), except as provided below, shall be eligible to participate in the Plan. The following individuals shall be excluded from participation:

(a) Persons who, as of the date of grant of an Option, have been continuously employed by Cerner for less than two (2) weeks;

(b) Persons who, immediately upon the grant of an Option, own directly or indirectly, or hold options or rights to acquire under any agreement or Company plan, an aggregate of five percent (5%) or more of the total combined voting power or value of all outstanding shares of all classes of Common Stock; and

(c) Persons who are customarily employed by the Company for less than twenty (20) hours per week or for not more than five (5) months in any calendar year.

SECTION 5. ENROLLMENT AND WITHDRAWAL

Each eligible Associate may enroll or re-enroll in the Plan as of the first day of any Option Period (as hereinafter defined) after the Associate first becomes eligible to participate. To enroll, an Associate must properly complete an enrollment form (including a payroll deduction authorization) in a form and manner acceptable to the Administrator and submit it to the Company, or use such other means to enroll as is authorized by the Administrator, within the time period before the commencement of such Option Period as the Administrator may prescribe. Participation in the Plan is voluntary. A "Participant" shall be an Associate enrolled in the Plan.

A Participant will automatically be enrolled in all future Option Periods unless the Participant withdraws from the Plan. If a Participant withdraws from the Plan, he or she will cease to be a Participant and may only participate in future Option Periods if he or she re-enrolls in the Plan. Any Participant may withdraw from the Plan by notifying the Company in writing, via electronic designation on the third party administrator's website, or any other manner permitted by the Administrator during the Option Period provided that such notification is at least three (3) business days prior to the Purchase Date (as defined below). Upon such a withdrawal, the entire amount contributed to the Plan by the Participant (and not yet used to purchase Common Stock) will be refunded without interest as soon as administratively practicable. In the event that a Participant notifies the Company within the three (3) day period prior to the Purchase Date, the Participant will be withdrawn from participating in the next following Option Period. The Participant's election to withdraw from an Option Period will not have any effect upon his or her eligibility to participate in succeeding Option Periods that commence following the completion of the Option Period from which the Participant withdraws.

SECTION 6. GRANT OF OPTIONS

Unless changed by the Board or the Committee, the Plan will be implemented by four (4) annual offerings of the Company's Common Stock each calendar year (the "Option Periods"). In each year that the Plan is in effect, the first Option Period will begin on January 1 and end on March 31, the second Option Period will begin on April 1 and end on June 30, the third Option Period will begin on July 1 and end on September 30, and the fourth Option Period will begin on October 1 and end on December 31.

Each person who is a Participant on the first day of an Option Period (the "Grant Date") will as of such day be granted an option for the Option Period (the "Option"). Such Option will be for the purchase of a maximum number of shares of Common Stock to be determined by dividing (i) the balance credited to the Participant's Payment Account (as defined in Section 7(b)) during such Option Period by means of payroll deduction (or such other means deemed acceptable by the Administrator) as of the Purchase Date (as determined under Section 8 below), by (ii) the purchase price per share of the Common Stock as determined under Section 8.

In no event shall a Participant be entitled to purchase, for any Option Period, more than the lesser of (i) the number of shares obtained by dividing $25,000 by the fair market value of a share of Common Stock on the Grant Date for such Option Period, or (ii) the maximum number of shares permitted to be purchased under Section 7(c) below.

The Administrator will reduce, on a substantially proportionate basis, the number of shares of Common Stock receivable by each Participant upon exercise of his or her Option for an Option Period in the event that the number of shares then available under the Plan is otherwise insufficient, and will return to Participant without interest any remaining unused balance in the Participant's Payment Account as soon as administratively practicable.

SECTION 7. METHOD OF PAYMENT

(a) Form of Payment. Payment for shares shall be made in installments through after-tax payroll deductions during the Option Period, with such deductions taken from pay periods paid during the Option Period, or in such other form of payment deemed acceptable by the Administrator.

Subject to the limits below and in Section 8, each Participant may elect through payroll withholding during the Option Period (or such other means deemed acceptable by the Company) to have credited to his or her Payment Account an amount not less than one percent (1%) and not greater than twenty percent (20%) of Compensation (as defined below); provided that the Administrator from time to time before an enrollment date may establish limits other than those herein described for all purchases to occur during the relevant Option Period.

For purposes of the Plan, "Compensation" shall mean all compensation paid to the Participant by the Company and currently includible in his or her income, including variable compensation (such as commissions, bonuses or other short-term incentive payments), overtime, and other amounts includible in the general definition of compensation provided in Treasury Regulation §1.415(c)-2(a), plus any amount that would be so included but for the fact that it was contributed to (a) a qualified plan pursuant to an elective deferral under Section 401(k) of the Code, (b) a nonqualified deferred compensation plan, and/or (c) a cafeteria plan on a before-tax basis pursuant to an election under Section 125 of the Code, but not including (i) payments under stock option plans (including any amount of income recognized upon the exercise of a stock option) and other employee benefit plans or other amounts excluded from the definition of compensation provided in the Treasury Regulations under Section 415 of the Code, and (ii) reimbursements or other expense allowances, fringe benefits (cash and noncash), moving expenses, payments of benefits under nonqualified deferred compensation plans, and welfare benefits.

A Participant may decrease the rate of withholding on a prospective basis effective as to future pay periods within an Option Period by giving written or electronic notice (in a form acceptable to the Administrator) to the Company not less than two (2) weeks prior to the desired effective date of such decrease. During the applicable enrollment period before an upcoming Option Period, a Participant may increase the rate of withholding by giving written or electronic notice (in a form acceptable to the Administrator) to the Company during such enrollment period; provided, however, that such an increase in withholding shall be effective for the upcoming future Option Period(s) only.

(b) Accounts. A "Payment Account" means the book entry account maintained by the Company or Administrator to record the amount of a Participant's payments made pursuant to Section 7(a) and any cash amount carried forward from an Option Period to the Grant Date for the next Option Period pursuant to Section 9. All payments by each Participant shall be credited to such Participant's Payment Account pending the purchase of Common Stock in accordance with the provisions of the Plan. All such amounts in the Payment Account shall be assets of the Company and may be used by the Company for any corporate purpose. No interest will be paid on amounts credited to a Participant's Payment Account.

(c) Limits on Purchase. In no event shall the rights of any Participant to purchase shares (under this Plan and under any other stock purchase plans of Cerner which are intended to qualify under Section 423 of the Code) accrue at a rate that exceeds $25,000 per calendar year as measured by the fair market value of such shares (determined in the case of each such share as of the Grant Date of the related Option). For purposes of administering this accrual limitation, the Administrator shall limit purchases under the Plan as follows:

(i) The number of shares which may be purchasable by a Participant during his or her first Option Period during a calendar year may not exceed a number of shares determined by dividing $25,000 by the Fair Market Value of a Share on the Grant Date for that Option Period.

(ii) The number of shares which may be purchasable by a Participant during any subsequent Option Period during the same calendar year (if any) shall not exceed the number of Shares determined by performing the calculation below:

(A) First, for each previous Option Period during the same calendar year, the number of Shares purchased by the Participant during such previous Option Period shall be multiplied by the Fair Market Value of a Share on the respective Grant Date for such same previous Option Period.

(B) Second, the sum of all amounts calculated under (A) above (for all Option Periods) shall be calculated.

(C) Third, the amount determined under (B) above shall be subtracted from $25,000.

(D) Fourth, the amount determined under (C) above shall be divided by the Fair Market Value of a Share on the Grant Date for such subsequent Option Period (for which the maximum number of Shares purchasable is being determined by this calculation) occurs. The quotient thus obtained shall be the maximum number of Shares which may be purchased by any Participant for such subsequent Option Period.

SECTION 8. PURCHASE PRICE

The purchase price of Common Stock issued pursuant to the exercise of an Option shall be eighty-five (85%) of the fair market value of Common Stock on the last trading day of the Option Period (the "Purchase Date").

Fair market value shall mean the closing price of Common Stock as reported on the Nasdaq Stock Market or other national securities exchange on which the Common Stock is then principally traded or, if that measure of price is not available, on a composite index of such exchanges or, if that measure of price is not available, in a national market system for securities. In the event that there are no sales of Common Stock on any such exchange or market on the Purchase Date, the fair market value of the Common Stock shall be deemed to be the closing sales price on the next preceding day on which Common Stock is sold on any such exchange or market. In the event that the Common Stock is not listed on any such market or exchange on the Purchase Date, a reasonable valuation of the fair market value of the Common Stock on such dates shall be made by the Administrator.

SECTION 9. AUTOMATIC EXERCISE OF OPTIONS; STOCK TRANSFER RESTRICTIONS

If an Associate is a Participant in the Plan on a Purchase Date, he or she will be deemed to have exercised the Option granted to him or her for the period ending on that Purchase Date. Upon such exercise, Cerner will apply the balance of the Participant's Payment Account to the purchase of the number of whole shares of Common Stock determined under Section 6 and, as soon as practicable thereafter, will issue and deliver said whole shares to the Participant (unless Stock Accounts are established by the Administrator pursuant to Section 2 of the Plan). Any cash remaining in the Participant's Payment Account shall either be carried forward to the next Grant Date (without interest) and become a part of the Payment Account for the Option Period to which such next Grant Date applies, or, upon written request of the Participant to the Administrator, be paid to Participant without interest (unless Stock Accounts are established by the Administrator pursuant to Section 2 of the Plan).

Notwithstanding anything herein to the contrary, Cerner's obligation to issue and deliver whole shares of Common Stock under the Plan will be subject to the approval required by any governmental authority in connection with the authorization, issuance, sale or transfer of said shares, to any requirements of any national securities exchange applicable thereto, and to compliance by Cerner with other applicable legal requirements in effect from time to time.

This Plan is intended to satisfy the requirements of Section 423 of the Code. A Participant will not obtain the benefits of this provision of the Code if such Participant disposes of shares of Common Stock acquired pursuant to the Plan within two (2) years from the Grant Date or within one (1) year from the date such Common Stock is purchased by the Participant, whichever is later.

Additionally, any shares of Common Stock issued under the Plan may not be sold, transferred or assigned until the earlier of (i) the first anniversary of the date the shares of Common Stock are issued to the Participant or (ii) the date the Participant's employment with the Company and any participating subsidiary thereof ends. Certificates representing, or electronic book entries on a direct representation system recording ownership of, such shares of Common Stock issued under this Plan during such one (1) year period may bear a legend or other electronic notation reflecting such transfer restriction.

SECTION 10. TERMINATION OF EMPLOYMENT

Subject to Section 11, upon the termination of a Participant’s employment with the Company for any reason, the Participant’s Payment Account balance shall be frozen to future accruals and the Participant shall be withdrawn from Plan participation and cease to be a Participant. Upon the cessation of participation, any Option held by the Participant under the Plan shall be treated as follows: (i) the Participant may give written notice to the Administrator within three (3) business days after the Participant's termination (so long as there is at least three (3) business days remaining before the Purchase Date) of his/her desire to cancel his/her Option under the Plan, in which case the Participant’s Payment Account balance will be returned to Participant; or, (ii) if no such notice is received by Participant, or if there are less than three (3) business days remaining before the Purchase Date when the written request is made, then the Option will be exercised on the next Purchase Date. In the case of death of the Participant, the Participant’s Payment Account shall be refunded in accordance with Section 11, without interest, as soon as administratively practicable and the Participant will have no further rights under the Plan.

SECTION 11. DEATH OF A PARTICIPANT

As soon as administratively feasible after the death of a Participant, any Common Stock and/or cash credited to the Participant under the Plan shall be delivered to the Participant’s executor, administrator or other legal representative of the Participant’s estate. Such delivery and payment shall relieve the Company of further liability to the deceased Participant or his/her estate with respect to the Plan.

SECTION 12. ASSIGNMENT

Except as provided in Section 11 above, a Participant’s Option, funds, securities, rights or other property held for the account of a Participant shall not be sold, pledged, assigned, transferred, or hypothecated in any way (whether by operation of law or otherwise) and shall not be subject to sale under execution, attachment, or similar process. Any attempted sale, pledge, assignment, transfer, hypothecation or other disposition of an Option, or levy of attachment or similar process upon the Option not specifically permitted herein shall be null and void and without effect. A Participant’s right to purchase shares under the Plan shall be exercisable during the Participant’s lifetime only by the Participant. If this provision is violated, the Participant’s election to purchase Common Stock shall terminate and the only obligation of the Company remaining under the Plan will be to refund to the Participant the amount then credited to his or her Payment Account and deliver to Participant any whole shares of Common Stock credited to him or her under any Stock Account.

SECTION 13. DISSOLUTION, MERGER AND CONSOLIDATION

Upon the dissolution or liquidation of Cerner, or upon a merger or consolidation of Cerner in which Cerner is not the surviving corporation, each Option granted hereunder shall expire as of the effective date of such transaction; provided, however, that the Administrator shall give at least 30 days’ written notice of such event to each Participant during which time he or she shall have a right to exercise his or her wholly or partially unexercised Option and, subject to earlier exercise pursuant to Section 9, each Option shall be exercisable after receipt of such written notice and prior to the effective date of such transaction.

SECTION 14. EQUAL RIGHTS AND PRIVILEGES

All eligible Associates shall have equal rights and privileges with respect to the Plan so that the Plan qualifies as an “employee stock purchase plan” within the meaning of Section 423 or any successor provisions of the Code and related regulations. Any provision of the Plan that is inconsistent with Section 423 or any successor provision of the Code shall without further act of amendment by Cerner be reformed to comply with the requirements of Section 423. This Section 14 shall take precedence over all other provisions of the Plan.

SECTION 15. RIGHTS AS STOCKHOLDER

A Participant shall have no rights as a stockholder under an Option until he or she becomes a stockholder as herein provided. A Participant will become a stockholder with respect to shares for which payment has been completed as provided in Section 8 as of the close of business on the Purchase Date for the Option Period.

SECTION 16. MODIFICATION AND TERMINATION OF THE PLAN

The Board or the Committee may terminate the Plan at any time. The Board, the Committee or one of its appointed delegates may at any time and from time to time amend the Plan in any manner permitted by law. No amendment shall be effective unless within one (1) year after it is adopted, the amendment is approved by Cerner's shareholders in the manner prescribed under the Treasury Regulations under Section 423 of the Code, if such amendment would:

(i) increase the number of shares reserved for purchase under the Plan, unless such increase is by reason of any change in the capital structure of Cerner referred to in Section 3 hereof;

(ii) change the designation of corporations or other entities whose employees may be offered Options under the Plan, except as permitted under Treasury Regulations §1.423-2(c)(4);

(iii) materially modify the requirements as to eligibility for participation in the Plan; or

(iv) materially increase the benefits accruing to Participants under the Plan.

In the event the Plan is terminated, the Board or Committee may elect to terminate all outstanding Options either immediately or upon completion of the purchase of shares on the next Purchase Date, unless the Board has determined that the right to make all such purchases shall expire on some other designated date occurring prior to the next Purchase Date. If Options are terminated prior to expiration, all funds contributed to the Plan that have not been used to purchase shares shall be returned without interest to the Participants.

SECTION 17. BOARD AND SHAREHOLDER APPROVAL; EFFECTIVE DATE

This Plan was initially adopted by the Board on March 9, 2001. The Effective Date of this restated Plan is January 1, 2019.

SECTION 18. OTHER PROVISIONS

Options and other documentation under the Plan shall contain such other provisions as the Administrator shall deem advisable, provided that no such provision shall conflict with the express terms of the Plan.

SECTION 19. USE OF FUNDS.

All payroll deductions received or held by the Company under the Plan may be used by the Company for any corporate purpose. The Company shall not be obligated to segregate such payroll deductions.

SECTION 20. ERISA

This Plan is not subject to the provisions of the Employee Retirement Income Security Act of 1974.

SECTION 21. EFFECT OF PLAN

The provisions of the Plan shall, in accordance with its terms, be binding upon, and inure to the benefit of, all successors of each Associate participating in the Plan, including, without limitation, such Associate's estate and the executors, administrators or trustees thereof, heirs and legatees, and any receiver, trustee in bankruptcy or representative of creditors of such Associate.

SECTION 22. WITHHOLDING TAXES

Upon the exercise of any Option under the Plan, the Company shall have the right to require the Associate to remit to the Company an amount sufficient to satisfy all federal, state and local withholding tax requirements prior to the delivery of any certificate or certificates for shares of Common Stock.

SECTION 23. EMPLOYMENT RIGHTS

Nothing contained in the provisions of the Plan shall be construed to give to any individual the right to be retained in the employ of the Company or to interfere with the right of the Company to discharge any Associate at any time.

SECTION 24. COMPLIANCE WITH LAW

The obligations of the Company with respect to payments under the Plan are subject to compliance with all applicable laws and regulations. Common Stock shall not be issued with respect to an Option granted under the Plan unless the exercise of such Option and the issuance and delivery of the shares of Common Stock pursuant thereto shall comply with all applicable provisions of law, including, without limitation, the Securities Act, the Exchange Act, and the requirements of any stock exchange upon which the shares may then be listed.

SECTION 25. GOVERNING LAW

The Law of the State of Missouri will govern all matters relating to this Plan except to the extent superseded by the federal laws of the United States.

SECTION 26. EQUAL RIGHTS AND PRIVILEGES

Notwithstanding any provision of the Plan to the contrary and in accordance with Section 423 of the Code, all Participants who are granted Option under this Plan shall have the same rights and privileges.

SECTION 27. ENTIRE PLAN

This Plan constitutes the entire Plan with respect to the subject matter hereof and supersedes all prior plans with respect to the subject matter hereof.

SECTION 28. SEVERABILITY

If any provision of the Plan shall for any reason be held to be invalid or unenforceable, such invalidity or unenforceability shall not affect any other provision hereof, and the Plan shall be construed as if such invalid or unenforceable provision were omitted.

SECTION 29. HEADINGS

The headings of sections herein are included solely for convenience and shall not affect the meaning of any of the provisions of the Plan.

Exhibit 21

SUBSIDIARIES OF REGISTRANT

Name	State/Country of Incorporation
1. Cerner Belgium SPRL	Belgium
2. Cerner Campus Redevelopment Corporation	Missouri
3. Cerner Canada Limited LLC	Delaware
4. Cerner Canada ULC	Canada
5. Cerner Capital, Inc.	Delaware
6. Cerner Chile Limitada	Chile
7. Cerner Chouteau Data Center, Inc.	Delaware
8. Cerner Corporation PTY Limited	New South Wales (Australia)
9. Cerner Deutschland GmbH	Germany
10. Cerner Egypt L.L.C	Egypt
11. Cerner Finland Oy	Finland
12. Cerner France SAS	France
13. Cerner Galt, Inc.	Delaware
14. Cerner Global Holdings B.V.	Netherlands
15. Cerner Government Services, Inc.	Delaware
16. Cerner Healthcare Sales India Private Limited	India
17. Cerner Healthcare Solutions, Inc.	Delaware
18. Cerner Healthcare Solutions India Private Limited	India
19. Cerner Health Connections, Inc.	Delaware
20. Cerner Health Services, Inc.	Delaware
21. Cerner Health Services Deutschland GmbH	Germany
22. Cerner Iberia, S.L.U.	Spain
23. Cerner Innovation, Inc.	Delaware
24. Cerner International, Inc.	Delaware
25. Cerner Ireland Limited	Ireland
26. Cerner Legal, Quality & Strategy, Inc.	Delaware
27. Cerner Limited	United Kingdom
28. Cerner Lingologix, Inc.	Delaware
29. Cerner (Malaysia) SDN BHD	Malaysia
30. Cerner Math, Inc.	Delaware
31. Cerner México, S. de R. L. de C.V.	Mexico
32. Cerner Middle East FZ-LLC	Emirate of Dubai, UAE
33. Cerner Middle East, Ltd.	Cayman Islands
34. Cerner Multum, Inc.	Delaware
35. Cerner Nederland B.V.	Netherlands
36. Cerner Norge AS	Norway
37. Cerner Österreich GmbH	Austria
38. Cerner Portugal Unipessoal, Lda.	Portugal
39. Cerner Properties, Inc.	Delaware
40. Cerner Property Development, Inc.	Delaware
41. Cerner RevWorks, LLC	Delaware
42. Cerner România S.R.L.	Romania
43. Cerner Singapore Limited LLC	Delaware
44. Cerner Soluções para a Saúde Ltda.	Brazil
45. Cerner State & Local Government Services, Inc.	Delaware
46. Cerner Sverige AB	Sweden
47. Cerner Universal Revenue Cycle Management, LLC	Delaware
48. Rockcreek Aviation, Inc.	Delaware
49. The Health Exchange, Inc.	Missouri

Exhibit 23

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Cerner Corporation:

We consent to the incorporation by reference in the Registration Statements (No. 333-206272, No. 333-180016, No. 333-174568, No. 333-125492, No. 333-75308, No. 333-70170, No. 333-40156, No. 333-93379, No. 333-77029, No. 33-56868, No. 33-20155, No. 333-24909, No. 333-24899, No. 33-55082, No. 33-39777, No. 33-63226, No. 33-41580, No. 33-39776, and No. 33-15156) on Form S-8 and (No. 333-72024 and No. 333-40156) on Form S-4 of Cerner Corporation of our reports dated February 8, 2019, with respect to the consolidated balance sheets of Cerner Corporation and subsidiaries as of December 29, 2018 and December 30, 2017, and the related consolidated statements of operations, comprehensive income, cash flows, and changes in shareholders' equity for each of the years in the three-year period ended December 29, 2018, and the related notes, and the effectiveness of internal control over financial reporting as of December 29, 2018, which reports appear in the 2018 Annual Report on Form 10-K of Cerner Corporation.

Our report refers to the Company's adoption of Accounting Standards Update 2016-09 "Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting" in 2017 and the Company's adoption of Accounting Standards Update 2014-09 "Revenue from Contracts with Customers (Topic 606)" in 2018.

/s/ KPMG LLP
Kansas City, Missouri
February 8, 2019

Exhibit 31.1

CERTIFICATION

I, Brent Shafer, certify that:

1. I have reviewed this annual report on Form 10-K for the year ended December 29, 2018 of Cerner Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 8, 2019

/s/ Brent Shafer
Brent Shafer
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION

I, Marc G. Naughton, certify that:

1. I have reviewed this annual report on Form 10-K for the year ended December 29, 2018 of Cerner Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 8, 2019

/s/ Marc G. Naughton
Marc G. Naughton
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION FURNISHED PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the filing of the Annual Report on Form 10-K for the fiscal year ended December 29, 2018 (the "Report") by Cerner Corporation (the "Company"), the undersigned Chief Executive Officer of the Company hereby certifies pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Brent Shafer

Brent Shafer, Chief Executive Officer

(Principal Executive Officer)

Date: February 8, 2019

Exhibit 32.2

CERTIFICATION FURNISHED PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the filing of the Annual Report on Form 10-K for the fiscal year ended December 29, 2018 (the "Report") by Cerner Corporation (the "Company"), the undersigned Chief Financial Officer of the Company hereby certifies pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Marc G. Naughton

Marc G. Naughton, Executive Vice President
and Chief Financial Officer
(Principal Financial Officer)
Date: February 8, 2019