Medidata Solutions, Inc.
Form 10-K
February 29, 2016
Table of Contents

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

FORM 10-K

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

For the fiscal year ended December 31, 2015

OR

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

For the transition period from to

Commission File Number: 001-34387

Medidata Solutions, Inc.
(Exact name of registrant as specified in its charter)

Delaware	13-4066508
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
350 Hudson Street, 9th Floor New York, New York	10014
(Address of principal executive offices)	(Zip Code)

(212) 918-1800
(Registrant's telephone number, including area code)

Securities registered under Section 12(b) of the Exchange Act:

Title of each class	Name of each exchange on which registered
Common Stock, par value $0.01 per share	The NASDAQ Stock Market LLC

Securities registered under Section 12(g) of the Exchange Act: None

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

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

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). ý Yes ¨ No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K 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. ý

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

Large accelerated filer ý Accelerated filer ¨ Non-accelerated filer ¨ Smaller reporting company ¨

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

As of June 30, 2015, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the common stock held by non-affiliates of the registrant was approximately $2,998,996,934 based on the closing sale price for the registrant's common stock on the NASDAQ Global Market on that date of $54.32 per share. For purposes of determining this number, all executive officers and directors of the registrant are considered to be affiliates of the registrant, as well as individual shareholders holding more than 10% of the registrant's outstanding common stock. This number is provided only for the purpose of this report on Form 10-K and does not represent an admission by either the registrant or any such person as to the status of such person.

As of February 22, 2016, the registrant had 56,361,385 shares of common stock outstanding.

Documents Incorporated by Reference:

Part III of this Annual Report on Form 10-K incorporates by reference certain information that will be set forth in the registrant's Proxy Statement in connection with the 2016 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission within 120 days of December 31, 2015. Except with respect to information specifically incorporated by reference in this Form 10-K, the Proxy Statement is not deemed to be filed as part of this Form 10-K.

Table of Contents

MEDIDATA SOLUTIONS, INC.
ANNUAL REPORT ON FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2015
TABLE OF CONTENTS

Table of Contents

PART I

For purposes of this Annual Report, the terms “Medidata,” “Company,” “we,” “us,” and “our” refer to Medidata Solutions, Inc and its consolidated subsidiaries. This Annual Report on Form 10-K contains “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, or Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or Exchange Act, and is subject to the “safe harbor” created by those sections. Forward-looking statements reflect our current estimates, expectations and projections about our future results, performance, prospects and opportunities. Forward-looking statements include, among other things, the information concerning our possible future results of operations, business and growth strategies, financing plans, expectations that regulatory developments or other matters will not have a material adverse effect on our business or financial condition, our competitive position, and the effects of competition, the projected growth of the industry in which we operate, the benefits and synergies to be obtained from our completed and any future acquisitions, and statements of management’s goals and objectives, and other similar expressions concerning matters that are not historical facts. Words such as “may,” “should,” “could,” “would,” “predicts,” “potential,” “continue,” “expects,” “anticipates,” “intends,” “plans,” “believes,” “estimates,” “appears,” “projects,” and similar expressions, as well as statements in the future te identify forward-looking statements. Forward-looking statements should not be read as a guarantee of future performance or results, and will not necessarily be accurate indications of the times at, or by which, such performance or results will be achieved. Forward-looking information is based on information available as of the date of this Annual Report on Form 10-K and/or management’s good faith belief with respect to future events, and is subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in the statements. We caution readers not to place undue reliance upon any such forward-looking statements. We urge you to consider the risks and uncertainties discussed in “Risk Factors” under Item 1A in this Annual Report on Form 10-K in evaluating our forward-looking statements.

Item 1. Business

Company Overview

Medidata is a global provider of a platform of cloud-based solutions for life sciences, enabling efficiency and quality throughout clinical development programs, aimed at accelerating processes, enhancing decision-making, minimizing operational risk, saving resources, and enabling transformational trial strategies.

Our customers are pharmaceutical, biotechnology, and medical device companies, academic institutions, contract research organizations ("CROs"), and other organizations engaged in clinical testing. Our global customer base includes over 90% of the top 25 global pharmaceutical companies measured by drug revenue, as well as numerous middle-market life science companies. In 2015, no single customer accounted for 10% or more of our total revenues.

Medidata's platform of advanced technology solutions and data analytics is aimed at enabling efficient and safe development, using secure cloud and hybrid cloud infrastructure to connect and support users over the Internet. Clients can utilize our entire cloud-based platform or purchase individual solutions or products. We offer our technology on an enterprise or multi-study basis. Clients can also use our solutions on a single-study basis for a limited number of trials or to evaluate them prior to committing to a multi-study arrangement.

Subscription and professional services represent approximately 85% and 15% of our business, respectively. Our business model provides us with a recurring revenue stream that we believe delivers greater revenue visibility than perpetual software licensing models.

Medidata's Approach

Medidata's solutions are designed to address the underlying requirements of clinical development, not only bringing efficiencies to existing processes, but also transforming the enterprise with enhanced productivity and quality. Our platform focuses on increasing efficiency, reducing redundancies, maximizing visibility, and consolidating workflows. We build our solutions to be interoperable with third-party software and data feeds, creating a collaborative ecosystem that broadens the development technology enterprise. This increases the value of legacy, installed systems and new technology such as mobile device applications, and simplifies adoption from competitive systems.

We believe our solutions provide our customers with the following benefits:

- faster trial results;
- scalability;

- improved quality and minimization of risk;
- enhanced investigator experience;
- interoperability to support ecosystem; and
- global connectivity across sponsor and investigator sites.

Our Strategy

Our strategy is to enable our customers to bring their new and enhanced medical treatments to the public quickly, efficiently, and safely by providing a platform that uses innovative technology to automate, streamline, support, and enhance clinical development activities. Key elements of our strategy include:

Table of Contents

- Broaden our footprint with our existing customers. Our strategy of developing technology solutions across the clinical trial process provides additional avenues for growing our business. We will continue to demonstrate the significant efficiencies that our existing customer base can achieve by standardizing end-to-end clinical development processes on our platform and by expanding the use of our solutions. We also intend to drive increased usage by facilitating our customers' use in new trials and converting existing single-study customers into multi-study customers.
- Build additional innovative solutions, including new analytics and benchmarks, into our platform. We will continue to build new innovative solutions that further transform the clinical development process, and offer them to new and existing clients. We will continue to develop our analytics and benchmark capabilities, creating value for our clients by enhancing decision-making.
- Launch regular platform enhancements. We will continue to enhance our unified, integrated platform with regular releases, adding new functionality, integrations, and user benefits to our solutions.
- Expand our global client base. We are expanding our sales, marketing, and services resources in areas around the globe with significant trial activity. We expect clinical technology adoption to continue to increase, resulting in significant growth in spending on technology solutions. Our view is that clinical development is underinvested in technology, and new technologies will expand opportunities by replacing manual and under-automated activities.
- Increase indirect sales partnership initiatives. We will continue to pursue strategic partnerships with CROs and systems integrators to position our software and analytics solutions as the platform of choice for their outsourced clinical trial management services. Our well-established program of support, training, and certification enables partners to cost-effectively implement our solutions and services in sponsor studies as they provide their other services related to pharmaceutical development.
- Position the Medidata Clinical Cloud as part of the evolving clinical ecosystem. We are building relationships, supporting partnerships and working with innovative technology and data firms to confirm Medidata as a key player in the evolving clinical ecosystem. Our partnerships provide immediate benefits to our customers by enabling integrated systems and collaborative governance and future benefits by ensuring that our solutions are embedded in the next generation of innovations.
- Communicate the enterprise-level value we create for our customers. Medidata's technology, metrics, and services are designed to drive value creation for our clients by reducing the overall cost of their research and development commercialization efforts. We have invested in tools and workforce that measure, document, and communicate that value, and have integrated these resources into our market approach and solution development strategy.

Our Cloud-Based Technology

The Medidata Clinical Cloud

The Medidata Clinical Cloud provides a platform of technology and data analytics solutions designed to optimize activities across clinical development. A software-as-a-service ("SaaS") platform, the Medidata Clinical Cloud is fully scalable and expandable. Platform capabilities are offered around the following solution clouds:

Planning Cloud provides capabilities for study design and planning, enabling customers to make the most efficient use of resources through better planning at the start of trial design and protocol development. Specific functionality supports visibility into the impact of protocol elements on resource and trial endpoints; comparisons to specific industry benchmarks and analytics, based on industry-leading databases, to support appropriate grants to investigator sites; and automated negotiations with multiple investigator sites.

Data Capture Cloud is Medidata's industry-leading, fully integrated, robust, and scalable electronic data capture ("EDC") and management system solution, Medidata Rave. It provides a globally-accessible and intuitive user interface to facilitate the capture and cleaning of data from investigator sites, is designed for compliance with regulatory requirements, and supports electronic signatures as well as industry standards. As part of Medidata's platform, it seamlessly links to such tools as randomization, clinical supply tracking, safety system export and site management, including monitoring and payments, reducing activity, time, and risk throughout a trial. Our strong support for industry standards, such as those provided by Clinical Data Interchange Standards Consortium ("CDISC"), provides a foundation for integration with other systems at sponsors, CROs, and technology partners. The Medidata platform can capture and manage data from multiple sources through its unified integrations, standards-based

application programming interfaces ("APIs"), and other data feeds, providing one source of usable, comprehensive patient data throughout the trial.

Patient Cloud is designed for direct capture of the voice of the patient in clinical trials. Personal sensors, monitors, and apps offer additional and alternative measurements of activity, behavior, and physiology for more precise and, in some cases, novel insights into drug efficacy and safety. Medidata's mobile health ("mHealth") offerings provide ways for customers to utilize these new measurements in the rigorous scientific, regulatory and technology environment of clinical trials. Medidata Patient Cloud ePRO is a modern application for use on any app-ready iOS or Android device, such as a smart phone or tablet, that captures patient questionnaire and diary assessment inputs that are then immediately available in the Medidata platform.

Study Management Cloud offers capabilities that enable clinical teams to manage, monitor, control, integrate, and report operational and clinical data from patients and sites. These tools provide the foundation for an efficient and quality-driven trial, unified

Table of Contents

with the data capture and patient capture activities, minimizing redundancies, enhancing decision-making, increasing speed, and reducing operational risk. Specific functions include clinical data management, centralized medical coding, randomization and trial supply management, and safety data monitoring.

Monitoring Cloud offers a robust and comprehensive set of risk-based monitoring tools and services that enable customers to more efficiently assess data quality with risk-based strategies. Comprehensive services and system capabilities allow identification of outlying clinical and operational data, automated site tracking, and EDC-based targeting. Medidata experts can help customers set up, design, and conduct targeted monitoring programs, supported by automated schedules and outputs from the Medidata Clinical Cloud.

Payments Cloud automates the task of tracking and calculating payments to individual sites across clinical trials. Fully unified with Medidata Rave, Payments Cloud is adding capabilities for payments, tax calculations, and other robust functionality in early 2016.

Data and Analytics Cloud has been designed and architected to surface a broad range of embedded operational data across the clinical process, alongside the largest databases of industry-wide analyzable, anonymized information. The Medidata platform provides dashboards, interactive platforms, ad hoc and scheduled reporting, and interactive analytics to enhance customers' contextual decision-making and real-time operational adjustments.

Technology and Support

We have designed our technology to maximize ease of use, flexibility, data visibility, and system scalability to handle high-volume, global trials as well as smaller studies. We deploy our solutions through the use of industry-standard web browsers and mobile devices, service-oriented architectures ("SOA"), three-tiered server architectures, or a web server, a proprietary application server and a database server. End users can access our solutions through any web browser from anywhere in the world without downloading or installing any Medidata-specific software. In addition, our cloud-based solutions feature end-to-end support for Unicode characters, required to deliver multi-lingual studies. We utilize technologies such as firewalls, intrusion detection, and encryption to ensure the privacy and security of our customers’ data, with a dedicated Security Information and Event Management ("SIEM") team monitoring our applications 24/7.

We develop our solutions on a broad base of technologies, including Java 2 Enterprise Edition ("J2EE"), Oracle, Microsoft.NET, Microsoft SQL Server, Business Objects, Ruby, AWS, Cassandra, MySQL, and Chef. By creating consistent data models that can accommodate the broad cloud-based requirements of multiple biopharmaceutical, medical device, and CRO customers, we have been able to avoid customer-specific builds or other customizations to our core product, thereby streamlining development and maintenance. Furthermore, our interfaces are built on fully documented APIs, which allow us to safely update customers’ data in new versions of the system, and to develop additional interfaces to address new market opportunities. By including version control and the ability to dynamically integrate data without system interruption, we are better able to accommodate the industry-specific challenges facing clinical trial teams around protocol amendments and the need for incremental changes to study data collection and cleaning processes during a clinical trial.

Medidata provides world-class delivery services to customers utilizing our products, with state-of-the-art virtualization technologies to optimize the delivery of our cloud-based solutions, manage storage effectively, and maintain quality of service. These virtualization capabilities provide the ability to quickly scale to increased client usage. Medidata manages a hybrid cloud, operating our solutions on a combination of private data center and public cloud. Advanced monitoring services are provided on a 24/7 basis by trained Medidata staff to ensure that usage is delivered in a consistent manner. Advanced backup and storage frameworks are in place, and regionally-diverse data centers and trained engineering teams are utilized to provide for quick reaction time in the event of a disaster.

We have a dedicated global organization to support our customers and applications worldwide. We offer 24/7 support to our customers' investigator sites through multi-lingual help desks located in Iselin, New Jersey; Conshohocken, Pennsylvania; Sofia, Bulgaria; London, United Kingdom; Tokyo, Japan; and Dalian, China.

Professional Services

We offer expert professional services to help life sciences companies realize higher value in their clinical development processes. Our clients vary in their resources, expertise, and preference for developing or deploying their studies on Medidata technology, and we offer flexible, tailored services to support each client's needs.

In order to help clients drive additional costs and inefficiencies out of their business, we offer consulting services to advise them on ways to optimize their clinical development processes from trial concept to conclusion. Our consultants use their extensive clinical expertise to leverage best practices in the use of clinical technologies, streamline and enhance trial processes, and increase clients' competitiveness in the market. We also leverage Data and Analytics Cloud benchmarks and reports to help clients evaluate their clinical trial performance across the organization and against industry benchmarks.

Our professional services offerings include:

- Configuration services. We provide implementation of the Medidata Clinical Cloud and our solutions with efficient, scalable study build and configuration, and implementation support. Our methodology leverages both the industry-specific expertise of our employees and the specific capabilities of our platform to simplify, streamline, and expedite the implementation of our solutions.

Table of Contents

- Sponsor enablement. Our tailored strategies, business solutions, and knowledge transfer enable customers to design, configure, implement, and manage their own studies; we believe this maximizes the benefits of Medidata technology by enabling customers to develop the degree of autonomy most aligned with their organizational resources and strategic goals.
- Partner support. We offer services supporting successful clinical programs at our CRO and systems integration partners, aimed at maximizing the value of the CRO/sponsor/technology collaboration.
- E-learning and training. We offer self-administered e-learning courses as well as a variety of additional training services through our training group, known as Medidata Academy, to facilitate the successful adoption of our cloud-based solutions throughout the customer or partner organization.
- Strategic consulting. Our technology, analytics, and benchmarking solutions support a re-engineered development process that may require our clients to implement internal changes. Medidata's experienced domain experts provide consulting services to help organizations shift to new processes and systems, including re-engineering business processes across departments and changes in governance models. Our industry and technology experts draw on Medidata's visibility into best practices and data-driven analytics to advise clients.

Research and Development

We believe that our future success depends on our ability to continue to enhance and broaden our cloud-based solutions to meet the evolving needs of clinical trial sponsors and other entities engaged in clinical trials. Equally important is our ability to innovate, taking advantage of latest technologies and monitoring trends in healthcare. As of December 31, 2015, we had 420 employees in research and development. Our efforts are focused on developing new, complementary software solutions, as well as enhancing our existing solutions. Our research and development department includes a product management team that works with both internal and customer experts to create new features and functionality, a team of software project managers, and a technical documentation team, as well as product engineering and software quality assurance functions. We also have a dedicated team building integration software and APIs on top of our platform. While the bulk of research and development focuses on commercial products, we pride ourselves in maintaining a team devoted to research, and we encourage all developers to take part in our Innovation Time program, supporting and rewarding creativity.

When developing our technical solutions to manage clinical data, industry regulatory requirements also dictate that substantial documentation be created to demonstrate data integrity in the solutions, and that our systems perform repeatedly, reliably, and in accordance with the system requirements. This process is known in the industry as validation, and our deliverable is a software validation package. Our software development lifecycle practices, which are part of a required quality system, include streamlined methodologies for generating and maintaining validation packages during the software release process. For those products that allow customers to upgrade at their discretion, these methodologies include a validated path for upgrading existing installations and data. The robustness of the validation process and associated validation deliverables enable our customers to upgrade with confidence and stay on current technology. This allows Medidata to minimize the number of legacy releases that require maintenance and support. The majority of our cloud components are upgraded automatically, meaning that Medidata only has a single version of the software to maintain, and customers always access the latest, improved product. For products which are upgraded automatically, customers receive access to a fully tested software product prior to its official release into production as a fully validated product.

We incurred $92.3 million, $71.8 million, and $51.2 million in research and development expenses for the years ended December 31, 2015, 2014, and 2013, respectively. Research and development expenses comprised 23.5%, 21.4%, and 18.5% of revenue in 2015, 2014, and 2013, respectively.

Sales and Marketing

We market and sell our cloud-based solutions through a direct sales force and through relationships with CROs and other strategic partners. Our marketing efforts focus on increasing awareness, consideration, and preference for our cloud-based solutions and professional services and generating qualified sales leads. As of December 31, 2015, we had 287 employees in sales and marketing.

Our sales force operates globally with a focus on North America, Europe, and Asia. The team is organized by both region and focus area and includes business consultants and sales operations support. Sales through this direct channel

currently represent the largest source of our total revenues.

Many sponsors of clinical trials outsource some or all of their clinical research activities as a means of expanding capacity, controlling costs, and focusing on core strengths. Our CRO relationships help position our solutions as the core platform for their outsourced services. Through our Medidata Partner Program, we partner with CROs to deliver our clinical trial technology along with the CRO's monitoring, project management, data management, and other expertise. We train, certify, and support our CRO and other clinical services partners on our solutions, which enable our partners to quickly and cost-effectively implement our technology in sponsors' studies.

As part of our customer and prospect approach, we measure and communicate the value of adopting our cloud-based solutions and platform in lowering costs, reducing time to market, minimizing risk, and enhancing therapeutic value. Our marketing objectives are to generate qualified sales leads, enhance the global recognition and reputation of our brand and solutions, and establish Medidata as

Table of Contents

the premier provider of clinical trial solutions. Our principal marketing initiatives target key executives and decision makers within our existing and prospective customer base.

Customers

We are committed to developing long-term, partnering relationships with our customers located worldwide and working closely with customers to enable them to make optimal use of our systems for their development portfolios. Our customers include pharmaceutical, biotechnology, medical device and diagnostics companies, institutions (which include academic research centers, government, and other non-profit organizations), CROs, and other entities engaged in conducting and/or sponsoring clinical trials. We work with large global pharmaceutical companies with worldwide footprints and clinical trials in multiple locations, as well as with start-up and mid-sized specialty, biotechnology, pharmaceutical, and medical device and diagnostic companies. We also work with government agencies that conduct or support the conduct of clinical trials.

We generate revenues from sales to new customers as well as sales and renewals from our existing customers. Our global direct sales organization represents our primary source of sales, with additional sales generated through our CRO relationships. As of December 31, 2015, we had 611 customers, including over 90% of the top 25 global pharmaceutical companies measured by drug revenue.

Our five largest customers accounted for 24%, 26%, and 29% of our revenues in 2015, 2014, and 2013, respectively. In 2015, 2014 and 2013, no single customer accounted for 10% or more of our total revenues. At December 31, 2015, one customer comprised 18% of our accounts receivable; the substantial majority of that customer's year-end balance had been collected by the end of February 2016. No single customer comprised 10% or more of total accounts receivable at December 31, 2014.

We sell our solutions and provide services globally. Approximately 24%, 26%, and 29% of our revenues in each of the years ended December 31, 2015, 2014, and 2013, respectively, were derived from international operations. A summary of our domestic and international revenues and long-term assets is set forth in Note 1, “Summary of Significant Accounting Policies—Segment and Geographic Information,” to our consolidated financial statements, which are included in Item 15 of this Annual Report on Form 10-K.

Backlog

Our subscription backlog relates to our cloud-based offerings, representing the future contract value of outstanding multi-study and single-study arrangements, billed and unbilled, to be recognized in the current year. Backlog does not include expected intra-year renewals or other adjustments. For this reason, subscription backlog at the beginning of any period is not necessarily indicative of long-term future performance. As of January 1, 2016 and 2015, we had full-year subscription backlog of approximately $296 million and $251 million, respectively. Our presentation of backlog may differ from that of other companies in our industry.

Competition

The market for clinical trial solutions is highly competitive and rapidly evolving. It is subject to changing technology, shifting customer needs, changes in laws and regulations, and frequent introductions of new products and services. We compete with firms such as Oracle, Parexel Informatics and others offering products and services that compete with one or more of our solutions.

We compete on the basis of several factors, including the following:

- innovation, breadth and depth of solution offerings;
- platform capabilities and solution functionality and features, including analytics;
- scalability and upgrade pathways and support;
- speed, performance, and ease of use of our solutions;
- product reliability and infrastructure accessibility and security;
- regulatory compliance;
- breadth and strength of partnerships;
- interoperability;
- financial stability;
- depth of expertise and quality of our global professional services and customer support; and
- sales and marketing capabilities, including the ability to create and communicate operational value.

Although some of our competitors and potential competitors have greater name recognition, longer operating histories, more product offerings, and greater financial, technological, and other resources than we do, we believe that we compete favorably with our competitors on the basis of these factors.

Intellectual Property

Our success and ability to compete are dependent on our ability to develop and maintain the proprietary aspects of our technology and operate without infringing the proprietary rights of others. We rely upon a combination of trademark, trade secret, copyright, patent and unfair competition laws, as well as license agreements and other contractual provisions, to protect our intellectual property and other proprietary rights. In addition, we attempt to protect our intellectual property and proprietary information by requiring our employees and consultants to enter into confidentiality, non-competition and assignment of inventions agreements. We have registered trademarks and service marks in the United States ("U.S.") and abroad, and filed applications for the registration of additional trademarks and service marks. Our principal trademarks are “Medidata,” "Medidata Solutions," "Medidata Clinical Cloud," "Medidata

Table of Contents

Patient Cloud," “Medidata CRO Contractor,” “Medidata Designer,” “Medidata Grants Manager,” “Medidata Rave,” "Medidata Balance," "Medidata Coder," and "Medidata Insights." We also hold several domain names, including the domain names “mdsol.com” and “medidatasolutions.com.” As of December 31, 2015, we hold 17 patents and have 17 published patent applications outstanding with the U.S. Patent and Trademark Office ("PTO"), as well as certain corresponding foreign patents and/or patent applications.

The legal protections described above afford only limited protection for our technology. Due to rapid technological change, we believe that factors such as the technological and creative skills of our personnel, new product and service developments, and enhancements to existing products and services are more important than the various legal protections of our technology to establishing and maintaining a technology leadership position.

Government and Other Regulations

Regulation of Clinical Trials and Electronic Systems Used in Clinical Trials

The conduct of clinical trials is subject to regulation and regulatory guidance associated with the approval of new drugs, biological products and medical devices imposed upon the clinical trial process by the U.S. Food and Drug Administration ("FDA"), foreign governmental regulatory agencies and international non-governmental organizations, such as the International Conference on Harmonisation ("ICH"), and the World Health Organization ("WHO").

The laws, regulations, and guidance from various countries and regions are often, but not always, harmonized. In those areas that are not yet harmonized, conflicting or even contradictory requirements may exist. Further, the regulatory environment and requirements for clinical trials and drug/biologic/device approvals are undergoing rapid change in the U.S., the European Union, and other regions. We continue to monitor regulatory developments and industry best practices in these areas and make changes and introduce improvements as necessary to remain in compliance.

The use of our software products, services, and hosted solutions by customers engaged in clinical trials must be done in a manner that is compliant with a complex array of U.S. federal and state laws and regulations, including regulation by the FDA, as well as regulations and guidance issued by foreign governments and international non-governmental organizations. Our applications have been designed to allow our customers to deploy such clinical trials as part of a validated system, compliant with applicable laws and regulations.

The use of software during the clinical trial process must adhere to the regulations and regulatory guidance known as Good Clinical Practices ("GCPs"), other various codified practices such as the Consolidated Guidance for Industry from the International Conference on Harmonisation Regarding Good Clinical Practices for Europe, Japan, and the U.S., and other guidance documents. In addition to these regulations and regulatory guidance, the FDA and regulatory authorities from other countries have developed regulations and regulatory guidance concerning electronic records and electronic signatures. In the U.S., this includes Title 21 Code of Federal Register ("CFR") Part 11, Electronic Records; Electronic Signatures, which is further interpreted for clinical trials in a guidance document titled FDA Computerized Systems Used in Clinical Investigations—Guidance for Industry. In general, regulatory guidance stipulates that computerized systems used to capture or manage clinical trial data must meet certain standards for attributability, accuracy, retrievability, traceability, inspectability, validity, security, and dependability. If we or our customers violate the GCPs or other regulatory requirements, both parties run the risk that the violation will result in a regulatory citation, the suspension of the clinical trial, investigator disqualification or debarment, the rejection or withdrawal of a product marketing application, criminal prosecution, or civil penalties. Such risks not only impact our customers, but could also have a material adverse effect on our business, results of operations, or financial condition.

Regulation of Health Information

Government regulation of the use and disclosure of patient privacy and data protection imposes a number of requirements. In the U.S., regulations issued pursuant to the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), require certain “covered entities,” including facilities and providers that are involved in clinical trials, to comply with established standards regarding the privacy and security of protected health information, and to use standardized code sets when conducting certain electronic transactions. The regulations also require “business associates” that provide services on behalf of the covered entity to follow the same standards. Although we are not a “covered entity” or a “business associate” and therefore technically are not subject to HIPAA regulations, many users of our products and services are directly regulated under HIPAA and our products cannot be utilized in a manner that is

inconsistent with the users' HIPAA compliance requirements. In addition, to the extent we perform functions or activities on behalf of customers that are directly regulated by such health-related privacy laws, we may be required to comply with a number of the same HIPAA requirements. The breach of such requirements on our part may result in liability to our customers and us. In addition to HIPAA, most states within the U.S. have enacted or are considering their own privacy and data protection laws. Such state laws, if more stringent than HIPAA requirements, are not preempted by the federal requirements and we must comply with them as well.

In addition to complying with the privacy laws in the U.S., many foreign governments have data privacy and data protection laws that include additional protections for customer end-user information and for sensitive patient information, such as confidential medical records. Because our services are available to customers in many foreign countries, we must provide our services in a manner that supports our customers' compliance obligations. Foreign government data protection laws and regulations include the European Union's Data Protection Directive ("95/46/EC") and European country-specific laws and regulations that implement that Directive.

Table of Contents

Employees

As of December 31, 2015, we had a total of 1,254 employees, of which 432 were employed at our headquarters in New York, 535 at other locations in the U.S., 165 in the United Kingdom, and 122 in the Asia Pacific region. As of December 31, 2015, we had 353 employees in customer services and support, 31 employees in data operations, 420 employees in research and development, 287 employees in sales and marketing, and 163 employees in administration and executive management. We also retain additional outside contractors from time to time to supplement our services and research and development staff on an as-needed basis. As of December 31, 2015, we had 233 independent contractors, the majority of which have been engaged in connection with help desk and customer service functions. None of our employees are covered by a collective bargaining agreement. We consider our relationships with our employees to be good.

Available Information

We were organized as a New York corporation in June 1999 and reincorporated in the State of Delaware in May 2000. Our principal executive offices are located at 350 Hudson Street, 9th Floor, New York, New York 10014, and our telephone number is (212) 918-1800. Our website is located at www.mdsol.com. No information contained on our web site is intended to be included as part of, or incorporated by reference into, this Annual Report on Form 10-K. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as well as reports relating to our securities filed by others pursuant to Section 16 of such act, are available through the investor relations page of our web site free of charge as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission ("SEC"). The SEC maintains a web site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The address of that site is www.sec.gov.

Item 1A. Risk Factors

We operate in a rapidly changing environment that involves a number of risks, some of which are beyond our control. The risks described below are those which we believe are the material risks we face. Any of the risk factors described below or additional risks and uncertainties not presently known to us, or that we currently deem immaterial, could have a material adverse effect on our business, financial condition and results of operations.

Risks Related to Our Business

Our quarterly and annual operating results fluctuate and may continue to fluctuate in the future, and if we fail to meet the expectations of analysts or investors, our stock price and the value of your investment could decline substantially.

Our quarterly and annual revenues and operating results have varied in the past and may vary significantly in the future depending on factors such as:

- budgeting cycles of our customers;
- the length of our sales cycle;
- increased competition;
- our ability to develop innovative products;
- the timing of new product releases by us or our competitors;
- market acceptance of our products;
- changes in our and our competitors' pricing policies;
- the financial condition of our current and potential customers;
- changes in the regulatory environment;
- changes in operating expenses and personnel changes;
- our ability to hire and retain qualified personnel;
- the effect of potential acquisitions and consequent integration;
- changes in our business strategy;
- increases in our costs due to inflation; and
- general economic factors, including factors relating to disruptions in the world credit and equity markets and the related impact on our customers' access to capital.

Our future growth is dependent on the successful development and introduction of new products and enhancements. There can be no assurance that we will be successful in developing and marketing, on a timely basis, new products or product enhancements, that our new products will adequately address the changing needs of the marketplace or that we will successfully manage the transition from existing technologies. Certain of these products require a higher level of sales and support expertise. The ability of our sales channel to obtain this expertise and to sell the new product offerings effectively could have an adverse impact on our sales and financial results in future periods. Any of these scenarios may result in the loss of or delay in customer acceptance, diversion of development resources, damage to our reputation, or increased service and warranty costs, any of which could have a material adverse effect on our business, financial position, results of operations, and cash flows.

Table of Contents

In addition, a significant portion of our operating expenses is relatively fixed and planned expenditures are based in part on expectations regarding future revenues. Accordingly, unexpected revenue shortfalls may decrease our gross margins and could cause significant changes in our operating results from year to year. As a result, in future quarters our operating results could fall below the expectations of securities analysts or investors, in which event our stock price would likely decrease.

We derive a significant percentage of our revenues from a concentrated group of customers and the loss of one or more major customers could materially and adversely affect our business, results of operations or financial condition.

Our top five customers accounted for approximately 24%, 26%, and 29% of our revenues in 2015, 2014, and 2013, respectively. In 2015, 2014, and 2013, no single customer accounted for 10% or more of our total revenues. The loss of any of our major customers could have a material adverse effect on our results of operations and financial condition. We may not be able to maintain our customer relationships, and our customers may delay payment under, or fail to renew, their agreements with us, which could adversely affect our business, results of operations or financial condition. Any reduction in the amount of revenues that we derive from these customers, without an offsetting increase in new sales to other customers, could have a material adverse effect on our operating results. A significant change in the liquidity or financial position of our customers could also have a material adverse effect on the collectability of our accounts receivable, our liquidity and our future operating results.

If our customers cancel their contracts or terminate or delay their clinical trials, we may lose or delay revenues and our business may be harmed.

Certain of our customer contracts are subject to cancellation by our customers at any time with limited notice. Customers engaged in clinical trials may terminate or delay a clinical trial for various reasons, including the failure of the tested product to satisfy safety or efficacy requirements, unexpected or undesired clinical results, decisions to deemphasize a particular product or forgo a particular clinical trial, decisions to downsize clinical development programs, insufficient patient enrollment or investigator recruitment, and production problems resulting in shortages of required clinical supplies. In the case of our cloud-based solutions and services, any termination or delay in the clinical trials would likely result in a consequential delay or termination in those customers' service contracts. We have experienced terminations and delays of our customer service contracts in the past (although no such past terminations have had a significant impact on our results of operations) and we expect to experience additional terminations and delays in the future. The termination of single-study arrangements could result in decreased revenues and the delay of our customers' clinical trials could result in delayed professional services revenues, which could materially harm our business.

As our focus turns to selling additional cloud-based solutions and services to enterprise customers, our sales cycle may become more time-consuming and expensive and less predictable, and implementation challenges may arise, any of which could harm our business and operating results.

Our future success depends in part on our ability to sell additional cloud-based solutions and services to our current customers. This may also require increasingly sophisticated and costly sales efforts that are targeted at senior management. Similarly, the rate at which our customers purchase new or enhanced services depends on a number of factors. If our efforts to upsell to our customers are not successful and negative reaction occurs, our growth prospects may suffer.

As we target more of our platform sales efforts at larger enterprise customers, we may face greater costs, longer sales cycles, and less predictability in our sales pipeline. The customer's decision to use our solutions and services may be an enterprise-wide decision and, if so, these types of sales would require us to provide prospective customers with greater levels of education regarding the use and benefits of our cloud-based solutions and services, as well as education regarding privacy and data protection laws. As a result of these factors, these sales opportunities may require us to devote greater sales support and professional services resources to individual customers, driving up costs and time required to complete sales and diverting our sales and professional services resources to a small number of large transactions.

If our security is breached, our business could be disrupted, our operating results could be harmed, and customers could be deterred from using our products and services.

Our business relies on the secure electronic transmission, storage, and hosting of sensitive information, including clinical data, financial information, and other sensitive information relating to our customers, company, and workforce. We anticipate collecting more such information directly from patients as part of our Patient Cloud and mHealth initiatives, including via mobile devices and related systems provided by third parties. As a result, we face some risk of a deliberate or unintentional incident involving unauthorized access to our computer systems (including, among other methods, cyber attacks or social engineering) that could result in misappropriation or loss of assets or sensitive information, data corruption, or other disruption of business operations. In light of this risk, we have devoted significant resources to protecting and maintaining the confidentiality of our information, including implementing security and privacy programs and controls, training our workforce, and implementing new technology. We have no guarantee that these programs and controls will be adequate to prevent all possible security threats. We believe that any compromise of our electronic systems, including the unauthorized access, use, or disclosure of sensitive information or a significant disruption of our computing assets and networks, would adversely affect our reputation and our ability to fulfill contractual obligations, and would require us to devote significant financial and other resources to mitigate such problems, and could increase our future cyber security costs. Moreover, unauthorized access, use, or disclosure of such sensitive information could result in contractual or other liability. In addition, any real or perceived compromise of our security or disclosure of sensitive information may result in lost revenues by deterring customers from using or purchasing our products and services in the future or prompting them to use competing service providers.

Table of Contents

Any failure by us to properly protect customer data, including any personal health information we possess or are deemed to possess in connection with the conduct of clinical trials, could subject us to significant liability.

Our customers use our solutions to collect, manage, and report information in connection with the conduct of clinical trials. This information may be considered our customers' proprietary information or personal health information of the clinical trial participants or patients. In addition, our Patient Cloud and mHealth initiatives are anticipated to result in our collecting more data (which may or may not be personal health information) directly from patients, including via mobile devices and related systems provided by third parties. Regulation related to the use and disclosure of personal health information continues to expand in scope and complexity. Increased focus on individuals' rights to confidentiality of their personal information, including personal health information, could lead to an increase in existing and future legislative or regulatory initiatives giving direct legal remedies to individuals, including rights to damages, against entities deemed responsible for not adequately securing such personal information. In addition, courts may look to regulatory standards in identifying or applying a common law theory of liability. Since we receive and process our customers' data or personal information of clinical trial participants and patients from customers utilizing our hosted solutions, there is a risk that we could be liable if there were a breach of any obligation to a protected person under contract, standard of practice or regulatory requirement. If we fail to properly protect our customers' data or personal information that is in our possession or deemed to be in our possession, we could be subjected to significant liability and our reputation would be harmed.

We rely upon a single internal hosting facility and Amazon Web Services to deliver our solutions to our customers and any disruption of or interference with our hosting systems, operations, or use of the Amazon Web Services would harm our business and results of operations.

Substantially all of the computer hardware necessary to deliver our solutions is located at our internal hosting facility in Houston, Texas. In addition to our dedicated hosting facility, we utilize third-party cloud computing services from Amazon Web Services ("AWS") to help us efficiently scale our cloud-based solutions. Because we cannot easily switch our AWS-serviced operations to another cloud provider, any disruption of or interference with our use of AWS would impact our operations, and our business would be adversely impacted. Our systems and operations or those of AWS could suffer damage or interruption from human error, fire, flood, power loss, telecommunications failure, break-ins, terrorist attacks, acts of war, and similar events. The occurrence of a natural disaster, an act of terrorism or other unanticipated problems at our or AWS's hosting facilities could result in lengthy interruptions in our service. Although we and AWS maintain backup facilities and disaster recovery services in the event of a system failure, these may be insufficient or fail. Any system failure, including network, software, or hardware failure, that causes an interruption in our Houston data center or our use of AWS or that causes a decrease in responsiveness of our cloud-based solutions could damage our reputation and cause us to lose customers, which would harm our business and results of operations. Our business may be harmed if our customers and potential customers believe our service is unreliable.

Data protection laws and regulations are evolving and may be burdensome for us and our customers.

Our customers can use our platform to collect, process and transfer personal, personally identifying, and/or sensitive information, such as clinical information. Laws and regulations related to our services by Federal, state and foreign governments are increasing and in some cases are rapidly developing. Such laws and regulations include 95/46/EC and European country-specific laws and regulations that implement that Directive, as well as the October 6, 2015 European Court of Justice opinion in Case C-362/14 that deemed the U.S.-EU Safe Harbor Framework as no longer a valid method for the transfer of personal information from the European Economic Area ("EEA") to the U.S. Because the ultimate success of the new "EU-U.S. Privacy Shield" framework for transatlantic data flows recently announced by the European Commission and the U.S. to replace the Safe Harbor framework is uncertain, we continue to offer other alternative methods to our customers to enable a valid basis for the transfer of their clinical information from the EEA to the U.S. There is no assurance that these methods will ultimately be upheld or that we will be able to meet all eventual requirements for the transfer of personal information from the EEA to the U.S. without incurring substantial expense (or at all).

Laws and regulations concerning the collection, processing and transfer of personal information could reduce demand for our services, restrict our customers' ability to adapt or use our services in some locations or globally, increase the

cost of compliance for us and/or our customers, provide exposure to fines or penalties for non-compliance, and impact the pace at which we close sales transactions. Any of these factors could harm our business.

Defects or errors in our cloud-based solutions that significantly impact our customers could harm our reputation, result in significant cost to us and impair our ability to market our solutions.

The software applications underlying our cloud-based solutions and services, including Medidata Rave, are inherently complex and may contain defects or errors, some of which may be material. Errors may result from our own technology or from the interface of our cloud-based solutions with legacy systems and data, which we did not develop. The risk of errors is particularly significant when a new product is first introduced or when new versions or enhancements of existing products are released. The likelihood of errors is increased as a result of our commitment to the frequent release of new products and enhancements of existing products.

We have, from time to time, found defects in our solutions. Although these past defects have not resulted in any litigation against us to date, we have invested significant capital, technical, managerial, and other resources to investigate and correct these past defects and we have needed to divert these resources from other development efforts. In addition, material performance problems or defects in our solutions may arise in the future. Material defects in our cloud-based solutions could result in a reduction in sales, delay in market acceptance of our solutions or credits or refunds to our customers. In addition, such defects may lead to the loss of existing customers and difficulty in attracting new customers, diversion of development resources or harm to our reputation.

Table of Contents

Correction of defects or errors could prove to be impossible or impractical. The costs incurred in correcting any defects or errors or in responding to resulting claims or liability may be substantial and could adversely affect our operating results.

If we are not able to reliably meet our data storage and management requirements, or if we experience any failure or interruption in the delivery of our services over the Internet, customer satisfaction and our reputation could be harmed and customer contracts may be terminated.

As part of our current business model, we store and manage hundreds of terabytes of data for our customers, resulting in substantial information technology infrastructure and ongoing technological challenges, which we expect to continue to increase over time. If we do not reliably meet these data storage and management requirements, or if we experience any failure or interruption in the delivery of our services over the Internet, customer satisfaction and our reputation could be harmed, leading to reduced revenues and increased expenses. The services we provide to customers are subject to service level agreements and, in the event that we fail to meet guaranteed service or performance levels, we could be subject to issuance of customer credits or termination of these customer contracts. If the cost of meeting these data storage and management requirements increases, our results of operations could be harmed.

We may expand our business through new acquisitions in the future. Any such acquisitions could disrupt our business, harm our financial condition and dilute current stockholders' ownership interests in our company.

We intend to pursue potential acquisitions of and investments in businesses, technologies, or products complementary to our business and periodically engage in discussions regarding such possible acquisitions. For example, we acquired Fast Track Systems, Inc. ("Fast Track") in March 2008; Clinical Force Limited ("Clinical Force") in July 2011; and Patient Profiles, LLC ("Patient Profiles") in October 2014.

We may encounter difficulties in identifying and acquiring complementary products, technologies, or businesses, and in the case of executed acquisitions, may encounter numerous risks, including some or all of the following:

- substantial cash expenditures;
- incurrence of costs, debt, and contingent liabilities, some of which we may not identify at the time of acquisition or which may ultimately be greater than we anticipate;
- difficulties in integrating and assimilating the operations, products, and personnel of the acquired companies;
- diversion of management's attention away from other business concerns;
- risk associated with entering markets in which we have limited or no direct experience;
- potential loss of key employees, customers, and strategic alliances from either our current business or the target company's business;
- delays in customer purchases due to uncertainty and the inability to maintain relationships with customers of the acquired businesses; and
- failure to achieve anticipated business development benefits due to an inadequate evaluation of acquisitions or investments.

An acquisition may not result in short-term or long-term benefits to us. The failure to execute acquisitions or investments successfully or otherwise adequately address these risks could materially harm our business and financial results. We may incorrectly judge the value or worth of an acquired company or business. In addition, our future success will depend in part on our ability to manage the growth anticipated with these acquisitions.

Furthermore, the development or expansion of our business or any acquired business or companies may require a substantial capital investment by us. We may not have these necessary funds or they might not be available to us on acceptable terms or at all. We may also seek to raise funds for an acquisition by issuing equity securities or convertible debt, as a result of which our existing stockholders may be diluted or the market price of our stock may be adversely affected.

Our revenues derived from international operations are subject to risks that could have an adverse effect on our results of operations.

We intend to continue our strategic expansion into new geographic areas and expect that international customers will continue to account for a substantial percentage of our revenues. International operations are subject to inherent risks.

These risks include:

- the economic conditions in these various foreign countries and their trading partners, including conditions resulting from disruptions in the world credit and equity markets;
- political instability;
- longer payment cycles;
- greater difficulty in accounts receivable collection and enforcement of agreements;
- requirements to comply with foreign laws;
- data privacy laws and regulations which restrict the collection by our clients, processing or transfer into the U.S. of customer personal information or that require customer information to be collected or processed in a designated territory;
- changes in regulatory requirements;
- fewer legal protections for intellectual property and contract rights;
- tariffs or other trade barriers;
- difficulties in managing foreign operations;

Table of Contents

- unavailability of staff with needed skills;
- exposure to interest rate fluctuations;
- transportation delays;
- potentially adverse tax consequences; and
- exposure to foreign currency exchange risk associated with transactions entered into in currencies other than the U.S. dollar.

Our failure to successfully mitigate these risks could have a material adverse effect on our business, results of operations and financial condition.

We rely in part on third parties for our help desk support and technology partnerships, and our business may suffer if these relationships do not continue.

We currently outsource our help desk support functions, which involve important direct interactions with users of our products. In the event that our vendor becomes unable or unwilling to provide these services to us, we are not equipped to provide the necessary range of help desk support and service functions to our customers. We also work with third-party software companies to allow our cloud-based platform to interface with their products. If we are unable to develop and maintain effective relationships with appropriate technology partners, or if such companies adopt more restrictive policies with respect to, or impose unfavorable terms and conditions on, access to their products, we may not be able to continue to provide our customers with certain platform infrastructure, which could reduce our sales and adversely affect our business, operating results and financial condition.

We rely on third-party SaaS vendors in connection with numerous critical functions of our business, which presents risks that, if realized, could adversely affect our business operations and financial results.

We currently rely on third-party SaaS vendors in connection with many critical functions of our business, including enterprise resource planning services, customer relationship management services, enterprise cloud applications for human resources, and electronic communication services. Further, some of our cloud-based solutions are hosted by Amazon Web Services. If any of these services fail or become unavailable due to extended outages or interruptions, or the security of our data stored with the vendors is compromised, or our own access to our data stored with the vendors is restricted or terminated, or the cloud-based services we use are no longer available on commercially reasonable terms or prices, our revenue could be reduced, our reputation could be damaged, expenses could increase, our ability to manage our finances, sales opportunities and workforce could be interrupted and our processes for delivering services and supporting our customers could be impaired until equivalent services are identified, obtained and implemented, all of which could adversely affect our business.

We have been, and may continue to be, subject to claims that we or our technologies infringe upon the intellectual property or other proprietary rights of a third party. Any such claims may require us to incur significant costs, to enter into royalty or licensing agreements, or to develop or license substitute technology.

We have been, and may in the future be, subject to claims that our technologies infringe upon the intellectual property or other proprietary rights of a third party. For example, in December 2011 we settled a lawsuit filed against us by Datasci LLC. In addition, in January 2016, we settled a separate lawsuit filed against us by DataTrak International, Inc. ("DataTrak") after its patent was held invalid in November 2015. See Note 15, “Commitments and Contingencies—Legal Matters,” to the consolidated financial statements included in Item 15 of this Annual Report on Form 10-K.

We cannot assure you that our cloud-based solutions and the technologies used in our product offerings do not infringe patents held by others or that they will not so infringe in the future. Any future claim of infringement could cause us to incur substantial costs defending against the claim, even if the claim is without merit, and could distract our management from our business. Moreover, any settlement or adverse judgment resulting from the claim could require us to pay substantial amounts or obtain a license to continue to use the technology that is the subject of the claim, or otherwise restrict or prohibit our use of the technology. Any required licenses may not be available to us on acceptable terms, if at all. If we do not obtain any required licenses, we could encounter delays in product introductions if we attempt to design around the technology at issue or attempt to find another provider of suitable alternative technology to permit us to continue offering the applicable solution. In addition, we generally provide in our customer agreements that we will indemnify our customers against third-party infringement claims relating to our

technology provided to the customer, which could obligate us to fund significant amounts. Infringement claims asserted against us or against our customers or other third parties that we are required or otherwise agree to indemnify may have a material adverse effect on our business, results of operations or financial condition.

We may be unable to adequately enforce or defend our ownership and use of our intellectual property and other proprietary rights.

Our success is heavily dependent upon our intellectual property and other proprietary rights. We rely upon a combination of trademark, trade secret, copyright, patent and unfair competition laws, as well as license and access agreements and other contractual provisions, to protect our intellectual property and other proprietary rights. In addition, we attempt to protect our intellectual property and proprietary information by requiring certain of our employees and consultants to enter into confidentiality, non-competition and assignment of inventions agreements. The steps we take to protect these rights may not be adequate to prevent misappropriation of our technology by third parties, or may not be adequate under the laws of some foreign countries, which may not protect our intellectual property rights to the same extent as do the laws of the U.S.

Table of Contents

Our attempts to protect our intellectual property may be challenged by others or invalidated through administrative process or litigation, and agreement terms that address non-competition are difficult to enforce in many jurisdictions and may not be enforceable in any particular case. In addition, there remains the possibility that others will "reverse engineer" our products in order to introduce competing products, or that others will develop competing technology independently.

If we resort to legal proceedings to enforce our intellectual property rights or to determine the validity and scope of the intellectual property or other proprietary rights of others, the proceedings could be burdensome and expensive, even if we were to prevail. The failure to adequately protect our intellectual property and other proprietary rights may have a material adverse effect on our business, results of operations or financial condition.

Our cloud-based solutions and services utilize open source software, and any failure to comply with the terms of one or more of these open source licenses could adversely affect our business.

Our cloud-based solutions utilize software covered by open source licenses. Open source software is typically freely accessible, usable and modifiable, and is used by our development team in an effort to reduce development costs and speed up the development process. Certain open source software licenses require a user who intends to distribute the open source software as a component of the user's software to disclose publicly part or all of the source code to the user's software. In addition, certain open source software licenses require the user of such software to make any derivative works of the open source code available to others on unfavorable terms or at no cost. This can subject previously proprietary software to open source license terms. While we monitor the use of all open source software in our products, processes and technology and try to ensure that no open source software is used in such a way as to require us to disclose or make available the source code to the related product or solution, such use could inadvertently occur. This could harm our intellectual property position and have a material adverse effect on our business.

We could incur substantial costs resulting from product liability claims relating to our products or services or our customers' use of our products or services.

Any failure or errors in a customer's clinical trial caused or allegedly caused by our products or services could result in a claim for substantial damages against us by our customers or the clinical trial participants, regardless of our responsibility for the failure. Although we are generally entitled to indemnification under our customer contracts against claims brought against us by third parties arising out of our customers' use of our products, we might find ourselves entangled in lawsuits against us that, even if unsuccessful, may divert our resources and energy and adversely affect our business. Further, in the event we seek indemnification from a customer, a court may not enforce our indemnification right if the customer challenges it or the customer may not be able to fund any amounts for indemnification owed to us. In addition, our existing insurance coverage may not continue to be available on reasonable terms or may not be available in amounts sufficient to cover one or more large claims, or the insurer may disclaim coverage as to any future claim.

Current and future litigation against us, which may arise in the ordinary course of our business, could be costly and time consuming to defend.

We are from time to time subject to legal proceedings and claims that arise in the ordinary course of business, such as claims brought by our customers in connection with commercial disputes and employment claims made by our current or former employees. From time to time, third parties have asserted and may in the future assert intellectual property rights to technologies that are important to our business and have demanded and may in the future demand that we license their technology. For example, in March 2011, we were named in a complaint for patent infringement filed by DataTrak, and in January 2016 we settled the lawsuit after DataTrak's patent was held invalid in November 2015. See Note 15, "Commitments and Contingencies—Legal Matters," to the consolidated financial statements included in Item 15 of this Annual Report on Form 10-K for full descriptions. Litigation may result in substantial costs and may divert management's attention and resources, which may seriously harm our business, overall financial condition and operating results. Insurance may not cover such claims, may not be sufficient for one or more such claims, and may not continue to be available on terms acceptable to us. A claim brought against us that is uninsured or underinsured could result in unanticipated costs, negatively affecting our business, results of operations, and financial condition.

Our contracts with the U.S. government are subject to termination rights and other risks that could adversely affect us.

Because our U.S. government contracts and subcontracts are generally subject to procurement laws and regulations, we may not receive all of the future revenues we anticipate receiving under those contracts and subcontracts in the expected periods. Some of our government contracts are governed by the Federal Acquisition Regulation ("FAR"), which includes uniform policies and procedures for acquiring goods and services by the U.S. government. The FAR also contains guidelines and regulations for managing a contract after an award, including conditions under which contracts may be terminated, in whole or in part, at the government's convenience. These regulations also subject us to financial audits and other reviews by the government of our costs, performance, accounting and general business practices relating to our government contracts, which may result in adjustment of our contract-related costs and fees. Any such future procurement actions by government customers are subject to risks and uncertainties, which could affect the allocation, timing, schedule, and scope of our government contracts and subcontracts.

CRO partners generate a significant portion of our sales.

We face ongoing business risks due to our partial reliance on our CRO partners to generate sales. We rely on our CRO partners for a significant portion of our revenue. These partners have considerable discretion in electing whether to utilize our solutions for their outsourced clinical trial management services. Should our relationships with our CRO partners or the effectiveness of our CRO partners

Table of Contents

decline, we face the risk of declining demand for our services, which would affect our revenue and results of operations. In addition, any disruptions of our CRO partners' operations, such as a decline in their sales or competitive position, could have an adverse impact on our business.

Risks Related to Our Industry

We face significant competition, which could cause us to lose business or achieve lower margins.

The market for our clinical trial solutions is intensely competitive and characterized by rapidly changing technologies, evolving industry standards and frequent new product and service introductions and enhancements that may render existing products and services obsolete. Accordingly, our market share and margins are subject to sudden declines. Some of our competitors have longer operating histories, greater financial, technical, marketing and other resources and greater name recognition than we do. These competitors may respond more quickly than we can to new and emerging technologies and changing customer and regulatory requirements, or devote greater resources to the development, promotion and sale of their solutions. New competitors may enter our market in the future, as barriers to entry are relatively low in our industry. Increased competition may result in pricing pressures, which could negatively impact our sales, gross margins or market share. In addition, current and potential competitors have established, and may in the future establish, relationships with vendors of complementary products, technologies or services to increase the penetration of their products in the marketplace. Even if our products and services are more effective than the products or service offerings of our competitors, current or potential customers might accept competitive products and services in lieu of purchasing our cloud-based solutions and services. Our failure to compete effectively could materially adversely affect our business, financial condition or results of operations.

We depend entirely on the clinical trial market, and a downturn in this market could cause our revenues to decrease.

Our business depends entirely on the clinical trials conducted or sponsored by pharmaceutical, biotechnology and medical device companies, CROs, and other entities. Our revenues may decline as a result of conditions affecting these industries, including general economic downturns, increased consolidation, decreased competition or fewer products under development. Other developments that may affect these industries and harm our operating results include product liability claims, changes in government regulation, changes in governmental price controls or third-party reimbursement practices and changes in medical practices. Disruptions in the world credit and equity markets may also result in a global downturn in spending on research and development and clinical trials and may impact our customers’ access to capital and their ability to pay for our solutions. Any decrease in research and development expenditures or in the size, scope or frequency of clinical trials could materially adversely affect our business, results of operations or financial condition.

Extensive governmental regulation of the clinical trial process and our products and services could require significant compliance costs and have a material adverse effect on the demand for our solutions.

The clinical trial process is subject to extensive and strict regulation by the U.S. FDA and other regulatory authorities worldwide. Our cloud-based solutions and services are also subject to state, federal, and foreign regulations. Demand for our solutions is largely a function of such government regulation, which is generally increasing at the state and federal levels in the U.S. and elsewhere, and subject to change at any time. Changes in the level of regulation, including a relaxation in regulatory requirements or the introduction of simplified drug approval procedures, could have a material adverse effect on the demand for our solutions. Proposals to place caps on drug prices could limit the profitability of existing or planned drug development programs, making investment in new drugs and therapies less attractive to pharmaceutical companies. Similarly, the requirements in the U.S., the European Union, the Asia Pacific region, and elsewhere to create a detailed registry of all clinical trials could have an impact on customers’ willingness to perform certain clinical studies. In addition, the uncertainty surrounding the possible adoption and impact on health care of any GCP reforms could cause our customers to delay planned research and development until some of these uncertainties are resolved.

Modifying our cloud-based solutions and services to comply with changes in regulations or regulatory guidance could require us to incur substantial costs. Further, changing regulatory requirements may render our solutions obsolete or make new products or services more costly or time consuming than we currently anticipate. Failure by us, our customers, or our competitors to comply with applicable regulations could result in increased regulatory scrutiny and enforcement. If our solutions fail to comply with government regulations or guidelines, we could incur significant

liability or be forced to cease offering our applicable products or services. If our solutions fail to allow our customers to comply with applicable regulations or guidelines, customers may be unwilling to use our solutions and any such non-compliance could result in the termination of or additional costs arising from contracts with our customers.

Consolidation among our customers could cause us to lose customers, decrease the market for our products and result in a reduction of our revenues.

Our customer base could decline because of industry consolidation, and we may not be able to expand sales of our products and services to new customers. Consolidation in the pharmaceutical, biotechnology and medical device industries, and among CROs has accelerated in recent years, and this trend may continue. In addition, new companies or organizations that result from such consolidation may decide that our products and services are no longer needed because of their own internal processes or the use of alternative systems. As these entities consolidate, competition to provide products and services to industry participants will become more intense and the importance of establishing relationships with large industry participants will become greater. These industry participants may try to use their market power to negotiate price reductions for our products and services. Also, if consolidation of larger current customers occurs, the combined organization may represent a larger percentage of business for us and, as a result, we are likely to rely more significantly on the combined organization’s revenues to continue to achieve growth.

Table of Contents

Risks Related to Our Common Stock

The price of our common stock may fluctuate significantly, and investors could see their investments decline in value. Shares of our common stock were sold in our initial public offering ("IPO") in June 2009 at a price of $7.00 per share (on a post-split basis), and our common stock has subsequently traded as high as $68.21 and as low as $6.68 from our IPO through December 31, 2015. However, an active, liquid, and orderly market for our common stock on The NASDAQ Stock Market or otherwise may not be sustained, which could depress the trading price of our common stock. The trading price of our common stock may be subject to wide fluctuations in response to various factors, some of which are beyond our control, including

- our quarterly or annual earnings or those of other companies in our industry;
- announcements by us or our competitors of significant contracts or acquisitions;
- changes in accounting standards, policies, guidance, interpretations or principles;
- general economic and stock market conditions, including disruptions in the world credit and equity markets;
- the failure of securities analysts to cover our common stock or changes in financial estimates by analysts;
- future sales of our common stock; and
- the other factors described in these “Risk Factors.”

In recent years, the stock market in general, and the market for technology-related companies in particular, has experienced extreme price and volume fluctuations. This volatility has had a significant impact on the market price of securities issued by many companies, including companies in our industry. The price of our common stock could fluctuate based upon factors that have little to do with our performance, and these fluctuations could materially reduce our stock price.

In the past, some companies, including companies in our industry, have had volatile market prices for their securities and have had securities class action suits filed against them. The filing of a lawsuit against us, regardless of the outcome, could have a material adverse effect on our business, financial condition and results of operations, as it could result in substantial legal costs and a diversion of our management’s attention and resources.

Our actual operating results may differ significantly from guidance provided by our management.

From time to time, we may release guidance in our earnings releases, earnings conference calls, or otherwise, regarding our future performance that represent our management’s estimates as of the date of release. This guidance, which includes forward-looking statements, is based on projections prepared by our management. These projections are not prepared with a view toward compliance with published accounting and reporting guidelines, and neither our registered public accountants nor any other independent expert or outside party compiles or examines the projections and, accordingly, no such person expresses any opinion or any other form of assurance with respect thereto.

Projections are based upon a number of assumptions and estimates that, while presented with numerical specificity, are inherently subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond our control and are based upon specific assumptions with respect to future business decisions, some of which will change. We generally state possible outcomes as high and low ranges which are intended to provide a sensitivity analysis as variables are changed but are not intended to represent that actual results could not fall outside of the suggested ranges. The principal reason that we release guidance is to provide a basis for our management to discuss our business outlook with analysts and investors. We do not accept any responsibility for any projections or reports published by analysts.

Guidance is necessarily speculative in nature, and it can be expected that some or all of the assumptions of the guidance furnished by us will not materialize or will vary significantly from actual results. Accordingly, our guidance is only an estimate of what management believes is realizable as of the date of release. Actual results will vary from our guidance and the variations may be material. In light of the foregoing, investors are urged not to rely upon, or otherwise consider, our guidance in making an investment decision with respect to our common stock. Any failure to successfully implement our operating strategy could result in the actual operating results being different from our guidance, and such differences may be adverse and material.

Provisions of Delaware law and our organizational documents may discourage takeovers and business combinations that our stockholders may consider in their best interests, which could negatively affect our stock price.

Provisions of Delaware law and our fifth amended and restated certificate of incorporation and amended and restated bylaws may have the effect of delaying or preventing a change in control of our company or deterring tender offers for our common stock that other stockholders may consider in their best interests.

Our fifth amended and restated certificate of incorporation authorizes us to issue up to 5,000,000 shares of preferred stock in one or more different series with terms to be fixed by our board of directors. Stockholder approval is not necessary to issue preferred stock in this manner. Issuance of these shares of preferred stock could have the effect of making it more difficult and more expensive for a person or group to acquire control of us, and could effectively be used as an anti-takeover device. Currently there are no shares of our preferred stock issued or outstanding.

Our bylaws provide for an advance notice procedure for stockholders to nominate director candidates for election or to bring business before an annual meeting of stockholders, including proposed nominations of persons for election to our board of directors,

Table of Contents

and require that special meetings of stockholders be called only by our chairman of the board, chief executive officer, president or the board pursuant to a resolution adopted by a majority of the board.

The anti-takeover provisions of Delaware law and provisions in our organizational documents may prevent our stockholders from receiving the benefit from any premium to the market price of our common stock offered by a bidder in a takeover context. Even in the absence of a takeover attempt, the existence of these provisions may adversely affect the prevailing market price of our common stock if they are viewed as discouraging takeover attempts in the future.

As a public company, we may incur significant administrative workload and expenses in connection with new and changing compliance requirements.

As a public company with common stock listed on The NASDAQ Stock Market, we must comply with various laws, regulations and requirements. New laws and regulations, as well as changes to existing laws and regulations affecting public companies, including the provisions of the Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, and rules adopted by the SEC and by The NASDAQ Stock Market, may result in increased general and administrative expenses and a diversion of management's time and attention as we respond to new requirements.

We do not currently intend to pay dividends on our common stock and, consequently, your ability to achieve a return on your investment will depend on appreciation in the price of our common stock.

We have never declared or paid any cash dividends on our common stock and do not intend to do so for the foreseeable future. We currently intend to invest our future earnings, if any, to fund our growth. Therefore, you are not likely to receive any dividends on your investment in our common stock for the foreseeable future and the success of an investment in shares of our common stock will depend upon any future appreciation in its value. Shares of our common stock may depreciate in value or may not appreciate in value.

We have indebtedness in the form of convertible senior notes, which could adversely affect our liquidity and impede our ability to raise additional capital.

In August, 2013, we completed an offering of $287.5 million aggregate principal amount of 1.00% convertible senior notes ("Notes"), due August 1, 2018. As a result of the Notes offering, we incurred $287.5 million principal amount of indebtedness, the principal amount of which we may be required to pay at maturity in 2018, or, upon the occurrence of a make-whole fundamental change (as defined in the indenture governing the Notes). There can be no assurance that we will be able to repay this indebtedness when due, or that we will be able to refinance this indebtedness on acceptable terms or at all. In addition, this indebtedness could, among other things:

- make it difficult for us to pay other obligations;
- make it difficult to obtain favorable terms for any necessary future financing for working capital, capital expenditures, debt services requirements, acquisitions, and investments and other general corporate purposes;
- require us to dedicate a substantial portion of our cash flow from operations to service the indebtedness, reducing the amount of cash flow available for other purposes; and
- limit our flexibility in planning for and reacting to change in our business.

Conversion of the Notes may affect the price of our common stock.

Holders of the outstanding Notes will be able to convert them into our common stock under certain circumstances prior to February 1, 2018. Upon conversion, holders of the Notes would receive cash, shares of common stock or a combination of cash and shares of common stock, at our election. Any sales in the public market of shares of common stock issued upon conversion of the Notes could decrease the trading price of our common stock.

The conversion provisions of the Notes require us to deliver cash and, in certain circumstances, common stock upon conversion and could dilute the ownership interests of stockholders.

Upon any conversion of some or all of the Notes, we intend to make cash payments up to the principal amount of the converted Notes. Additionally, our basic earnings per share would be expected to decrease to the extent we are required to issue shares upon conversion because such underlying shares would be included in the basic earnings per share calculation and the conversion would result in dilution to our stockholders. Any new issuance of equity securities, including the issuance of shares upon the conversion of the Notes, would dilute the interests of our then-existing stockholders, including holders who receive shares upon conversion of the Notes.

Item 1B. Unresolved Staff Comments
Not applicable.

Table of Contents

Item 2. Properties

Our corporate headquarters and other material leased real property as of December 31, 2015 are shown in the following table. We do not own any real property.

Location	Use	Size	Expiration of Lease
New York, New York	Corporate headquarters	137,535 square feet	April 2024
Iselin, New Jersey	Office space	50,648 square feet	June 2026
Edison, New Jersey	Office space	24,236 square feet	January 2016 (1)
Hammersmith, United Kingdom	Office space	23,066 square feet	November 2022
San Francisco, California	Office space	14,015 square feet	February 2023
Tokyo, Japan	Office space	12,338 square feet	October 2023
Houston, Texas	Data center and office space	11,367 square feet	December 2020
Conshohocken, Pennsylvania	Office space	10,297 square feet	June 2016
Ross, California	Office space	3,866 square feet	January 2016 (2)
Seoul, South Korea	Office space	699 square feet	February 2017

(1) Lease for our office space in Edison, NJ was extended one month to facilitate the transition to our new office space in Iselin, NJ.

(2) Lease for our office space in Ross, CA was extended one month to facilitate the transition to our new office space in San Francisco, CA.

We believe these facilities and additional or alternative space available to us will be adequate to meet our needs for the foreseeable future.

Item 3. Legal Proceedings

See Note 15, “Commitments and Contingencies—Legal Matters,” to the consolidated financial statements included in Item 15 of this Annual Report on Form 10-K for a description of current legal proceedings.

Item 4. Mine Safety Disclosures

Not applicable.

Table of Contents

PART II

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

Stock Market Information

Our common stock has been traded on The NASDAQ Global Market under the symbol “MDSO” since the completion of our IPO in June 2009. Before then, there was no public market for our common stock.

The following table sets forth, for the periods indicated, the high and low sales prices of our common stock as reported by The NASDAQ Global Market:

	2015		2014	
	High	Low	High	Low
Fourth Quarter	$50.78	$35.81	$48.47	$37.01
Third Quarter	61.31	40.28	50.75	38.32
Second Quarter	58.97	45.86	58.61	32.10
First Quarter	50.73	40.80	68.21	49.72

Holders

On February 22, 2016, we had approximately 76 holders of record of our common stock. The number of record holders was determined from the records of our transfer agent and does not include the many additional beneficial owners of common stock whose shares are held in the names of various security brokers, dealers, and registered clearing agencies. The transfer agent of our common stock is American Stock Transfer & Trust Company, 6201 15th Avenue, Brooklyn, New York 11219.

Dividends

Since the completion of our IPO in June 2009, we have not declared or paid any cash dividends on our capital stock. We currently expect to retain any future earnings for use in the operation and expansion of our business and do not anticipate paying any cash dividends on our common stock. Any future determination to pay dividends on our common stock will be at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements and other factors that our board of directors considers relevant.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

From time to time, we grant nonvested restricted stock awards or performance-based restricted stock units to our employees pursuant to the terms of our Amended and Restated 2009 Long-Term Incentive Plan ("2009 Plan"). Under the provisions of our 2009 Plan, participants are allowed to cover their income tax withholding obligation through net shares upon vesting of their restricted shares or units. On the date of vesting, we determine the number of vested shares to be withheld by dividing the participant's income tax withholding obligation by the closing price of our common stock on the vesting date.

A summary of our repurchases of shares of our common stock for the three months ended December 31, 2015 is as follows:

	Total Number of Shares Purchased (1)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Number of Shares that May Yet be Purchased under the Plans or Programs
October 1 – October 31, 2015	13,071	$40.34	—	—
November 1 – November 30, 2015	1,260	44.21	—	—
December 1 – December 31, 2015	773,954	49.28	—	—
Total	788,285	$49.12	—	—

(1) Represents the number of shares acquired as payment by employees of applicable statutory minimum withholding taxes owed upon vesting of restricted stock awards or performance-based restricted stock units granted under our 2009 Plan.

17

Table of Contents

Stock Performance Graph

The following graph sets forth the total cumulative stockholder return on our common stock for the last five fiscal years as compared to the NASDAQ Composite Index and the NASDAQ Computer Index over the same period. This graph assumes a $100 investment in our common stock at $11.94, which was the adjusted closing market price per share on December 31, 2010. The comparison in the graphs below are based upon historical stock performance and not indicative of, nor intended to forecast, future performance of our common stock.

Table of Contents

Item 6. Selected Financial Data

Our selected consolidated financial information presented for each of the years ended December 31, 2015, 2014, and 2013 and as of December 31, 2015 and 2014 was derived from our audited consolidated financial statements, which are included in Item 15 of this Annual Report on Form 10-K. Our selected financial information presented for each of the years ended December 31, 2012 and 2011 and as of December 31, 2013, 2012, and 2011 was derived from our audited consolidated financial statements, which are not included in this Annual Report on Form 10-K.

The information contained in this table should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations," and the consolidated financial statements and accompanying notes thereto included elsewhere in this Annual Report on Form 10-K.

Consolidated Statement of Operations Data

	Year ended December 31,				
	2015	2014	2013	2012	2011
	(in thousands, except per share amounts)				
Revenues:					
Subscription	$336,195	$280,041	$227,921	$171,647	$144,436
Professional services	56,311	55,030	48,928	46,700	40,023
Total revenues (1)	392,506	335,071	276,849	218,347	184,459
Costs of revenues:					
Subscription	47,795	45,576	37,053	32,600	28,408
Professional services	41,993	39,344	32,856	30,062	24,423
Total cost of revenues	89,788	84,920	69,909	62,662	52,831
Gross profit	302,718	250,151	206,940	155,685	131,628
Operating costs and expenses:					
Research and development	92,319	71,757	51,202	42,276	29,568
Sales and marketing	103,153	83,435	66,337	47,739	36,147
General and administrative	78,014	69,111	65,513	37,777	37,056
2014 wire transaction loss (2)	—	5,784	—	—	—
Litigation settlement (3)	—	—	—	—	6,300
Total operating costs and expenses	273,486	230,087	183,052	127,792	109,071
Operating income	29,232	20,064	23,888	27,893	22,557
Interest and other (expense) income, net	(13,457)	(13,550)	(5,506)	176	408
Income before income taxes	15,775	6,514	18,382	28,069	22,965
Provision for income taxes (4)	2,608	422	1,721	10,049	(16,433)
Net income	$13,167	$6,092	$16,661	$18,020	$39,398
Earnings per share (5):					
Basic	$0.25	$0.12	$0.33	$0.37	$0.83
Diluted	$0.23	$0.11	$0.31	$0.35	$0.80
Weighted-average common shares outstanding (5):					
Basic	53,717	52,561	51,060	49,092	47,292
Diluted	56,540	55,247	54,118	50,938	49,314

Table of Contents

Stock-based compensation expense and depreciation and amortization of intangible assets included in cost of revenues and operating costs and expenses are as follows:

	Year Ended December 31,				
	2015	2014	2013	2012	2011
	(in thousands)				
Stock-based compensation expense					
Cost of revenues	$5,040	$4,313	$3,149	$1,751	$1,263
Research and development	7,907	4,085	2,397	1,049	745
Sales and marketing	9,171	7,450	8,859	2,871	2,014
General and administrative	26,869	22,105	21,738	5,243	4,798
Total stock-based compensation	$48,987	$37,953	$36,143	$10,914	$8,820
Depreciation					
Cost of revenues	$5,585	$5,275	$3,975	$4,280	$4,371
Research and development	2,188	2,302	1,289	944	966
Sales and marketing	1,440	849	339	603	329
General and administrative	973	1,381	529	315	562
Total depreciation	10,186	9,807	6,132	6,142	6,228
Amortization of intangible assets					
Cost of revenues	517	499	589	1,276	1,088
Sales and marketing	119	129	215	516	501
Total amortization of intangible assets	636	628	804	1,792	1,589
Total depreciation and amortization of intangible assets	$10,822	$10,435	$6,936	$7,934	$7,817
Consolidated Balance Sheet Data					
	As of December 31,				
	2015	2014	2013	2012	2011
	(in thousands)				
Cash and cash equivalents	$49,562	$39,517	$22,328	$32,683	$45,214
Total marketable securities (6)	429,167	417,126	413,997	89,871	62,463
Total current assets	383,201	357,852	304,545	182,701	147,666
Restricted cash (7)	5,755	5,118	5,344	388	388
Total assets	687,481	622,217	573,353	224,631	189,835
Total deferred revenue (1)	78,575	64,264	54,058	54,671	63,262
Total capital lease obligations	—	46	80	155	250
Total long-term debt (6)	252,788	240,886	229,705	—	—
Stockholders' equity (6)	284,156	264,699	225,813	142,091	104,117

(1) As a result of our adoption of Accounting Standards Update ("ASU") No. 2009-13 on January 1, 2011, professional services revenues in multiple-element arrangements entered into in 2011 or later were recognized as rendered, subject to the proportional performance methodology, as a separate unit of accounting, as compared with the revenues recognized ratably over the term of the arrangements in prior periods. Additionally, such adoption had an impact on our subscription revenue recognition in multiple-element arrangements, to the extent that the start of revenue recognition for subscriptions is not dependent upon the delivery of professional services, which was a requirement under our former single unit of accounting revenue recognition policy for multiple-element arrangements. During the year ended December 31, 2011, we accelerated $6.0 million of deferred revenue related to those multiple-element arrangements that were materially modified in 2011, as per the requirements of ASU No. 2009-13, Multiple-Deliverable Revenue Arrangements.

(2) Operating costs and expenses for the year ended December 31, 2014 include a pre-tax charge of $5.8 million associated with an international wire transfer fraud committed against us during September 2014 and the related

investigation costs. See Note 2, "2014 Wire Transaction Loss," to our consolidated financial statements included in Item 15 of this Annual Report on Form 10-K for more information.

(3) In December 2011, we entered into a settlement agreement with Datasci, pursuant to which we settled the ongoing litigation for a one-time lump sum payment of $6.3 million, which was included in our results of operations for the year ended December 31, 2011.

Table of Contents

(4) Prior to 2011, we did not realize an income tax benefit for the majority of our net operating loss carryforwards and other net deferred tax assets, as we had yet to determine whether it was more likely than not that our future income would be sufficient to utilize these tax benefits. Substantially all of our deferred tax assets were offset with valuation allowances. During the fourth quarter of 2011, we reversed the valuation allowance by approximately $19.0 million as it is more likely than not that our future income will be sufficient to utilize these tax benefits. This reversal of the valuation allowance was recorded as a tax benefit in our provision for income taxes for the year ended December 31, 2011.

(5) Basic and diluted earnings per share amounts and basic and diluted weighted-average common shares outstanding for 2012 and 2011 have been adjusted to reflect a two-for-one stock split effected in the form of a stock dividend in December 2013.

(6) In August 2013, we issued $287.5 million of 1.00% convertible senior notes which will mature on August 1, 2018 unless earlier repurchased or converted. In accounting for the issuance, we separated the notes into their liability and equity components. As of December 31, 2015, the notes are not convertible and the liability portion thereof has been recorded, net of discount, as long-term liabilities in our consolidated financial statements. Proceeds from this issuance have been invested into high quality marketable securities. See Note 9, "Debt," to our consolidated financial statements included in Item 15 of this Annual Report on Form 10-K for more information regarding the convertible senior notes.

(7) Our restricted cash represents deposits made to fully collateralize certain standby letters of credit in connection with office lease arrangements. The majority of our outstanding letters of credit was previously collateralized in part with a revolving line of credit that matured on September 30, 2013. Subsequently our outstanding letters of credit have been fully collateralized with our restricted cash.

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

The following is a discussion and analysis of our financial condition and results of operations. You should read this discussion and analysis together with our consolidated financial statements and accompanying notes to consolidated financial statements included in Item 15 of this Annual Report on Form 10-K. This discussion contains forward-looking statements that are based on management’s current expectations, estimates, and projections about our business and operations. Our actual results may differ from those currently anticipated and expressed in such forward-looking statements as a result of a number of factors, including those described in “Risk Factors” under Item 1A and elsewhere in this Annual Report on Form 10-K.

Overview

We are the leading global provider of cloud-based solutions for life sciences, transforming clinical development through our applications and data analytics. Our platform technology brings new levels of productivity and quality to the clinical testing of promising medical treatments, from study design and planning through execution, management, payments, and reporting. We are committed to powering smarter treatments and healthier people while advancing the competitive and scientific goals of our customers, which include over 90% of the top 25 global pharmaceutical companies measured by revenue.

Highlights

2015

Total revenue increased 17.1% to $392.5 million, while we increased our spending on research and development as a percentage of revenue by 2.1 percentage points and increased our sales and marketing spending as a percentage of revenue by 1.4 percentage points.

Operating income was $29.2 million, up 46% compared with $20.1 million in 2014.

Net income was $13.2 million, or $0.23 per diluted share, up 116% compared with $6.1 million, or $0.11 per diluted share, in 2014.

We closed a record two enterprise platform deals in the fourth quarter: Celgene and Boehringer Ingelheim, reflecting our growing traction and success in the marketplace.

We added a record 201 new clients in 2015, an increase of 52% over 2014, to end the year with 611 clients.

67% of clients had committed to multiple products at the end of 2015, up from 58% at the end of 2014.

Billings were $423 million for 2015, up 19% year over year.

Subscription backlog grew to a record $296 million as of December 31, 2015, up 18% compared with $251 million at the end of 2014.

2014

Revenue grew 21%, while we increased our spending on research and development as a percentage of revenue by 2.9 percentage points and increased our sales and marketing spending as a percentage of revenue by 0.9 percentage points. Our general and administrative spending as a percentage of revenue decreased 2.9 percentage points as we continued to drive efficiency and leverage for future growth.

Table of Contents

Our revenue growth and general and administrative productivity allowed us to earn over $20 million of operating income despite the aforementioned investments in research and development and sales and marketing, and despite a $5.8 million loss due to the wire transfer fraud perpetrated against us during the third quarter.

Net income was $6.1 million, representing a decline from 2013 primarily due to interest expense associated with the convertible debt we issued in August of 2013.

Results of Operations

Revenues

Our revenues are derived from subscription and professional services.

Our subscription revenues are comprised of fees from clients accessing our cloud-based solutions. Subscriptions to our cloud-based solutions are provided through multi-study arrangements, which allow customers to manage up to a predetermined number of clinical trials for a term generally ranging from one to five years, and single-study arrangements that allow customers to use our solutions for an individual study and/or to evaluate our products prior to committing to multi-study arrangements. Many of our customers have migrated from single-study arrangements to multi-study arrangements, which represent the majority of our subscription revenues. We recognize revenues from subscriptions ratably over the terms of these arrangements. A majority of our subscription revenues in each period are generated from arrangements initiated during prior periods. Consequently, an increase or decrease in new subscription arrangements in a particular period may not significantly affect our results of operations in that period.

We recognize revenues from subscriptions ratably over the terms of these arrangements. A majority of our subscription revenues in each period are generated from arrangements initiated during prior periods. Consequently, an increase or decrease in new subscription arrangements in a particular period may not significantly affect our results of operations in that period.

Professional services revenue is derived from the provision of professional services that help life sciences companies realize higher value in their clinical development processes. Our professional services provide our customers with reliable, repeatable, and cost-effective implementation and training in the use of our cloud-based solutions. We also offer consulting services to advise customers on ways to optimize their clinical development process from trial concept to conclusion. Over the long term, we expect professional services revenues to decline slightly as a percentage of total revenues as our knowledge transfer efforts result in customers and partners becoming more adept at the management and configuration of our technology for their clinical trials.

Revenues for 2015, 2014, and 2013 were as follows:

	2015	Change	2014	Change	2013
Revenues:	(amounts in thousands except percentages)				
Subscription	$336,195	20.1 %	$280,041	22.9 %	$227,921
Percentage of total revenues	85.7 %		83.6 %		82.3 %
Professional services	56,311	2.3 %	55,030	12.5 %	48,928
Percentage of total revenues	14.3 %		16.4 %		17.7 %
Total revenues	$392,506	17.1 %	$335,071	21.0 %	$276,849

In 2015 and 2014, year-over-year growth in subscription revenues was largely the result of increased sales to our existing large and midmarket customers, both from renewals and from adoption of additional solutions from our technology platform, such as our offerings for coding, randomization, trial supply management, and risk-based monitoring. As of December 31, 2015 and 2014, 67% and 58% of customers, respectively, were using multiple solutions from our platform. Sales to new customers also contributed to the growth in subscription revenue in both years, comprising 11% and 8% of the total increase in subscription revenues in 2015 and 2014, respectively. We added 132 new customers in 2014 and 201 new customers in 2015 to reach a total of 611 clients as of December 31, 2015. At the end of 2015 and 2014, we had subscription backlog of approximately $296 million and $251 million, respectively, representing the future contract value of outstanding arrangements, billed and unbilled, to be recognized in 2016 and 2015, respectively.

Year-over-year growth in professional services revenues in 2015 and 2014 resulted from increased demand from new and existing customers for implementation and other professional services.

Cost of Revenues

Cost of revenues consists primarily of costs related to delivering, maintaining and supporting our cloud-based solutions and delivering our professional services and support. These costs include salaries, benefits, bonuses, and stock-based compensation for our data center and professional services staff. Cost of revenues also includes costs associated with our data center, including networking and related depreciation expense, as well as outside service provider costs, amortization expense, and general overhead. We allocate general overhead, such as applicable shared rent and utilities, to cost of revenues based on relative headcount. The costs associated with providing professional services are recognized as such costs are incurred. Over the long term, we believe that cost of revenues as a percentage of total revenues will decrease.

Table of Contents

Cost of revenues for 2015, 2014, and 2013 was as follows:

	2015		Change		2014		Change		2013	
Cost of revenues:	(amounts in thousands except percentages)									
Subscription	$47,795		4.9	%	$45,576		23.0	%	$37,053	
Percentage of total revenues	12.2	%			13.6	%			13.4	%
Professional services	41,993		6.7	%	39,344		19.7	%	32,856	
Percentage of total revenues	10.7	%			11.7	%			11.9	%
Total cost of revenues	$89,788		5.7	%	$84,920		21.5	%	$69,909	
Percentage of total revenues	22.9	%			25.3	%			25.3	%
Gross profit	$302,718		21.0	%	$250,151		20.9	%	$206,940	
Gross margin	77.1	%			74.7	%			74.7	%
Subscription margin	85.8	%			83.7	%			83.7	%
Professional services margin	25.4	%			28.5	%			32.8	%

In 2015 and 2014, the year-over-year growth in cost of subscription revenues was primarily due to higher third-party cloud hosting costs resulting from increased platform activity, as well as increased expenses associated with other software-related contracts with outside vendors, offset by an estimate of sales tax refunds due to us related to exempt asset purchases. Both periods were affected by certain platform enhancements, such as increased monitoring of the availability and uptime of our infrastructure and end-user monitoring to better understand performance of our platform. Additionally, personnel-related costs contributed to the growth in cost of subscription revenues as a result of the headcount increases required to support our business growth.

The year-over-year growth in cost of professional services revenues was largely due to the increase in personnel-related costs associated with our headcount additions in response to increased customer demand and expanding skill requirements for professional services. In addition, cost of professional services revenues was also impacted by higher travel costs.

Overall gross margin increased from 74.7% in 2013 and 2014 to 77.1% in 2015, driven by the significant growth in our higher margin subscription revenues, partially offset by decreased professional services margins resulting from continued workforce and other investments to enhance our strategic services offerings.

Operating Costs and Expenses

Research and Development. Research and development expenses consist primarily of personnel and related expenses for our research and development staff, including salaries, benefits, bonuses, and stock-based compensation, as well as the cost of certain third-party service providers and allocated overhead. We have focused our research and development efforts on expanding the functionality and ease of use of our cloud-based solutions. We expect research and development costs to increase in the future as we intend to release new features and functionality designed to maximize the efficiency and effectiveness of the clinical development process for our customers. Over the long term, we believe that research and development expenses as a percentage of total revenues will decrease.

During 2015, we adopted the United Kingdom Research and Development Expenditure Credit ("RDEC") for qualifying expenses incurred since April 2013. The credits are grants from the United Kingdom government to promote research and development activities within the United Kingdom and are recognized against the underlying research and development expenses.

Sales and Marketing. Sales and marketing expenses consist primarily of personnel and related expenses for our sales and marketing staff, including salaries, benefits, bonuses, and stock-based compensation, as well as commissions, travel costs, marketing and promotional events, corporate communications, advertising, other brand building and product marketing expenses, and allocated overhead. Our sales and marketing expenses have increased primarily due to our ongoing investments in customer acquisition and other activities to build brand awareness. We expect sales and marketing expenses to continue to increase in absolute terms. Over the long term, we believe that sales and marketing expenses as a percentage of total revenues will decrease.

General and Administrative. General and administrative expenses consist primarily of personnel and related expenses for executive, legal, finance, and human resource departments, including salaries, benefits, bonuses, and stock-based compensation, as well as professional fees, insurance premiums, allocated overhead, and other corporate expenses. On an ongoing basis, we expect general and administrative expenses to increase modestly in absolute terms due to continued investment in our infrastructure to support our continued growth. We expect that general and administrative expenses as a percentage of total revenues will continue to decrease.

Table of Contents

Operating costs and expenses for 2015, 2014, and 2013 were as follows:

	2015	Change	2014	Change	2013
Operating costs and expenses:	(amounts in thousands except percentages)				
Research and development	$92,319	28.7 %	$71,757	40.1 %	$51,202
Percentage of total revenues	23.5 %		21.4 %		18.5 %
Sales and marketing	103,153	23.6 %	83,435	25.8 %	66,337
Percentage of total revenues	26.3 %		24.9 %		24.0 %
General and administrative	78,014	12.9 %	69,111	5.5 %	65,513
Percentage of total revenues	19.9 %		20.7 %		23.6 %
Wire transaction loss	—	100.0 %	5,784	100.0 %	—
Percentage of total revenues	— %		1.7 %		— %
Total operating costs and expenses	$273,486	18.9 %	$230,087	25.7 %	$183,052
Percentage of total revenues	69.7 %		68.7 %		66.1 %
Operating income	$29,232	45.7 %	$20,064	(16.0)%	$23,888
Operating margin	7.4 %		6.0 %		8.6 %

The growth in research and development expenses in 2015 and 2014 was primarily due to personnel-related costs associated with higher headcount in support of our growth. We have made continued and increasing investments in new products and services, such as mobile and patient data capture, and in strategic initiatives such as expansion into emerging markets and extended use of analytics across the entire platform. While headcount increased only 21% in 2015 and 18% in 2014, personnel-related costs drove the majority of the year-over-year increases in spending as a result of our hiring of highly skilled engineering talent, as well as increased bonuses and stock-based compensation. In addition, research and development expenses for 2015 were also impacted by our growing use of specialized contractors. Higher rent and facilities-related costs associated with our New York City headquarters also contributed to the increase in research and development expenses, particularly in 2014.

The growth in sales and marketing expenses in 2015 and 2014 was largely driven by personnel-related costs associated with headcount increases to expand our global sales organization and partner team. Sales and marketing headcount increased 26% in both 2015 and 2014 to reach a total of 287 employees as of the end of 2015.

The growth in general and administrative expenses in 2015 was predominantly driven by higher personnel-related costs. Headcount increased 10% in 2015 to support our business growth. Additionally, stock-based compensation costs increased 22% compared with 2014 driven by grants to both new hires and existing employees, contributing to the increase in personnel-related costs. General and administrative expenses for 2015 were also impacted by increased legal fees associated with the resolution of our litigation with DataTrak. The growth in 2014 was driven by a 17% increase in headcount, partially offset by a decrease in annual bonuses. To a lesser degree, the 2014 increase in general and administrative expense was driven by higher professional fees associated with the implementation and enhancement of internally used software platforms.

Our total operating costs and expenses for 2014 included a $5.8 million charge associated with the international wire transfer fraud committed against us on September 16, 2014, and the related investigation costs incurred. For further information, see Note 2, "2014 Wire Transaction Loss," to our consolidated financial statements included in Item 15 of this Annual Report on Form 10-K.

Interest and Other Expense:

Interest and other expense for 2015, 2014, and 2013 was as follows:

	2015	Change	2014	Change	2013
	(amounts in thousands except percentages)				
Interest and other expense	$(13,457)	(0.7)%	$(13,550)	146.1 %	$(5,506)

The growth in interest and other expense in 2014 was driven by cash and non-cash interest expense on the convertible senior notes that we issued in August 2013. We recognized a partial year of interest expense associated with the Notes in 2013, and a full year of expense in 2015 and 2014. For further information, see Note 9, “Debt,” to our consolidated financial statements included in Item 15 of this Annual Report on Form 10-K.

Income taxes

We are subject to income tax in the U.S. and foreign jurisdictions in which we conduct business. See Note 14, “Income Taxes,” to our consolidated financial statements included in Item 15 of this Annual Report on Form 10-K for more information regarding our income taxes.

Table of Contents

Income taxes for 2015, 2014, and 2013 was as follows:

	2015	2014	2013
	(amounts in thousands except percentages)		
Provision for income taxes	$2,608	$422	$1,721
Effective tax rate	17 %	6 %	9 %

We had an effective tax rate of 17% for 2015 compared with 6% for 2014 and 9% for 2013. In 2015, our effective tax rate was lower than the U.S. statutory rate of 35% primarily due to the tax benefit of federal and state research and development tax credits. In 2014, our effective tax rate was lower than the U.S. statutory rate of 35% primarily due to the tax benefit of federal and state research and development credits and the domestic production activities deduction.

Liquidity and Capital Resources

We believe that our cash flows from operations, cash and cash equivalents, and highly liquid marketable securities will be sufficient to satisfy the anticipated cash requirements associated with our existing operations for the foreseeable future. Our future capital expenditures and other cash requirements could be higher than we currently expect as a result of various factors, including any expansion of our business that we may complete. The following table presents selected financial information related to our liquidity and capital resources as of and for the years ended December 31, 2015, 2014, and 2013 (in thousands):

	2015	2014	2013
Cash, cash equivalents, and marketable securities	$478,729	$456,643	$436,325
Furniture, fixtures and equipment, net	$51,043	$38,579	$41,229
1.00% convertible senior notes, net	$252,788	$240,886	$229,705
Cash provided by operating activities	$86,972	$61,616	$69,597
Cash used in investing activities	$(37,498)	$(30,444)	$(362,736)
Cash (used in) provided by financing activities	$(39,373)	$(13,863)	$282,807

Cash, Cash Equivalents, and Marketable Securities

We manage our cash equivalents and marketable securities as a single investment portfolio that is intended to be available to meet our current cash requirements. Cash equivalents substantially consist of investments in money market funds. Marketable securities, which we classify as available-for-sale securities, primarily consist of high quality commercial paper, corporate bonds, and U.S. government debt obligations.

For 2015, cash provided by operating activities of $87.0 million was driven by strong customer collections, which were 20% higher than in the prior year, partially offset by operating expenditures and cash interest expense on our 1.00% convertible senior notes. Cash used in investing activities of $37.5 million consisted primarily of cash payments for capital expenditures of $19.0 million and net purchases of marketable securities of $17.7 million. Cash used in financing activities of $39.4 million resulted predominantly from the acquisition of $53.6 million of treasury stock in connection with equity plan participant tax withholdings upon vesting, partially offset by equity plan proceeds of $12.7 million and excess tax benefit on equity awards of $1.6 million.

For 2014, cash provided by operating activities of $61.6 million was driven by strong customer collections, partially offset by operating expenditures, the wire transaction loss, and cash interest expense on our 1.00% convertible senior notes. Cash used in investing activities of $30.4 million consisted primarily of cash payments for capital expenditures of $15.8 million, cash consideration of $5.5 million paid to acquire Patient Profiles, and net purchases of marketable securities of $9.4 million. Cash used in financing activities of $13.9 million resulted predominantly from the acquisition of $28.6 million of treasury stock in connection with equity plan participant tax withholdings upon vesting and acquisition-related earn-out payment of $0.7 million, partially offset by equity plan proceeds of $9.7 million and excess tax benefit on equity awards of $5.8 million.

For 2013, cash provided by operating activities of $69.6 million was driven by strong customer collections, partially offset by operating expenditures, and income tax payments. Cash used in investing activities of $362.7 million consisted primarily of net purchases of marketable securities of $327.3 million using the proceeds of our debt issuance, cash payments for capital expenditures of $30.5 million in connection with our new New York City and Hammersmith, United Kingdom offices, and $5.0 million increase in restricted cash associated with letters of credit

for office leases. Cash provided by financing activities of $282.8 million consisted predominantly of $287.5 million in proceeds from issuance of convertible senior notes, equity plan proceeds of $10.5 million, and excess tax benefit on equity awards of $4.5 million, partially offset by acquisition of treasury stock of $10.8 million in connection with equity plan participant tax withholdings upon vesting, debt issuance costs of $8.1 million, and acquisition-related earn-out payment of $0.4 million.

Table of Contents

Capital Assets

We made $22.9 million in capital expenditures during 2015, predominantly related to our New York City headquarters, our new office spaces in Iselin, NJ and San Francisco, CA, and continued enhancement of the infrastructure and capacity of our Houston, TX data center. Our actual cash payments for capital expenditures during 2015 were $19.0 million. We expect to make $19 to $21 million in capital expenditures during 2016, primarily related to data center investments and the build-out of our new office spaces.

Debt

In August 2013, we issued $287.5 million of 1.00% convertible senior notes which will mature on August 1, 2018 unless earlier repurchased or converted. Upon conversion, we will deliver to the holders of the Notes either cash, shares of our common stock, or a combination thereof, at our election. If converted, we intend to settle the principal amount of the Notes in cash and any excess conversion value beyond the principal amount in shares of our common stock, cash, or a combination thereof. As of December 31, 2015 the Notes are not convertible and therefore are classified as long-term liabilities on our consolidated balance sheet. We intend to use the net proceeds from the offering for working capital and other general corporate purposes, including possible acquisitions of, or investments in, businesses, technologies, or products complementary to our business. For further information, see Note 9, “Debt,” to our consolidated financial statements included in Item 15 of this Annual Report on Form 10-K.

Critical Accounting Estimates

Our financial statements are prepared in conformity with accounting principles generally accepted in the United States of America, which require us to make estimates and assumptions about certain items and future events. We consider the following estimates and assumptions to be critical to an understanding of our financial statements because they inherently involve levels of subjectivity and judgment and may have a material impact on our financial condition or results of operations. Also see Note 1, “Summary of Significant Accounting Policies,” to our consolidated financial statements included in Item 15 of this Annual Report on Form 10-K, which discusses our significant accounting policies.

Revenue Recognition

We typically sell our technology in multiple-element arrangements that combine a subscription to our cloud-based platform with various professional services. Our professional services are typically sold together with subscriptions as a component of a single-study or multi-study arrangement.

To qualify as a separate unit of accounting, the delivered item must have value to the customer on a standalone basis. The significant deliverables under our multiple-element arrangements are subscription and professional services.

We have determined that our various cloud-based solutions have standalone value and consider them separate units of accounting. In determining whether each of our solutions has standalone value, we considered factors including the availability of similar solutions from other vendors, our fee structure based on inclusion and exclusion of the solution, and our marketing and delivery of the solution. The service components of our subscriptions, including license, delivery, and support are combined and accounted for as a separate unit of accounting. We use estimated selling price ("ESP") to determine the selling price for our subscriptions when sold in multiple-element arrangements, as we do not have vendor-specific objective evidence ("VSOE") for these subscriptions and third-party evidence ("TPE") is not a practical alternative due to differences in features and functionality as compared with other companies’ offerings.

We have also determined that our professional services have standalone value because those services are sold separately by other vendors. We use ESP to determine the selling price for professional services when sold in multiple-element arrangements. Due to insufficient reliable pricing data, we are unable to establish VSOE. While other vendors offer similar services, they represent a small component of the vendor's total offerings. As a result, we are unable to reliably determine TPE on a standalone basis.

We determine our single-point ESP for subscription and professional services as follows:

- Subscription. We utilize a pricing tool that provides price quotes for our subscription configurations. Any new potential customer subscription arrangements must be priced through the utilization of our pricing tool. We have established an internal committee to monitor compliance and evaluate pricing data on a periodic basis. This evaluation includes the judgmental review of historical pricing data, market conditions consideration, and the review of pricing strategies and practices. Any necessary pricing modification made to the pricing tool is supported by the result of such

evaluation. Accordingly, our ESP for subscriptions is obtained from this pricing tool.

- Professional Services. We evaluate internal historical professional services pricing data to determine average pricing rates by type of professional services rendered. These averages are utilized to determine ESP for professional services, and are reviewed and updated at least annually.

We then allocate the arrangement consideration based on its relative ESP. Changes in the methods or assumptions used in determining ESP could have a material effect on our future results of operations.

Table of Contents

Stock-Based Compensation

For all equity grants, we recognize compensation cost under the straight-line method, net of estimated forfeitures. Forfeiture assumptions used in amortizing stock-based compensation expense are management estimates based on an analysis of historical data. Refer to Note 11, “Stock-Based Compensation,” to our consolidated financial statements included in Item 15 of this Annual Report on Form 10-K for more information about our equity plans and the types of equity compensation we grant to employees.

Performance-based restricted stock units ("PBRSUs") comprise a significant portion of our stock-based compensation expense. The fair value of each PBRSU whose vesting is based upon the achievement of a market condition is based upon the results of a Monte Carlo valuation model, which requires the use of estimates, including:

- the expected volatility of our stock price and, in some cases when the market condition compares the performance of our stock with a stock market index, the expected volatility of that index;
- the expected term; and
- risk free interest rates.

For PBRSUs with market conditions, we determine volatility based upon the closing price of our publicly-traded stock and the closing price of the relevant index as applicable. The risk-free interest rate is based on the U.S. Treasury yield curve with a maturity tied to the expected term of the PBRSU. We have not paid and do not expect to pay dividends on our common stock. Thus, no expected dividend yield is factored into our Monte Carlo model.

The use of different assumptions in the Monte Carlo valuation models would result in different amounts of stock-based compensation expense. Furthermore, if different assumptions are used in future periods, stock-based compensation expense could be materially impacted.

The fair value of each PBRSU whose vesting is dependent on the satisfaction of a performance condition is measured as if the PBRSU was vested and issued on the grant date, and adjusted each period for management's expectations of performance relative to the associated goals. Compensation expense is recognized only when management believes it is probable that the condition will be achieved. Although the total compensation expense recognized for these PBRSUs will ultimately equal the grant date fair value per share multiplied by the number of shares for which the performance condition has been satisfied, changes in management's performance expectations can cause significant fluctuations in timing of expense over the life of the PBRSUs.

Allowance for Doubtful Accounts

Accounts receivable are recorded at original invoice amount less an allowance that we believe will be adequate to absorb estimated losses on uncollectible accounts. The allowance is based on an evaluation of the collectability of accounts receivable and prior bad debt experience. Changes in the financial health of a particular customer or the changes in the economy as a whole could result in actual receivable losses that are materially different from the estimated reserve.

Income Taxes

Our income tax expenses, deferred tax assets and liabilities, and liabilities for unrecognized tax benefits reflect management's best assessment of estimated current and future taxes to be paid. The objectives for accounting for income taxes, as prescribed by the relevant accounting guidance, are to recognize the amount of taxes payable or refundable for the current year and deferred tax assets and liabilities for future tax consequences of events that have been recognized in the financial statements. We recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The assumptions about future tax consequences require significant judgment and variations in the actual outcome of these consequences could materially impact our results of operations.

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. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. Valuation allowances are recorded to reduce deferred tax assets when it is more likely than not that a tax benefit will not be realized. Determination of valuation allowances, if any, recorded against deferred tax assets requires significant judgment and use of assumptions, such as estimates of future taxable income. As of December 31, 2015 and 2014, we had not recorded any valuation allowances against our deferred tax assets. In the event we change our determinations

as to the amount of deferred tax assets that can be realized and recognize a valuation allowance, income tax expense will be impacted in the period of such determination.

Effect of Recently Issued Accounting Pronouncements on Current and Future Trends

Refer to Note 1, “Summary of Significant Accounting Policies—Recently Issued Accounting Pronouncements,” to our consolidated financial statements, which are included in Item 15 of this Annual Report on Form 10-K. No other recently issued accounting pronouncements have had or are expected to have a material impact on our current or future trends.

Table of Contents

Contractual Obligations, Commitments and Contingencies

The following table of our material contractual obligations as of December 31, 2015 summarizes the aggregate effect that these obligations are expected to have on our cash flows in the periods indicated (in thousands):

	Payments Due by Period				
	Total	2016	2017 - 2018	2019- 2020	2021 and later
Contractual Obligations:					
1.00% convertible senior notes	$287,500	$—	$287,500	$—	$—
Interest payments on convertible senior notes	7,427	2,875	4,552	—	—
Operating lease obligations	117,095	12,500	26,850	28,422	49,323
Total	$412,022	$15,375	$318,902	$28,422	$49,323

Convertible Senior Notes

In August 2013, we issued at par value $287.5 million of 1.00% convertible senior notes, as described above. Interest is payable semi-annually in arrears on August 1 and February 1 of each year. The Notes mature on August 1, 2018 unless repurchased or converted in accordance with their terms prior to such date.

Operating and Lease Obligations

We lease office space under noncancelable operating lease agreements. For further information, see Note 10, “Lease Commitments,” to our consolidated financial statements included in Item 15 of this Annual Report on Form 10-K.

Letters of Credit

We had several outstanding standby letters of credit as of December 31, 2015 and 2014 in the total amount of $5.7 million and $4.9 million, respectively. These standby letters of credit were fully collateralized with our restricted cash as of December 31, 2015 and 2014.

Tax Uncertainties

The relevant accounting guidance provides that a tax benefit from an uncertain tax position may be recognized when it is more likely than not that the position will be sustained upon examination, including resolution of any related appeals or litigation processes, on the basis of the technical merits of the position. We recognize tax liabilities based on estimates of whether additional taxes and interest will be due. We adjust these liabilities when our judgment changes as a result of the evaluation of new information not previously available. Because of the complexity of some of these uncertainties, the ultimate resolution may result in a payment that is materially different from our current estimate of the tax liabilities. As of December 31, 2015, we had approximately $8.1 million of gross unrecognized tax benefits. At this time, we are unable to make a reasonably reliable estimate of the cash settlement amount or the timing of payments in individual years in connection with these tax liabilities; therefore, such amounts are not included in the above contractual obligations table.

Legal Matters

For discussion of legal matters, refer to Note 15, “Commitments and Contingencies—Legal Matters,” to the consolidated financial statements included in Item 15 of this Annual Report on Form 10-K.

Off-Balance Sheet Arrangements

As of December 31, 2015, we did not have any off-balance sheet arrangements, as defined in Item 303(A)(4)(ii) of Regulation S-K, promulgated by the SEC, that have or are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures, or capital resources that is material to investors. Aside from entering into operating leases, which primarily relate to office space, we do not engage in off-balance sheet financing arrangements.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Interest Rate Sensitivity

We had unrestricted cash and cash equivalents totaling $49.6 million at December 31, 2015. Our cash equivalents are invested principally in money market funds. We also had investments in marketable securities, which we classify as available-for-sale securities, totaling $429.2 million at December 31, 2015. Substantially all of our marketable securities are fixed income securities, which primarily consist of high quality commercial paper and corporate bonds. Due to the high credit ratings of these investments, we believe that we do not have any material exposure to changes

in the fair value of our investment portfolio as a result of changes in interest rates.

Table of Contents

Exchange Rate Sensitivity

Our five non-U.S. operating subsidiaries are located in the United Kingdom, Japan, South Korea, Singapore, and China. The functional currencies for these subsidiaries are the respective local currencies. We have exposure to exchange rate movements that are captured in translation adjustments for these subsidiaries. Such cumulative adjustments are recorded in accumulated other comprehensive income (loss). The estimated potential translation loss for 2015 resulting from a hypothetical 10% adverse change in quoted foreign currency exchange rates amounted to $0.5 million.

We bill our customers primarily in U.S. dollars. Any billings in foreign currency are billed from Medidata Solutions, Inc., a U.S. entity, and are mainly denominated in Euros, British pounds sterling, Australian dollars, Canadian dollars, and Swiss francs. Our foreign currency denominated costs and expenses are mainly incurred by our five non-U.S. operating subsidiaries. Accordingly, future changes in currency exchange rates will impact our future operating results. The following table includes the percentage of our revenues and expenses denominated in foreign currencies:

	2015		2014		2013	
Revenues	5.0	%	5.2	%	4.3	%
Costs and expenses	12.7	%	14.1	%	14.0	%

Gains and losses arising from transactions denominated in foreign currencies are recorded as foreign currency transaction gains (losses) in general and administrative expenses on our consolidated statements of operations and amounted to $(0.6) million in 2015, $(1.1) million in 2014, and $(0.5) million in 2013.

Impact of Inflation

We do not believe that inflation has had a material effect on our business, financial condition, or results of operations.

Table of Contents

Item 8. Financial Statements and Supplementary Data

The consolidated financial statements and supplementary data are listed under Part IV, Item 15, in this Annual Report on Form 10-K.

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

Not applicable.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As of December 31, 2015, an evaluation was performed with the participation of our Disclosure Committee and our management, including the Chief Executive Officer ("CEO") and the Chief Financial Officer ("CFO"), of the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act). Disclosure controls and procedures are controls and procedures that are designed to ensure that information required to be disclosed in our reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures are also designed to ensure that such information is accumulated and communicated to our management, including our CEO and CFO, as appropriate to allow timely decisions regarding required disclosure. Based upon such evaluation, our CEO and CFO have concluded that our disclosure controls and procedures were effective as of December 31, 2015.

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 Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our 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 accounting principles generally accepted in the United States of America.

All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. 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.

In making the assessment of the effectiveness of our internal control over financial reporting as of December 31, 2015, our management used the criteria set forth in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on our assessment, we determined that our internal control over financial reporting was effective based on those criteria as of December 31, 2015.

Deloitte & Touche LLP, our independent registered public accounting firm, has performed an audit of the effectiveness of our internal control over financial reporting as of December 31, 2015, based on criteria established in Internal Control—Integrated Framework (2013) issued by the COSO. This audit is required to be performed in accordance with the standards of the Public Company Accounting Oversight Board (United States). Our independent auditors were given unrestricted access to all financial records and related data. The attestation reporting on the effectiveness of our internal control over financial reporting as of December 31, 2015 issued by our independent registered public accounting firm is included at the end of Item 9A in this Annual Report on Form 10-K.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during our most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
Medidata Solutions, Inc.
New York, New York

We have audited the internal control over financial reporting of Medidata Solutions, Inc. and subsidiaries (the "Company") as of December 31, 2015, based on the criteria established in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. 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 conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). 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 included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed by, or under the supervision of, the company's principal executive and principal financial officers, or persons performing similar functions, and effected by the company's board of directors, management, and other personnel 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 the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2015, based on the criteria established in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated financial statements and financial statement schedule as of and for the year ended December 31, 2015 of the Company and our report dated February 29, 2016, expressed an unqualified opinion on

those consolidated financial statements and financial statement schedule.

/s/ DELOITTE & TOUCHE LLP
New York, New York
February 29, 2016

Table of Contents

Item 9B. Other Information
Not applicable.

Table of Contents

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item 10 is incorporated by reference to our Proxy Statement to be filed with the SEC within 120 days after the end of the fiscal year ended December 31, 2015 in connection with our 2016 Annual Meeting of Stockholders.

Item 11. Executive Compensation

The information required by this Item 11 is incorporated by reference to our Proxy Statement to be filed with the SEC within 120 days after the end of the fiscal year ended December 31, 2015 in connection with our 2016 Annual Meeting of Stockholders.

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

The information required by this Item 12 is incorporated by reference to our Proxy Statement to be filed with the SEC within 120 days after the end of the fiscal year ended December 31, 2015 in connection with our 2016 Annual Meeting of Stockholders.

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

The information required by this Item 13 is incorporated by reference to our Proxy Statement to be filed with the SEC within 120 days after the end of the fiscal year ended December 31, 2015 in connection with our 2016 Annual Meeting of Stockholders.

Item 14. Principal Accounting Fees and Services

The information required by this Item 14 is incorporated by reference to our Proxy Statement to be filed with the SEC within 120 days after the end of the fiscal year ended December 31, 2015 in connection with our 2016 Annual Meeting of Stockholders.

Table of Contents

PART IV

Item 15. Exhibits and Financial Statement Schedule

(a) We have filed the following documents as part of this Form 10-K:

1. Consolidated Financial Statements

2. Financial Statement Schedule

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

3. Exhibits

The information required by this Item 15 is set forth on the exhibit index that follows the signature page of this report.

Table of Contents

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.

MEDIDATA SOLUTIONS, INC.

By: /S/ TAREK A. SHERIF
Tarek A. Sherif
Chairman and Chief Executive Officer

Date: February 29, 2016

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	Title	Date
/S/ TAREK A. SHERIF Tarek A. Sherif	Chairman, Chief Executive Officer (Principal Executive Officer) and Director	February 29, 2016
/S/ ROUVEN BERGMANN Rouven Bergmann	Chief Financial Officer (Principal Financial and Principal Accounting Officer)	February 29, 2016
/S/ GLEN M. DE VRIES Glen M. de Vries	President and Director	February 29, 2016
/S/ CARLOS DOMINGUEZ Carlos Dominguez	Director	February 29, 2016
/S/ NEIL M. KURTZ, M. D. Neil M. Kurtz, M.D.	Director	February 29, 2016
/S/ GEORGE W. MCCULLOCH George W. McCulloch	Director	February 29, 2016
/S/ LEE A. SHAPIRO Lee A. Shapiro	Director	February 29, 2016
/S/ ROBERT B. TAYLOR Robert B. Taylor	Director	February 29, 2016

Table of Contents

EXHIBIT INDEX

		Incorporated by Reference		
Exhibit No.	Description	Form	File No.	Date Filed
3.1	Fifth Amended and Restated Certificate of Incorporation	10-Q	001-34387	8/7/14
3.2	Amended and Restated Bylaws	8-K	001-34387	2/16/16
4.1	Specimen stock certificate	S-1/A	333-156935	6/3/09
4.2	Indenture, dated as of August 12, 2013, between Medidata Solutions, Inc. and Wells Fargo Bank, National Association, as Trustee	8-K	001-34387	8/6/13
4.3	Form of 1.00% Convertible Senior Notes due 2018	8-K	001-34387	8/6/13
10.1	Form of Officer and Director Indemnification Agreement	S-1/A	333-156935	6/3/09
10.2†	Medidata Solutions, Inc. Amended and Restated 2000 Stock Option Plan	S-1/A	333-156935	5/15/09
10.3†	Form of Medidata Solutions, Inc. Amended and Restated 2000 Stock Option Plan Option Agreement	S-1/A	333-156935	5/15/09
10.4†	Medidata Solutions, Inc. Second Amended and Restated 2009 Long-Term Incentive Plan	8-K	001-34387	5/2/13
10.5†	Form of Medidata Solutions, Inc. 2009 Long-Term Incentive Plan Stock Option Agreement	S-1/A	333-156935	6/3/09
10.6†	Form of Medidata Solutions, Inc. 2009 Long-Term Incentive Plan Restricted Stock Agreement	S-1/A	333-156935	6/3/09
10.7†	Form of Medidata Solutions, Inc. Restricted Stock Agreement	10-Q	001-34387	5/3/13
10.8†	Form of Medidata Solutions, Inc. Performance-Based Restricted Stock Unit Agreement	10-Q	001-34387	5/3/13
10.9†	Form of Medidata Solutions, Inc. Long-Term Performance-Based Restricted Stock Unit Agreement	10-Q	001-34387	5/3/13
10.10†	Medidata Solutions, Inc. Amended and Restated 2014 Employee Stock Purchase Plan	DEF 14A	001-34387	4/15/14
10.11†	Form of Executive Change in Control Agreement	8-K	001-34387	7/8/14
10.12	Lease between AGBRI Fannin L.P. and Medidata Solutions, Inc., dated March 13, 2006, as amended on March 8, 2007 and June 3, 2008, for space at the premises located at 1301 Fannin Street, Houston, Texas	S-1/A	333-156935	3/23/09
10.13	Agreement of Lease between the Rector, Church-Wardens and Vestrymen of Trinity Church in the City of New York and Medidata Solutions, Inc. dated October 19, 2012, for space at the premises located at 350 Hudson Street, New York, New York	8-K	001-34387	10/23/12
10.14	Amendment No. 1, dated September 25, 2013, to Agreement of Lease between the Rector, Church-Wardens and Vestrymen of Trinity Church in the City of New York and Medidata Solutions, Inc.	10-K	001-34387	2/24/14
10.15	Amendment No. 2, dated December 6, 2013, to Agreement of Lease between the Rector, Church-Wardens and Vestrymen of Trinity Church in the City of New York and Medidata Solutions, Inc.	10-K	001-34387	2/24/14
10.16†	Separation Agreement and General Release between Medidata Solutions, Inc. and Steven Wilhite, dated July 8, 2014	8-K	001-34387	7/9/14

10.17†	Separation Agreement and General Release between Medidata Solutions, Inc. and Cory Douglas, dated May 13, 2015	8-K	001-34387	5/14/15
21.1*	Subsidiaries of Medidata Solutions, Inc.			
23.1*	Consent of Deloitte & Touche LLP			
31.1*	Rule 13a-14(a) or 15d-14 Certification of Chief Executive Officer			
31.2*	Rule 13a-14(a) or 15d-14 Certification of Chief Financial Officer			
32.1**	Certification of Chief Executive Officer pursuant to Exchange Act rules 13a-14(b) or 15d-14(b) and 18 U.S.C. Section 1350			
32.2**	Certification of Chief Financial Officer pursuant to Exchange Act rules 13a-14(b) or 15d-14(b) and 18 U.S.C. Section 1350			
101.INS*	XBRL Instance Document			
101.SCH*	XBRL Taxonomy Extension Schema Document			
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document			
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document			
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document			
101.PRE*	XBRL Taxonomy Presentation Linkbase Document			

Table of Contents

*	Filed herewith.
**	Furnished herewith.
†	Indicates a management contract or any compensatory plan, contract or arrangement.

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM
To the Board of Directors and Stockholders of
Medidata Solutions, Inc.
New York, New York

We have audited the accompanying consolidated balance sheets of Medidata Solutions, Inc. and subsidiaries (the "Company") as of December 31, 2015 and 2014, and the related consolidated statements of operations, comprehensive income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2015. Our audits also included the financial statement schedule listed in the Index at Item 15. These consolidated financial statements and financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on the consolidated financial statements and financial statement schedule based on our audits.
We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). 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. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall consolidated financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.
In our opinion, such consolidated financial statements present fairly, in all material respects, the financial position of Medidata Solutions, Inc. and subsidiaries as of December 31, 2015 and 2014, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2015, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, such financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly in all material respects the information set forth therein.
We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company's internal control over financial reporting as of December 31, 2015, based on the criteria established in Internal Control -Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 29, 2016, expressed an unqualified opinion on the Company's internal control over financial reporting.

/s/ DELOITTE & TOUCHE LLP
New York, New York
February 29, 2016

Table of Contents

MEDIDATA SOLUTIONS, INC.
CONSOLIDATED BALANCE SHEETS

	December 31, 2015	December 31, 2014
	(Amounts in thousands, except per share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	$49,562	$39,517
Marketable securities	220,126	233,284
Accounts receivable, net of allowance for doubtful accounts of $1,992 and $1,517, respectively	90,590	68,475
Prepaid commission expense	1,670	2,819
Prepaid expenses and other current assets	21,165	13,661
Deferred income taxes	88	96
Total current assets	383,201	357,852
Restricted cash	5,755	5,118
Furniture, fixtures and equipment, net	51,043	38,579
Marketable securities – long-term	209,041	183,842
Goodwill	18,797	19,025
Intangible assets, net	1,172	1,816
Deferred income taxes – long-term	12,128	8,066
Other assets	6,344	7,919
Total assets	$687,481	$622,217
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$6,283	$3,738
Accrued payroll and other compensation	23,744	15,574
Accrued expenses and other	15,469	12,638
Deferred revenue	75,582	62,890
Total current liabilities	121,078	94,840
Noncurrent liabilities:		
1.00% convertible senior notes, net	252,788	240,886
Deferred revenue, less current portion	2,993	1,374
Deferred tax liabilities	414	238
Other long-term liabilities	26,052	20,180
Total noncurrent liabilities	282,247	262,678
Total liabilities	403,325	357,518
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, par value $0.01 per share; 5,000 shares authorized, none issued and outstanding	—	—
Common stock, par value $0.01 per share; 200,000 shares authorized; 59,455 and 56,301 shares issued; 56,311 and 54,413 shares outstanding, respectively	594	563
Additional paid-in capital	364,973	301,465
Treasury stock, 3,144 and 1,888 shares, respectively	(100,806)	(45,049)
Accumulated other comprehensive loss	(3,404)	(1,912)
Retained earnings	22,799	9,632
Total stockholders' equity	284,156	264,699

Total liabilities and stockholders' equity	$687,481	$622,217

The accompanying notes are an integral part of the consolidated financial statements.

Table of Contents

MEDIDATA SOLUTIONS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31,		
	2015	2014	2013
	(Amounts in thousands, except per share data)		
Revenues			
Subscription	$336,195	$280,041	$227,921
Professional services	56,311	55,030	48,928
Total revenues	392,506	335,071	276,849
Cost of revenues (1)(2)			
Subscription	47,795	45,576	37,053
Professional services	41,993	39,344	32,856
Total cost of revenues	89,788	84,920	69,909
Gross profit	302,718	250,151	206,940
Operating costs and expenses:			
Research and development (1)	92,319	71,757	51,202
Sales and marketing (1)(2)	103,153	83,435	66,337
General and administrative (1)	78,014	69,111	65,513
2014 wire transaction loss (3)	—	5,784	—
Total operating costs and expenses	273,486	230,087	183,052
Operating income	29,232	20,064	23,888
Interest and other income (expense):			
Interest expense	(16,192)	(15,368)	(5,925)
Interest income	2,799	1,814	555
Other (expense) income, net	(64)	4	(136)
Total interest and other expense, net	(13,457)	(13,550)	(5,506)
Income before income taxes	15,775	6,514	18,382
Provision for income taxes	2,608	422	1,721
Net income	$13,167	$6,092	$16,661
Earnings per share:			
Basic	$0.25	$0.12	$0.33
Diluted	$0.23	$0.11	$0.31
Weighted-average common shares outstanding:			
Basic	53,717	52,561	51,060
Diluted	56,540	55,247	54,118
(1) Stock-based compensation expense included in cost of revenues and operating costs and expenses is as follows:			
Cost of revenues	$5,040	$4,313	$3,149
Research and development	7,907	4,085	2,397
Sales and marketing	9,171	7,450	8,859
General and administrative	26,869	22,105	21,738
Total stock-based compensation	$48,987	$37,953	$36,143
(2) Amortization of intangible assets included in cost of revenues and operating costs and expenses is as follows:			
Cost of revenues	$517	$499	$589
Sales and marketing	119	129	215
Total amortization of intangible assets	$636	$628	$804

(3) Operating costs and expenses for the year ended December 31, 2014 include a pre-tax charge of $5.8 million associated with the international wire transfer fraud committed against the Company and related investigation costs incurred. For additional details, see Note 2, "2014 Wire Transaction Loss."

The accompanying notes are an integral part of the consolidated financial statements.

Table of Contents

MEDIDATA SOLUTIONS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Year Ended December 31,		
	2015	2014	2013
	(Amounts in thousands)		
Net income	$13,167	$6,092	$16,661
Other comprehensive income (loss):			
Foreign currency translation adjustments	(938)	(1,340)	(74)
Unrealized loss on marketable securities	(896)	(648)	(74)
Other comprehensive loss	(1,834)	(1,988)	(148)
Income tax benefit related to unrealized loss on marketable securities	342	275	12
Other comprehensive loss, net of tax	(1,492)	(1,713)	(136)
Comprehensive income, net of tax	$11,675	$4,379	$16,525

The accompanying notes are an integral part of the consolidated financial statements.

Table of Contents

MEDIDATA SOLUTIONS, INC. CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Common Stock			Treasury Stock		Accumulated Other Comprehensive Income (Loss)	Retained Earnings (Accumulated Deficit)	Total
	Shares	Amount	Additional Paid-in Capital	Shares	Amount			
	(Amounts in thousands)							
Balance—January 1, 2013	52,810	$528	$160,373	732	$(5,626)	$ (63)	$ (13,121)	$142,091
Comprehensive income:								
Net income	—	—	—	—	—	—	16,661	16,661
Other comprehensive loss, net of tax	—	—	—	—	—	(136)	—	(136)
Total comprehensive income	—	—	—	—	—	(136)	16,661	16,525
Stock options exercised	1,263	13	10,439	—	—	—	—	10,452
Tax benefit associated with equity awards	—	—	4,295	—	—	—	—	4,295
Stock-based compensation	—	—	36,143	—	—	—	—	36,143
Nonvested restricted stock awards granted	945	9	(9)	—	—	—	—	—
Acquisition of treasury stock	—	—	—	466	(20,787)	—	—	(20,787)
Nonvested restricted stock awards forfeited	—	—	1	186	(1)	—	—	—
Equity component of convertible senior notes, net	—	—	37,094	—	—	—	—	37,094
Balance—December 31, 2013	55,018	550	248,336	1,384	(26,414)	(199)	3,540	225,813
Comprehensive income:								
Net income	—	—	—	—	—	—	6,092	6,092
Other comprehensive loss, net of tax	—	—	—	—	—	(1,713)	—	(1,713)
Total comprehensive income	—	—	—	—	—	(1,713)	6,092	4,379
Stock options exercised	403	4	4,324	—	—	—	—	4,328
Tax benefit associated with equity awards	—	—	5,829	—	—	—	—	5,829
Stock-based compensation	—	—	37,953	—	—	—	—	37,953
Nonvested restricted stock awards granted	514	5	(5)	—	—	—	—	—
Acquisition of treasury stock	—	—	—	402	(18,634)	—	—	(18,634)
Nonvested restricted stock awards forfeited	—	—	1	102	(1)	—	—	—
Vesting of performance-based restricted stock units	230	2	(2)	—	—	—	—	—
Issuance of employee stock purchase plan shares	136	2	5,029	—	—	—	—	5,031

Balance—December 31, 2014	56,301	563	301,465	1,888	(45,049)	(1,912)	9,632	264,699
Comprehensive income:								
Net income	—	—	—	—	—	—	13,167	13,167
Other comprehensive loss, net of tax	—	—	—	—	—	(1,492)	—	(1,492)
Total comprehensive income	—	—	—	—	—	(1,492)	13,167	11,675
Stock options exercised	454	4	6,682	—	—	—	—	6,686
Tax benefit associated with equity awards	—	—	1,622	—	—	—	—	1,622
Stock-based compensation	—	—	48,987	—	—	—	—	48,987
Nonvested restricted stock awards granted	704	7	(7)	—	—	—	—	—
Acquisition of treasury stock	—	—	—	1,127	(55,756)	—	—	(55,756)
Nonvested restricted stock awards forfeited	—	—	1	129	(1)	—	—	—
Vesting of performance-based restricted stock units	1,832	18	(18)	—	—	—	—	—
Issuance of employee stock purchase plan shares	164	2	6,241	—	—	—	—	6,243
Balance—December 31, 2015	59,455	$594	$364,973	3,144	$(100,806)	$ (3,404)	$ 22,799	$284,156

The accompanying notes are an integral part of the consolidated financial statements.

Table of Contents

MEDIDATA SOLUTIONS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
	2015	2014	2013
Cash flows from operating activities:	(Amounts in thousands)		
Net income	$13,167	$6,092	$16,661
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	10,822	10,435	6,936
Stock-based compensation	48,987	37,953	36,143
Amortization of discounts or premiums on marketable securities	4,754	5,611	3,075
Deferred income taxes	(3,209)	(10,865)	(816)
Amortization of debt issuance costs	1,278	1,277	577
Amortization of debt discount	11,902	11,181	4,182
Excess tax benefit associated with equity awards	(1,622)	(5,829)	(4,531)
Contingent consideration adjustment	—	—	239
Provision for doubtful accounts	597	648	657
Loss on fixed asset disposal	—	3	241
Changes in operating assets and liabilities:			
Accounts receivable	(34,513)	(30,549)	1,249
Prepaid commission expense	439	1,344	(535)
Prepaid expenses and other current assets	(9,058)	(611)	2,099
Other assets	2,715	2,910	(3,697)
Accounts payable	(502)	1,310	(457)
Accrued payroll and other compensation	6,014	(2,510)	3,614
Accrued expenses and other	712	6,103	7,728
Deferred revenue	28,617	19,419	(5,465)
Other long-term liabilities	5,872	7,694	1,697
Net cash provided by operating activities	86,972	61,616	69,597
Cash flows from investing activities:			
Purchases of furniture, fixtures and equipment	(19,017)	(15,815)	(30,505)
Purchases of available-for-sale marketable securities	(264,113)	(241,204)	(446,745)
Proceeds from sale of available-for-sale marketable securities	246,423	231,816	119,470
Acquisition of business, net of cash acquired	—	(5,467)	—
Net (increase) decrease in restricted cash	(791)	226	(4,956)
Net cash used in investing activities	(37,498)	(30,444)	(362,736)
Cash flows from financing activities:			
Proceeds from exercise of stock options	6,686	4,328	10,452
Proceeds from employee stock purchase plan	6,009	5,416	—
Excess tax benefit associated with equity awards	1,622	5,829	4,531
Payment of acquisition-related earn-out	—	(704)	(380)
Repayment of obligations under capital leases	(46)	(54)	(75)
Proceeds from issuance of convertible senior notes	—	—	287,500
Payment of costs associated with issuance of convertible senior notes	—	—	(8,144)
Acquisition of treasury stock	(53,582)	(28,593)	(10,828)
Repayment of notes payable	(62)	(85)	(249)
Net cash (used in) provided by financing activities	(39,373)	(13,863)	282,807
Effect of exchange rate changes on cash and cash equivalents	(56)	(120)	(23)
Net increase (decrease) in cash and cash equivalents	10,045	17,189	(10,355)

Cash and cash equivalents—Beginning of period	39,517	22,328	32,683
Cash and cash equivalents—End of period	$49,562	$39,517	$22,328

The accompanying notes are an integral part of the consolidated financial statements.

Table of Contents

MEDIDATA SOLUTIONS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS, CONTINUED

	Year Ended December 31,		
	2015	2014	2013
Supplemental disclosures of cash flow information:	(Amounts in thousands)		
Cash paid during the period for:			
Interest	$2,878	$2,788	$27
Income taxes	$1,289	$485	$1,382
Noncash activities:			
Furniture, fixtures and equipment acquired but not yet paid for at period-end	$4,716	$883	$8,467
Issuance of notes payable in connection with acquisition-related earn-out payments	$—	$97	$341

The accompanying notes are an integral part of the consolidated financial statements.

Table of Contents

MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Medidata Solutions, Inc., together with its consolidated subsidiaries, (collectively, the “Company”) is the leading global provider of cloud-based solutions for clinical research in life sciences, offering platform technology that transforms clinical development and increases the value of its customers' research investments. The Company was organized as a New York corporation in June 1999 and reincorporated as a Delaware corporation in May 2000.

Basis of Presentation—The accompanying consolidated financial statements include the accounts of the Company prepared in conformity with accounting principles generally accepted in the United States of America (“U.S. GAAP”) and the rules and regulations of the Securities and Exchange Commission ("SEC"). All intercompany balances and transactions have been eliminated in consolidation.

For purposes of these consolidated financial statements, the years ended December 31, 2015, 2014, and 2013 are referred to as 2015, 2014, and 2013, respectively.

Use of Estimates—The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from those estimates.

Revenue Recognition—The Company derives its revenues from two sources: (1) subscription revenues, which are comprised of subscription fees from customers accessing the Company's cloud-based solutions; and (2) professional services, such as training, implementation, consulting, interface creation, trial configuration, data testing, reporting, procedure documentation, and other customer-specific services. The Company recognizes revenues when all of the following conditions are satisfied:

- persuasive evidence of an arrangement exists;
- service has been delivered to the customer;
- amount of the fees to be paid by the customer is fixed or determinable; and
- collection of the fees is reasonably assured or probable.

Subscription

The Company derives its subscription revenues from multi-study and single-study arrangements that grant the customer the right to use its cloud-based solutions for a specified term. Multi-study arrangements grant the customer the right to manage a predetermined number of clinical trials simultaneously for a term typically ranging from one to five years. Single-study arrangements allow customers to use the Company’s solutions on a per trial basis.

Revenues from subscription arrangements are recognized ratably over the term of the arrangement, beginning with the commencement of the arrangement term, which is generally aligned with the date the Company's cloud-based solutions are made available to the customer. The term of the arrangement includes optional renewal periods, if such renewal periods are likely to be exercised.

Professional Services

The Company also provides a range of professional services that its customers have the ability to utilize, including implementation, training, and strategic consulting. Professional services do not result in significant alterations to the underlying solutions. Revenues are recognized using a proportional performance method or as services are rendered. Professional services revenues include any reimbursements for out-of-pocket expenses incurred. The Company included $0.7 million of reimbursable out-of-pocket expenses in professional services revenues in each of the years ended 2015, 2014, and 2013.

Multiple-Element Arrangements

The Company enters into multiple-element arrangements that combine a cloud-based technology subscription with various professional services.

To qualify as a separate unit of accounting, the delivered item must have value to the customer on a standalone basis. The significant deliverables under the Company’s multiple-element arrangements are subscription and professional services.

The Company has determined that its various cloud-based solutions have standalone value and considers them separate units of accounting. In determining whether each of its solutions has standalone value, the Company considered factors

including the availability of similar solutions from other vendors, its fee structure based on inclusion and exclusion of the solution, and its marketing and delivery of the solution. The service components of the Company's subscriptions, including license, delivery, and support are combined and accounted for as a separate unit of accounting. The Company uses estimated selling price ("ESP") to determine the selling price for its subscriptions when sold in multiple-element arrangements, as the Company does not have vendor-specific objective evidence ("VSOE") for these subscriptions and third-party evidence ("TPE") is not a practical alternative due to differences in features and functionality as compared with other companies' offerings.

The Company also determined that the professional services have standalone value because those services are sold separately by other vendors. The Company uses ESP to determine the selling price for professional services when sold in multiple-element arrangements. Due to insufficient reliable pricing data, the Company is unable to establish VSOE. While other vendors offer similar services, they represent a small component of the vendor's total offerings. As a result, the Company is unable to reliably determine TPE on a standalone basis.

The Company determines its single-point ESP for subscriptions and professional services as follows:

- Subscription—the Company utilizes a pricing tool that provides price quotes for its subscription configurations. Any new and potential customer subscription arrangements must be priced through the utilization of the Company's pricing tool. The Company has established an internal committee to monitor compliance and evaluate pricing data on a periodic basis. This evaluation includes the review of actual historical pricing data, market conditions consideration, and the review of pricing strategies and practices. Any necessary pricing modification made to the pricing tool is supported by the result of such evaluation. Accordingly, the Company's ESP for subscriptions is obtained from this pricing tool.
- Professional services—the Company evaluates internal historical professional services pricing data to determine average pricing rates by type of professional services rendered. These averages are utilized to determine ESP for professional services, and are reviewed and updated at least annually.

The Company then allocates the arrangement consideration based on its relative ESP. Revenues for deliverables under subscriptions are recognized ratably over the term of the arrangement, beginning with the commencement of the arrangement term, which is generally aligned with the date the Company's cloud-based solutions are made available to the customer, assuming all other revenue recognition criteria are met. Revenues for deliverables under professional services are recognized using a proportional performance method or as services are rendered.

As required by current accounting guidance, the Company continues to account for a small number of multiple-element arrangements entered into prior to 2011 as a combined single unit of accounting, which includes subscription and professional services, under the previous guidance until such arrangements expire. The related revenues are recognized ratably beginning with the commencement of the arrangement term, assuming all other remaining revenue recognition criteria are met.

In addition, management's estimate of fair value for professional services is used to derive a reasonable approximation for presenting subscription revenues and professional services revenues separately in its consolidated financial statements.

Deferred Revenue

Deferred revenue consists of billings or payments received in advance of revenue recognition and is recognized as the revenue recognition criteria are met. Amounts that have been invoiced are initially recorded in accounts receivable and deferred revenue. The Company invoices its customers in accordance with the terms of the underlying contract, usually in installments in advance of the related service period. Accordingly, the deferred revenue balance does not represent the total contract value of outstanding arrangements. Payment terms are typically net 30 to 45 days. Deferred revenue that is expected to be recognized during the subsequent 12-month period is recorded as current deferred revenue and the remaining portion as noncurrent deferred revenue.

In some instances, a customer elects to renew its subscription arrangement prior to the original termination date of the arrangement. The renewed subscription agreement provides support for in-process clinical trials, and includes the right to use the Company's cloud-based solutions for initial clinical studies. As such, the unrecognized portion of the

deferred revenue associated with the original arrangement is aggregated with the consideration received upon renewal and recognized as revenue over the renewed term of the subscription arrangement. This can affect timing and result in reclassification between current and noncurrent deferred revenue.

Cost of Revenues—Cost of revenues primarily consists of costs related to delivering, maintaining and supporting the Company's cloud-based platform and delivering professional services and support. These costs include salaries, benefits, bonuses and stock-based compensation for the Company's data center and professional services staff. Cost of revenues also includes costs associated with the Company's data center, including networking and related depreciation expense, as well as outside service provider costs, amortization expense, and general overhead. The Company allocates general overhead, such as applicable shared rent and utilities, to cost of revenues based on relative headcount.

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

Software Development Costs—Costs incurred in the research and development of new software solutions and enhancements to existing software solutions are expensed as incurred. Internally developed software costs, if any, are capitalized when technological feasibility is reached, which is not until a working model is developed and the functionality is tested and determined to be compliant with all federal and international regulations. No internally developed software costs were capitalized during 2015, 2014, or 2013.

Stock-Based Compensation—The fair value of each stock option grant is estimated on the date of grant using the Black-Scholes pricing model. The Company uses stock price volatility of its publicly-traded stock as a basis for determining the expected volatility. As the Company does not have sufficient historical exercise data in the period since its stock began being publicly traded to provide a reasonable basis upon which to estimate the expected life of options, the Company uses the simplified method as allowed under SEC Staff Accounting Bulletin Topic 14 for estimating the expected life as all of its options qualify as "plain-vanilla" options. The risk-free interest rate is based on the United States ("U.S.") Treasury yield curve in effect at the time of the option grant with a maturity tied to the expected life of the options. No dividends are expected to be declared by the Company at this time. Compensation expense for stock options is recognized, net of estimated forfeitures, on a straight-line basis over the vesting period.

The fair value of each nonvested restricted stock award ("RSA") or restricted stock unit ("RSU") is measured as if the RSA or RSU was vested and issued on the grant date. The related compensation expense is recognized, net of estimated forfeitures, on a straight-line basis over the vesting period.

The fair value of each performance-based restricted stock unit ("PBRSU") whose vesting is dependent on the achievement of a market condition is estimated based upon the results of a Monte Carlo valuation model as of the grant date in accordance with accounting guidelines. Compensation expense related to PBRSUs with a market condition is recognized, net of estimated forfeitures, on a straight-line basis over the vesting period. The fair value of each PBRSU whose vesting is dependent on the satisfaction of a performance condition is measured as if the PBRSU was vested and issued on the grant date and adjusted in each reporting period for expected performance relative to the associated goals. Compensation expense related to PBRSUs with a performance condition is recognized when it is probable that the condition will be achieved, net of estimated forfeitures, on a straight-line basis over the vesting period. The compensation expense ultimately recognized will equal the grant date fair value per share multiplied by the number of shares for which the performance condition has been satisfied.

The fair value of each employee stock purchase plan ("ESPP") share is estimated using the Black-Scholes pricing model. The Company uses stock price volatility of its publicly-traded stock as a basis for determining expected volatility. Management believes this is the best estimate of the expected volatility over the weighted-average expected life of the ESPP shares. The expected life of each ESPP share is equivalent to the time between the beginning of the offering period and the end of the related purchase period. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the beginning of the offering period with a maturity tied to the expected life of the ESPP share. No dividends are expected to be declared by the Company at this time. Compensation expense for ESPP shares is recognized, net of estimated forfeitures, on a straight-line basis over the term of the offering period.

Income Taxes—The Company's income tax expenses, deferred tax assets and liabilities, and liabilities for unrecognized tax benefits reflect management's best assessment of estimated current and future taxes to be paid. The objective for accounting for income taxes is to recognize the amount of taxes payable or refundable for the current year and deferred tax assets and liabilities for future tax consequences of events that have been recognized in the financial statements. The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The assumptions about future tax consequences require significant judgment and variations in the actual outcome of these consequences could materially impact the Company's results of operations.

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. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. Valuation allowances are recorded to reduce deferred tax assets when it is more likely than not that a tax benefit will not be

realized.

Cash and Cash Equivalents—The Company considers all money market accounts and other highly liquid investments purchased with original maturities of three months or less to be cash and cash equivalents. The fair value of cash and cash equivalents approximates the amounts shown on the consolidated financial statements.

Marketable Securities—The Company classifies its fixed income marketable securities as available-for-sale based on its intentions with regard to these instruments. Accordingly, marketable securities are reported at fair value, with all unrealized holding gains and losses reflected in stockholders' equity. If it is determined that an investment has an other-than-temporary decline in fair value, the Company recognizes the investment loss in other income (expense), net, in the consolidated statements of operations. The Company periodically evaluates its investments to determine if impairment charges are required.

Accounts Receivable—Accounts receivable are recorded at original invoice amount less an allowance that management believes will be adequate to absorb estimated losses on uncollectible accounts. The allowance is based on an evaluation of the

collectability of accounts receivable and prior bad debt experience. Accounts receivable are written off when deemed uncollectible. Unbilled receivables consist of revenue recognized in excess of billings, substantially all of which is expected to be billed and collected within one year. As of December 31, 2015 and 2014, unbilled accounts receivable of $10.3 million and $8.9 million, respectively, were included in accounts receivable on the Company's consolidated balance sheets. In general, there is a direct relationship between the Company's accounts receivable balance and its transaction volume.

Prepaid Commission Expense—For arrangements where revenue is recognized over the relevant contract period, the Company capitalizes related sales commissions that have been paid and recognizes these expenses over the period the related revenue is recognized. Commissions are generally payable to the Company’s sales representatives 25% at the time of booking and 75% at the time of invoicing. If a client terminates a contract, the Company recaptures the related unearned commissions. The Company expensed commissions of $13.7 million, $13.1 million, and $11.1 million in 2015, 2014, and 2013, respectively, which are included within sales and marketing expense in the consolidated statements of operations. Prepaid commissions that will be recognized during the subsequent 12-month period are recorded as current prepaid commissions and the remaining portion included in other noncurrent assets.

Restricted Cash—Restricted cash represents deposits made to fully collateralize certain standby letters of credit issued in connection with office lease arrangements. In addition to the $5.8 million and $5.1 million of restricted cash on the Company's consolidated balance sheets as of December 31, 2015 and 2014, respectively, short-term restricted cash of $0.2 million was recorded in prepaid expenses and other current assets as of December 31, 2015 and 2014.

Furniture, Fixtures and Equipment—Furniture, fixtures and equipment consists of furniture, computers, other office equipment, purchased software for internal use, leasehold improvements, and construction in process recorded at cost. Depreciation is computed on the straight-line method over five years for furniture and fixtures, and over three to five years for computer equipment and software. Leasehold improvements are amortized on a straight-line basis over the shorter of the lease term or their estimated useful lives. Improvements are capitalized while expenditures for repairs and maintenance are charged to expense as incurred. Construction in progress is not amortized into depreciation expense until it is placed into service.

Goodwill and Intangible Assets—The Company has generated goodwill and certain intangible assets from various acquisitions. Goodwill represents the excess of consideration paid over the fair value of net assets acquired in business combinations.

The Company evaluates its goodwill for impairment using a two-step process that is performed at least annually on October 1 of each year, or whenever events or circumstances indicate that impairment may have occurred. (The relevant accounting guidance also provides for an optional step zero that permits an entity to assess qualitative factors as a means of determining whether it is necessary to perform the two-step goodwill impairment test described below, but the Company does not currently utilize this option.)

- The first step is a comparison of the fair value of the Company's single reporting unit with its carrying amount, including goodwill. If the fair value the reporting unit exceeds its carrying value, goodwill is not considered to be impaired and the second step is unnecessary.

- If the carrying value of the reporting unit exceeds its fair value, a second test is performed to measure the amount of impairment by comparing the carrying amount of the goodwill to a determination of the implied value of the goodwill. The implied value of goodwill is determined as of the test date by performing a purchase price allocation, as if the reporting unit had just been acquired, using currently estimated fair values of the individual assets and liabilities of the reporting unit, together with an estimate of the fair value of the reporting unit taken as a whole. The estimate of the fair value of the reporting unit is based upon information available regarding the Company’s market capitalization, prices of similar groups of assets, or other valuation techniques including present value techniques based upon estimates of future cash flow. If the carrying amount of the goodwill is greater than its implied value, an impairment loss is recognized for the difference.

The Company determined that there was no impairment of goodwill for the years ended December 31, 2015, 2014, and 2013, and did not recognize any impairments of goodwill in prior years.

Acquired intangible assets are recorded at cost, derived from allocation of the purchase price of the acquired business to the intangible assets obtained, less accumulated amortization. Amortization of acquired technology is computed using the straight-line method over its expected useful lives, which range from four to five years. Amortization of customer relationships and non-competition agreements is computed using an accelerated method over their expected useful lives, which range from five to six years, reflecting the pattern in which the economic benefits derived from the related intangible assets are consumed or utilized.

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

Impairment of Long-Lived Assets—Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may be impaired. The Company subjects long-lived assets to a test of recoverability based on undiscounted cash flows expected to be generated by such assets while utilized by the Company and cash flows expected from disposition of such assets. If the assets are impaired, the impairment to be recognized is measured as the amount by which the carrying amount of the assets exceeds their fair value. The Company determined that there was no impairment of long-lived assets for the years ended December 31, 2015, 2014, and 2013, and did not recognize any impairments of long-lived assets in prior years.

Convertible Notes—The Company separately accounts for the debt and conversion option components of its convertible senior notes, which permit cash settlement, in a manner that reflects the Company's nonconvertible borrowing rate at the time of issuance. The principal amount of the convertible senior notes is recorded as a liability. The value of the conversion option, net of equity issue costs, is recorded in stockholders' equity, and the offsetting debt discount is amortized to interest expense using the effective interest method over the term of the convertible senior notes. Debt issuance costs have been capitalized and are amortized to interest expense over the term of the convertible senior notes on a straight-line basis, which approximates the effective interest method. Refer to Note 9, "Debt," for further information.

Treasury Stock—Shares of the Company’s common and preferred stock that are repurchased are recorded as treasury stock at cost and included as a component of stockholders’ equity. Refer to Note 3, "Stockholders' Equity," for further information.

Foreign Currency Translation—The reporting currency for the Company is the U.S. dollar. The functional currencies of the Company’s subsidiaries in the United Kingdom, Japan, Korea, Singapore, and China are the British pound sterling, Japanese yen, South Korean won, Singapore dollar, and Chinese yuan, respectively. Accordingly, the assets and liabilities of the Company’s foreign subsidiaries are translated into U.S. dollars using the exchange rate in effect at each balance sheet date. Revenue and expense accounts of the Company’s foreign subsidiaries are translated using an average rate of exchange during the period. Foreign currency translation adjustments are accumulated as a component of other comprehensive income (loss) as a separate component of stockholders’ equity. Gains and losses arising from transactions denominated in foreign currencies are recorded directly to the statement of operations. Foreign currency transaction gains (losses) are included in general and administrative expenses and were $(0.6) million in 2015, $(1.1) million in 2014, and $(0.5) million in 2013.

Fair Value of Financial Instruments—The carrying amounts of cash and cash equivalents, accounts receivable, accounts payable, and accrued liabilities approximate fair value because of the short maturity of these instruments. Fair values of marketable securities are based on unadjusted quoted market prices or pricing models using current market data that are observable either directly or indirectly. All methods of assessing fair value result in a general approximation of value, and such value may never actually be realized.

The Company uses a three-level framework for measuring the fair value of its financial assets and liabilities and gives highest priority to Level 1 and lowest priority to Level 3 inputs, described as follows:

Level 1 - Unadjusted quoted prices in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date.

Level 2 - Other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly, including:

- quoted prices for similar assets or liabilities in active markets;
- quoted prices for identical or similar assets or liabilities in markets that are not active;
- inputs other than quoted prices that are observable for the asset or liability; and
- inputs that are derived principally from or corroborated by observable market data by correlation or other means.

If the asset or liability has a specified (contractual) term, the Level 2 inputs must be observable for substantially the full term of the asset or liability.

Level 3 - Unobservable inputs to the valuation methodology that are significant to the fair value measurement for the asset or liability.

Concentration of Credit Risk—Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents, marketable securities, and accounts receivable. The Company has policies that limit the amount of credit exposure to any one issuer. The Company performs ongoing credit evaluations of its customers and maintains an allowance for potential losses, but does not require collateral or other security to support customers' receivables. The Company's credit risk is further mitigated because its customer base is diversified both geographically and by industry sector.

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

In 2015, 2014, and 2013, no single customer generated more than 10% of the Company's total revenues. At December 31, 2015, one customer comprised 18% of accounts receivable; the substantial majority of that customer's year-end balance had been collected by the end of February 2016. No single customer comprised 10% or more of total accounts receivable at December 31, 2014.

The majority of the Company's cash, cash equivalents, and restricted cash are deposited with major U.S. financial institutions and, at times, balances with any one financial institution may be in excess of Federal Deposit Insurance Corporation ("FDIC") insurance limits. In addition, as of December 31, 2015, approximately $3.0 million in cash and cash equivalents was deposited with foreign financial institutions and therefore not protected by FDIC insurance.

Indemnifications—The Company indemnifies its customers against claims that cloud-based solutions or services made available by the Company infringe upon a copyright, patent, or the proprietary rights of others. In the event of a claim, the Company agrees to obtain the rights for continued use of the solutions for the customer, to replace or modify the solutions or services to avoid such claim, or to provide a credit to the customer for the unused portion of the subscription. A liability may be recognized if information prior to the issuance of the consolidated financial statements indicates that it is probable that a liability has been incurred at the balance sheet date and the amount of the loss can be reasonably estimated. No such liabilities were recorded as of December 31, 2015 and 2014.

Segment and Geographic Information—The Company operates as a single segment, as the chief operating decision maker reviews financial information that is presented on a consolidated basis, accompanied by information about revenue by geographic region. The Company recorded revenues in the following geographic areas in 2015, 2014, and 2013 (in thousands):

	2015	2014	2013
Revenues:			
United States	$297,735	$246,362	$197,785
Japan	31,595	31,672	32,595
Other	63,176	57,037	46,469
Total	$392,506	$335,071	$276,849

Revenues by geographic area are presented based upon the country in which revenues were generated. No individual country other than the U.S. and Japan represented 5% or more of net revenues for any of the periods presented.

The following table summarizes long-term assets by geographic area as of December 31, 2015, 2014, and 2013 (in thousands):

	2015	2014	2013
Long-term assets:			
United States	$292,700	$251,096	$254,453
United Kingdom	7,753	8,930	10,041
Japan	3,795	4,339	4,314
Korea	32	—	—
Total	$304,280	$264,365	$268,808

The Company had no long-term assets in countries other than those listed above as of December 31, 2015, 2014, and 2013.

Recently Issued Accounting Pronouncements—In August 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-15, Presentation of Financial Statements—Going Concern. This new guidance formally establishes management's responsibility to evaluate at each reporting period whether there is substantial doubt about the entity's ability to continue as a going concern for a period of one year after the date the financial statements are issued, and to provide related footnote disclosures. ASU No. 2014-15 is effective for annual reporting periods ending after December 15, 2016, and for interim and annual periods thereafter. The Company will adopt ASU No. 2014-15 on January 1, 2016, and the adoption is not expected to have a material impact on the Company's consolidated financial statements.

In April 2015, the FASB issued ASU No. 2015-03, Simplifying the Presentation of Debt Issuance Costs. ASU No. 2015-03 requires that debt issuance costs be presented not as an asset but as a reduction of the carrying amount of the related debt liability, similar to a debt discount. ASU No. 2015-03 is effective for annual periods beginning after December 15, 2015, and interim periods within those annual periods, with early adoption permitted. The Company will adopt ASU No. 2015-03 on January 1, 2016, and such adoption is not expected to have a material impact on its consolidated financial statements aside from a balance sheet reclassification. Upon adoption, the Company will apply the new guidance on a retrospective basis and adjust the balance sheet of each period presented to appropriately reflect the period-specific effects of the new guidance.

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

In April 2015, the FASB issued ASU No. 2015-05, Customer's Accounting for Fees Paid in a Cloud Computing Arrangement, which provides guidance on whether an entity should account for the fees paid as a customer under a cloud computing arrangement as a license of internal-use software or as a service contract. ASU No. 2015-05 is effective for annual periods beginning after December 15, 2015, and interim periods within those annual periods, with early adoption permitted. The Company will adopt ASU No. 2015-05 on January 1, 2016, and the adoption is not expected to have a material impact on its consolidated financial statements.

In May 2015, the FASB issued ASU No. 2015-07, Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent). ASU No. 2015-07 removes the requirement to categorize within the fair value hierarchy those investments that are measured at fair value using net asset value per share as a practical expedient. It also removes the requirement to make certain disclosures for all investments that are eligible to be measured using the practical expedient, limiting the requirement to only those investments for which the practical expedient has been elected. ASU No. 2015-07 is effective for annual periods beginning after December 15, 2015, and interim periods within those annual periods, with early adoption permitted. The Company will adopt ASU No. 2015-07 on January 1, 2016, and the adoption is not expected to have a material impact on its consolidated financial statements.

In July 2015, the FASB voted to approve a one-year delay of the effective date of ASU No. 2014-09, Revenue from Contracts with Customers, which supersedes the existing accounting standards for revenue recognition. This ASU provides principles for recognizing revenue for the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods and services. ASU No. 2014-09 is now effective for annual reporting periods beginning after December 15, 2017, including interim periods within those annual periods. Early adoption is not permitted. The Company will adopt ASU No. 2014-09 on January 1, 2018, and is presently evaluating the impact of the adoption on its consolidated financial statements.

In November 2015, the FASB issued ASU No. 2015-17, Balance Sheet Classification of Deferred Taxes, which simplifies the presentation of deferred income taxes by requiring that all deferred tax assets and liabilities be classified as noncurrent in the consolidated balance sheets. ASU No. 2015-17 is effective for annual reporting periods beginning after December 15, 2016 and interim periods within those annual periods, and may be applied either prospectively or retrospectively to all periods presented. Early adoption is permitted. The Company will adopt ASU No. 2015-17 on January 1, 2017, and the adoption is not expected to have a material impact on its consolidated financial statements.

In January 2016, the FASB issued ASU No. 2016-01, Recognition and Measurement of Financial Assets and Financial Liabilities, which amends certain aspects of recognition, measurement, presentation, and disclosure of financial instruments. ASU No. 2016-01 is effective for annual reporting periods beginning after December 15, 2017, including interim periods within those annual periods. The Company will adopt ASU No. 2016-01 on January 1, 2018, and the adoption is not expected to have a material impact on the its consolidated financial statements.

2. 2014 WIRE TRANSACTION LOSS

On September 18, 2014, the Company discovered that it had been the subject of an international wire transfer fraud perpetrated against it on September 16, 2014. The incident involved a fraudulent request targeting certain mid-level employees in the Company's finance department, resulting in the transfer of $4.8 million to an overseas account. As a result, the Company recorded charges of $4.9 million and $0.9 million in the third and fourth quarters of 2014, respectively, for the loss and related investigation costs incurred through December 31, 2014. While this matter resulted in some additional near-term expenses, the incident did not have a material impact on the Company's business. No customer data was involved in this matter and the Company's systems were not impacted. In late December 2015, the Company was advised that the SEC had commenced an investigation with respect to this matter.

3. STOCKHOLDERS' EQUITY

Common Stock—Common stockholders are entitled to one vote for each share of common stock held. Common stockholders may receive dividends if and when the board of directors determines, at its sole discretion.

In December 2013, the Company announced a two-for-one split of its common stock, effected in the form of a stock dividend. The record date for the stock split was December 2, 2013, and the additional shares were distributed on

December 16, 2013. Each shareholder of record as of the close of business on the record date received one additional share of common stock for each share held.

On July 31, 2014, the Company filed its Fifth Amended and Restated Certificate of Incorporation to increase the number of authorized shares of its common stock from 100 million to a total of 200 million, as approved at the Company's May 2014 annual meeting of stockholders.

Treasury Stock—From time to time, the Company grants nonvested RSAs, RSUs, and PBRSUs to its employees pursuant to the terms of its Second Amended and Restated 2009 Long-Term Incentive Plan (the "2009 Plan"). Under the provisions of the 2009 Plan, unless otherwise elected, participants fulfill their related income tax withholding obligation by having shares withheld at the time of vesting. On the date of vesting, the Company divides the participant's income tax obligation in

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

dollars by the closing price of its common stock and withholds the resulting number of vested shares. The shares withheld are then transferred to the Company's treasury stock at cost for future reissuance. In 2015 and 2014, the Company withheld 1,127,077 shares at an average price of $49.47 and 401,794 shares at an average price of $46.38, respectively, in connection with the vesting of its RSAs, RSUs, and PBRSUs.

Nonvested restricted stock awards forfeited by plan participants are transferred to the Company's treasury stock at par. During 2015 and 2014, 129,309 and 101,704 forfeited shares, respectively, were transferred to treasury stock at their par value of $0.01.

4. MARKETABLE SECURITIES

The Company manages its cash equivalents and marketable securities as a single investment portfolio that is intended to be available to meet the Company’s current cash requirements. Cash equivalents consist primarily of investments in money market funds. Marketable securities, which the Company classifies as available-for-sale securities, primarily consist of high quality commercial paper, corporate bonds, and U.S. government debt obligations. Marketable securities with remaining effective maturities of twelve months or less from the balance sheet date are classified as short-term; otherwise, they are classified as long-term on the consolidated balance sheet.

The following tables provide the Company’s marketable securities by security type as of December 31, 2015 and 2014 (in thousands):

	As of December 31, 2015			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Commercial paper and corporate bonds	$401,824	$—	$(1,522)	$400,302
U.S. government agency debt securities	28,958	2	(95)	28,865
Total	$430,782	$2	$(1,617)	$429,167

	As of December 31, 2014			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Commercial paper and corporate bonds	$417,845	$72	$(791)	$417,126
Total	$417,845	$72	$(791)	$417,126

Contractual maturities of the Company’s marketable securities as of December 31, 2015 and 2014 are summarized as follows (in thousands):

	As of December 31, 2015		As of December 31, 2014	
	Cost	Estimated Fair Value	Cost	Estimated Fair Value
Due in one year or less	$220,492	$220,126	$233,326	$233,284
Due in one to five years	210,290	209,041	184,519	183,842
Total	$430,782	$429,167	$417,845	$417,126

At December 31, 2015, the Company had $1.6 million of gross unrealized losses primarily due to a decrease in the fair value of certain corporate bonds. The Company regularly reviews its investment portfolio to identify and evaluate investments that have indications of possible impairment. Factors considered in determining whether a loss is temporary include:

- the length of time and extent to which fair value has been lower than the cost basis;
- the financial condition, credit quality and near-term prospects of the investee; and
- whether it is more likely than not that the Company will be required to sell the security prior to recovery.

As the Company has the ability and intent to hold these investments until a recovery of fair value, which may be maturity, the Company has determined that the gross unrealized losses on such investments at December 31, 2015 are temporary in nature. Accordingly, the Company did not consider its investments in marketable securities to be

other-than-temporarily impaired as of December 31, 2015.

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

The following tables provide the fair market value and gross unrealized losses of the Company's marketable securities, aggregated by security type, as of December 31, 2015 and 2014 (in thousands):

	In Loss Position for Less than 12 Months			
	As of December 31, 2015		As of December 31, 2014	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Commercial paper and corporate bonds	$359,566	$(1,443)	$322,938	$(791)
U.S. government agency debt securities	25,863	(95)	—	—
Total	$385,429	$(1,538)	$322,938	$(791)

	In Loss Position for More than 12 Months			
	As of December 31, 2015		As of December 31, 2014	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Commercial paper and corporate bonds	$38,726	$(79)	$—	$—
Total	$38,726	$(79)	$—	$—

During 2015, 2014, and 2013, the Company recorded an insignificant amount of net realized gains from the sale of marketable securities.

5. FAIR VALUE

As of December 31, 2015 and 2014, financial assets (excluding cash balances) measured at fair value on a recurring basis as described in Note 1, "Summary of Significant Accounting Policies," are summarized as follows (in thousands):

	As of December 31, 2015 Fair Value Measurement Using			As of December 31, 2014 Fair Value Measurement Using		
	Level 1	Level 2	Total	Level 1	Level 2	Total
Assets:						
Money market funds	$645	$—	$645	$733	$—	$733
Total cash equivalents	645	—	645	733	—	733
Commercial paper and corporate bonds	—	400,302	400,302	—	417,126	417,126
U.S. government agency debt securities	—	28,865	28,865	—	—	—
Total marketable securities	—	429,167	429,167	—	417,126	417,126
Total financial assets	$645	$429,167	$429,812	$733	$417,126	$417,859

As of December 31, 2015 and 2014, the Company had no financial liabilities measured at fair value on a recurring basis, and none of its financial assets measured at fair value on a recurring basis relied upon Level 3 inputs. Investments in money market funds have been classified as Level 1 since these securities are valued based upon $1.00 net asset value per share or unadjusted quoted prices in active markets. Investments in commercial paper, corporate bonds, and U.S. government agency debt securities have been classified as Level 2 as they are valued using quoted prices in less active markets or other directly or indirectly observable inputs. Fair values of corporate bonds and U.S. government agency debt securities were derived from a consensus or weighted-average price based on input of market prices from multiple sources at each reporting period. With regard to commercial paper, all of the securities had high credit ratings and one year or less to maturity; therefore, fair value was derived from accretion of purchase price to face value over the term of maturity or quoted market prices for similar instruments if available. During 2015 and 2014, there were no transfers of financial assets between Level 1 and Level 2.

The carrying amounts of all other current financial assets and current financial liabilities reflected in the consolidated balance sheets approximate fair value due to their short-term nature.

6. ACQUISITIONS

On October 14, 2014, the Company acquired Patient Profiles, LLC ("Patient Profiles"), an early-stage U.S.-based software company focused on data analytics in clinical trials. The Company paid cash consideration of $5.5 million for all outstanding

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

membership interests in Patient Profiles and acquired $0.1 million in net tangible assets and $1.6 million in intangible assets, resulting in recognition of $3.8 million in goodwill.

On July 1, 2011, the Company acquired Clinical Force Limited ("Clinical Force"), a UK-based provider of cloud-based clinical trial management systems ("CTMS"). The Company paid consideration consisting of $5.2 million cash at closing, plus additional performance-based earn-out payments of $2.6 million, which had a fair value of approximately $1.8 million as of the acquisition date. The earn-out payments were contingent upon the achievement of billing targets for the CTMS application, calculated over three one-year measuring periods which concluded on December 31, 2013. For the measurement periods ended December 31, 2013, 2012, and 2011, the sellers earned payments of $1.1 million, $1.0 million, and $0.5 million, respectively, based upon the achievement of the maximum billing targets for all three periods.

7. GOODWILL AND INTANGIBLE ASSETS

The changes in the carrying amount of goodwill for the two years ended December 31, 2015 are as follows (in thousands):

Balance as of January 1, 2014	$15,487
Additions related to acquisition	3,837
Foreign currency translation adjustments	(299)
Balance as of December 31, 2014	19,025
Foreign currency translation adjustments	(228)
Balance as of December 31, 2015	$18,797

Intangible assets are summarized as follows (in thousands):

	As of December 31, 2015			As of December 31, 2014		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Developed technology	$5,223	$(4,336)	$887	$5,299	$(3,891)	$1,408
Customer relationships	2,165	(1,994)	171	2,186	(1,922)	264
Non-competition agreements	150	(36)	114	150	(6)	144
Total	$7,538	$(6,366)	$1,172	$7,635	$(5,819)	$1,816

Annual amortization for the next five years is expected to be as follows (in thousands):

Years ending December 31,	
2016	$413
2017	388
2018	305
2019	47
2020	19

8. FURNITURE, FIXTURES AND EQUIPMENT

Furniture, fixtures and equipment consist of the following (in thousands):

	As of December 31,	
	2015	2014
Computer equipment and purchased software	$38,929	$34,736
Leasehold improvements	35,380	28,601
Furniture and fixtures	7,347	6,365
Construction in progress	10,153	1,131
Total furniture, fixtures and equipment	91,809	70,833
Less: accumulated depreciation and amortization	(40,766)	(32,254)
Furniture, fixtures and equipment, net	$51,043	$38,579

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

Included in furniture, fixtures and equipment, net as of December 31, 2015 and 2014 is approximately $2.7 million of fully depreciated computer equipment and purchased software acquired under capital leases. Total depreciation expense was $10.2 million, $9.8 million, and $6.1 million for the years ended December 31, 2015, 2014, and 2013, respectively. For 2013, this amount included depreciation of assets acquired under capital leases of approximately $0.1 million. Assets included in construction in progress as of December 31, 2015 primarily relate to the Company's build-out of its new office spaces in Iselin, NJ and San Francisco, CA. Assets included in construction in progress as of December 31, 2014 primarily related to the build-out of an additional floor of office space at the Company's corporate headquarters in New York City. Capitalized costs associated with construction in progress are not amortized into depreciation expense until the related space is occupied.

9. DEBT

1.00% Convertible Senior Notes

In August 2013, the Company issued at par value $287.5 million of 1.00% convertible senior notes (the "Notes"). Interest is payable semi-annually in arrears on August 1 and February 1 of each year. The Notes mature on August 1, 2018 unless repurchased or converted in accordance with their terms prior to such date. The Company may not redeem the Notes prior to their maturity date. The Notes are the Company's senior unsecured obligations and are governed by an indenture dated August 12, 2013 between the Company, as issuer, and Wells Fargo Bank, National Association, as trustee.

Holders may convert their Notes at their option at any time prior to the close of business on the business day immediately preceding February 1, 2018 only under the following circumstances:

- during any calendar quarter commencing after the calendar quarter ending on December 31, 2013 (and only during such calendar quarter), if the last reported sale price of the common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;
- during the five business day period after any five consecutive trading day period (the "measurement period") in which the trading price per $1,000 principal amount of Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of the Company's common stock and the conversion rate on such trading day; or
- upon the occurrence of certain corporate events described in the indenture governing the Notes.

On or after February 1, 2018 until close of business on the business day immediately preceding the maturity date, holders may convert their Notes at any time, regardless of the foregoing circumstances. If the Company undergoes a fundamental change as defined in the indenture governing the Notes, holders may require the Company to repurchase for cash all of their Notes at a repurchase price equal to 100% of the principal amount of the Notes to be repurchased plus accrued and unpaid interest.

The initial conversion rate is 17.2286 shares of the Company's common stock per $1,000 principal amount of Notes, which is equivalent to an initial conversion price of approximately $58.05 per share of common stock. The conversion rate will be subject to adjustment upon occurrence of certain events, including, but not limited to, the issuance of stock dividends or payment of cash dividends on the Company's common stock (unless the holders of the Notes participate at the same time and under the same terms as the holders of common stock), or execution of a share split or share combination. Upon conversion, holders of the Notes will not receive any separate cash payment representing accrued and unpaid interest, unless conversion occurs after close of business on a regular record date and prior to the related interest payment date.

Upon conversion of the Notes, the Company may choose to pay or deliver, as applicable, either cash, shares of the Company's common stock, or a combination thereof. If converted, holders of the Notes will receive, at the Company's election, cash and/or shares for the principal amount of the Notes as well as any amounts in excess of principal. The Company intends to settle the principal amount of the Notes in cash if converted.

As of December 31, 2015 and 2014, remaining unamortized debt issuance costs of $3.3 million and $4.6 million, respectively, were included in other assets on the Company's consolidated balance sheets.

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

The Notes consisted of the following components as of December 31, 2015 and 2014 (in thousands):

	As of December 31,	
	2015	2014
Equity component, net of equity issue costs	$60,222	$60,222
Liability component:		
Principal	287,500	287,500
Less: unamortized debt discount	(34,712)	(46,614)
Net carrying amount	$252,788	$240,886

As of December 31, 2015 and 2014, the estimated fair value of the Notes was $313.0 million and $314.8 million, respectively, which the Company considers to be a Level 2 measurement because it is based upon a recent modeled bid-price quote for the Notes, reflecting activity in a less than active market. As of December 31, 2015, the Notes are not convertible. Based on the closing price of the Company's common stock on December 31, 2015 of $49.29, which is less than the Notes' initial conversion price of $58.05, the if-converted value of the Notes was less than their principal amount.

As of December 31, 2015, the remaining life of the Notes is approximately 31 months.

The following table sets forth total interest expense recognized related to the Notes for the years ended December 31, 2015 and 2014 (in thousands except percentages):

	2015	2014
Contractual interest expense	$2,875	$2,867
Amortization of debt issuance costs	1,278	1,277
Amortization of debt discount	11,902	11,181
Total	$16,055	$15,325
Effective interest rate	6.5%	6.5%

10. LEASE COMMITMENTS

The Company leases certain equipment and office space under noncancelable operating lease agreements which provide for total future minimum annual lease payments as follows (in thousands):

Years ending December 31,	
2016	$12,500
2017	13,340
2018	13,510
2019	14,017
2020	14,405
Thereafter	49,323
Total minimum lease payments	$117,095

Rent expense was approximately $12.7 million in 2015, $11.2 million in 2014, and $8.7 million in 2013. The Company had several outstanding standby letters of credit issued in connection with office leases in the amount of $5.7 million and $4.9 million as of December 31, 2015 and 2014, respectively. These standby letters of credit were fully collateralized with restricted cash as of December 31, 2015 and 2014.

11. STOCK-BASED COMPENSATION

In 2000, the Company adopted the 2000 Stock Option Plan (the “2000 Plan”). Options granted under the 2000 Plan were incentive stock options and nonqualified stock options. The majority of the options are vested 25% one year from the grant date and 75% ratably over the next three years and expire after ten years. Stock options were issued with an exercise price equal to the market price on the date of the grant. The Company will not grant any additional stock options under the 2000 Plan.

In May 2009, the Company adopted the 2009 Plan which became effective upon the completion of the IPO in June 2009. The 2009 Plan is a comprehensive incentive compensation plan under which the Company can grant

equity-based incentive

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

awards to employees, directors, consultants, and advisors. A total of 5.0 million shares of common stock was initially reserved for issuance under the 2009 Plan, which may be in the form of stock options, nonvested RSAs, RSUs, and other forms of stock-based incentives, including PBRSUs, stock appreciation rights, and deferred stock rights. Stock options are issued with an exercise price equal to the current market price on the date of the grant and generally vest monthly over four years. Nonvested RSAs are not eligible for disposition but entitle the holder to all rights of a holder of common stock, including dividends and voting rights. Nonvested RSAs and their associated dividends are subject to forfeiture under certain circumstances. Since its inception the 2009 Plan has been twice amended and restated to increase the number of shares of common stock that the Company may issue under the 2009 Plan to a total of 11.0 million shares as of December 31, 2015.

Effective January 2014, the Company adopted the Amended and Restated 2014 Employee Stock Purchase Plan. The ESPP allows eligible employees to purchase shares of the Company's common stock at a discount though payroll deductions, and consists of overlapping 24-month offering periods with four six-month purchase periods in each offering period. Employees purchase shares at the lesser of (1) 85% of the fair market value (“FMV”) per share on the first day of the offering period, or (2) 85% of the FMV per share at the end of the relevant purchase period. The ESPP contains a reset provision that automatically cancels the current offering period and enrolls participants in a new offering period in the event that FMV per share at the end of a six-month purchase period is lower than the FMV per share at the first day of the related offering period. The ESPP is a compensatory plan because it provides participants with terms that are more favorable than those offered to other holders of the Company's common stock. Accordingly, the cost of the plan is recorded as stock-based compensation expense. A total of 0.3 million shares of common stock is reserved for issuance under the ESPP as of December 31, 2015.

For the three years ended December 31, 2015, the components of stock-based compensation expense were as follows (in thousands):

	2015	2014	2013
Stock options	$4,941	$5,089	$4,143
Restricted stock awards and units	18,935	13,525	18,099
Performance-based restricted stock units	21,065	16,927	13,901
Employee stock purchase plan	4,046	2,412	—
Total stock-based compensation	$48,987	$37,953	$36,143

The total tax benefit related to stock-based compensation expense was $17.5 million, $13.4 million, and $14.2 million for 2015, 2014, and 2013, respectively.

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

Stock Options

The fair value of each stock option grant was estimated on the date of grant using the Black-Scholes pricing model with the following weighted-average assumptions:

	2015	2014	2013
Expected volatility	43 %	43 %	43 %
Expected life	6 years	6 years	6 years
Risk-free interest rate	1.68 %	1.86 %	1.48 %
Dividend yield	—	—	—

The following table summarizes the status of the Company's stock options as of December 31, 2015, and changes during the year then ended (in thousands, except per share data):

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (years)	Aggregate Intrinsic Value
Outstanding at January 1, 2015	2,330	$18.93		
Granted	171	48.19		
Exercised	(454)	14.71		
Forfeited	(106)	33.18		
Expired	(1)	0.31		
Outstanding at December 31, 2015	1,940	$21.73	5.79	$54,849
Exercisable at December 31, 2015	1,488	$15.47	4.98	$50,984
Vested and expected to vest at December 31, 2015	1,918	$21.42	5.73	$54,687

The weighted-average grant-date fair value of stock options granted during 2015, 2014, and 2013 was $20.96, $21.18, and $18.06 respectively. The total intrinsic value of stock options exercised during 2015, 2014, and 2013 was $15.7 million, $15.7 million, and $38.4 million, respectively. The total fair value of stock options vested during 2015, 2014, and 2013 was $4.6 million, $5.1 million, and $3.5 million, respectively. As of December 31, 2015, there was $8.1 million in unrecognized compensation cost related to all non-vested stock options granted. This cost is expected to be recognized over a weighted-average remaining period of 2.38 years.

Restricted Stock Awards and Units

The following table summarizes the status of the Company’s time-based nonvested RSAs and RSUs as of December 31, 2015, and changes during the year then ended (in thousands, except per share data):

	Number of Shares	Weighted-Average Grant-Date Fair Value
Nonvested at January 1, 2015	1,383	$30.64
Granted	708	47.03
Vested	(607)	25.16
Forfeited	(129)	39.40
Nonvested at December 31, 2015	1,355	$40.82

The total fair value of RSAs and RSUs vested during 2015, 2014, and 2013 was $31.1 million, $29.4 million, and $44.6 million, respectively. As of December 31, 2015, there was $41.8 million in unrecognized compensation cost related to all nonvested RSAs and RSUs granted. This cost is expected to be recognized over a weighted-average remaining period of 2.33 years.

Performance-Based Restricted Stock Units

During 2015, the Company granted 242 thousand PBRSUs (" 2015 TSR PBRSUs") with market conditions based on the Company's total stockholder return ("TSR") relative to that of the Russell 2000 Index over the one-, two-, and three-year periods

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

ending December 31, 2015, 2016, and 2017, respectively, vesting in equal parts over three years with the number of PBRSUs ultimately earned ranging from zero to 200% of the target number of shares.

During 2014, the Company granted (1) 149 thousand PBRSUs ("2014 Revenue PBRSUs") with performance conditions based on revenue for the year ending December 31, 2014, vesting in equal parts over three years with the number of PBRSUs ultimately earned ranging from zero to 200% of the target number of shares; (2) 74 thousand PBRSUs ("2014 TSR PBRSUs") with market conditions based on the Company's TSR relative to that of the NASDAQ Composite Index for the year ending December 31, 2014, vesting in equal parts over three years with the number of PBRSUs ultimately earned ranging from zero to 200% of the target number of shares. The Company also granted an insignificant number of other PBRSUs with performance conditions based on the achievement of certain individual performance objectives.

During 2013, the Company granted (1) 227 thousand PBRSUs ("2013 Revenue PBRSUs") with performance conditions based on revenue for the year ending December 31, 2013, vesting in equal parts over three years with the number of PBRSUs ultimately earned ranging from zero to 200% of the target number of shares; (2) 114 thousand PBRSUs ("2013 TSR PBRSUs") with market conditions based on the Company's TSR relative to that of the NASDAQ Composite Index for the year ending December 31, 2013, vesting in equal parts over three years with the number of PBRSUs ultimately earned ranging from zero to 200% of the target number of shares; (3) 646 thousand PBRSUs ("Long-Term PBRSUs") with both market and performance conditions based on the Company's compound annual revenue growth rate and absolute TSR over the three-year period ending December 31, 2015, vesting in full on December 31, 2015, with the number of PBRSUs ultimately earned ranging from zero to 300% of the original award. The Company also granted an insignificant number of other PBRSUs with performance conditions based on the achievement of certain individual performance objectives.

The fair value of PBRSUs with market conditions were estimated as of the date of grant using a Monte Carlo valuation model with the following weighted-average assumptions:

	2015 TSR PBRSUs	2014 TSR PBRSUs	2013 TSR PBRSUs	2013 Long-Term PBRSUs
Expected volatility - Medidata	46%	52%	39%	39%
Expected volatility - comparison index	41%	13%	15%	N/A
Risk-free interest rate	0.99%	0.12%	0.16%	0.39%
Expected life	2.88 years	0.89 years	1.00 year	2.86 years
Dividend yield	—	—	—	—

The following table summarizes the status of the Company’s PBRSUs based upon expected performance as of December 31, 2015, and changes during the year then ended (in thousands, except per share data):

	Revenue	TSR	Long-Term	Other	Total Number of Shares	Weighted-Average Grant-Date Fair Value
Nonvested at January 1, 2015	303	151	1,115	9	1,578	$31.49
Granted (based on performance at 100% of targeted levels)	—	242	—	—	242	66.99
Adjustment related to expected performance	—	53	493	3	549	37.22
Vested	(151)	(76)	(1,600)	(5)	(1,832)	33.28
Forfeited	(16)	(23)	(8)	—	(47)	39.96
Nonvested at December 31, 2015	136	347	—	7	490	$49.86

The total fair value of PBRSUs vested during 2015 and 2014 was $89.7 million and $13.4 million, respectively. No PBRSUs vested prior to 2014. As of December 31, 2015, there was $9.3 million in unrecognized compensation cost related to all nonvested PBRSUs. This cost is expected to be recognized over a weighted-average remaining period of

0.73 years.

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

Employee Stock Purchase Plan

The fair value of ESPP shares was estimated using the Black-Scholes pricing model with the following weighted-average assumptions:

	2015	2014
Expected volatility	52 %	51 %
Expected life	1.38 years	1.34 years
Risk-free interest rate	0.31 %	0.25 %
Dividend yield	—	—

During 2015, 164 thousand shares of common stock were purchased under the ESPP at a weighted-average price of $38.30. During 2014, 136 thousand shares of common stock were purchased under the ESPP at a weighted-average price of $36.96. As of December 31, 2015, there was $2.7 million in unrecognized compensation cost related to ESPP shares. This cost is expected to be recognized over a weighted-average remaining period of 0.84 years.

Modifications

During the second quarter of 2015, the Company entered into a separation agreement with its previous chief financial officer that triggered a modification of a portion of his outstanding stock options, RSAs, and Long-Term PBRSUs, resulting in incremental expense of $1.3 million, all of which was recognized during the second quarter of 2015.

During the fourth quarter of 2014, the Company entered into a separation agreement with a holder of the Company's 2013 Long-Term PBRSUs that resulted in a modification to the holder's award. All historical expense associated with the pre-modification PBRSUs, approximately $2.0 million, was reversed as of the modification date in the fourth quarter of 2014. The total fair value of the replacement PBRSUs of approximately $1.8 million was fully expensed in the fourth quarter of 2014.

Incremental expense associated with other modifications during 2015, 2014, and 2013 was immaterial both individually and in the aggregate.

12. ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

The changes in the balances of each component of accumulated other comprehensive loss during the two years ended December 31, 2015 are as follows (in thousands):

	Foreign currency translation adjustments	Unrealized gains (losses) on available-for-sale securities	Total
Balance as of January 1, 2014	$(127)	$(72)	$(199)
Other comprehensive loss	(1,340)	(373)	(1,713)
Balance as of December 31, 2014	$(1,467)	$(445)	$(1,912)
Other comprehensive loss	(938)	(554)	(1,492)
Balance as of December 31, 2015	$(2,405)	$(999)	$(3,404)

For the years ended December 31, 2015 and 2014 reclassifications of items from accumulated other comprehensive loss to net income were insignificant.

13. EARNINGS PER SHARE

Basic earnings per share is calculated by dividing net income available to common stockholders by the weighted-average number of shares outstanding during the period. The holders of unvested RSAs do not have nonforfeitable rights to dividends or dividend equivalents and therefore, such vested awards do not qualify as participating securities and are excluded from the basic earnings per share calculation. Diluted earnings per share includes the determinants of basic net income per share and, in addition, gives effect to the potential dilution that would occur if securities or other contracts to issue common stock are exercised, vested or converted into common stock, unless they are anti-dilutive. As the Company intends to settle the principal amount of the Notes (see Note 9, "Debt") in cash upon conversion, their dilutive effect, if any, will be reflected in diluted earnings per share using the

treasury stock method, which considers the number of shares that would be required to settle any premium

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

above principal at the average stock price for the period. During the year ended December 31, 2015, the average price of the Company's stock was below the conversion price of the Notes; as a result the Notes were not dilutive for this period.

A reconciliation of the numerator and denominator of basic earnings per share and diluted earnings per share for the three years ended December 31, 2015 is shown in the following table (in thousands, except per share data):

	2015	2014	2013
Numerator			
Net income	$13,167	$6,092	$16,661
Denominator			
Denominator for basic earnings per share:			
Weighted-average common shares outstanding	53,717	52,561	51,060
Denominator for diluted earnings per share:			
Dilutive potential common shares:			
Stock options	888	1,190	1,581
Restricted stock awards and units	483	617	1,030
Performance-based restricted stock units	1,452	879	447
Weighted-average common shares outstanding with assumed conversion	56,540	55,247	54,118
Basic earnings per share	$0.25	$0.12	$0.33
Diluted earnings per share	$0.23	$0.11	$0.31

Antidilutive common stock equivalents excluded from the calculation of dilutive earnings per share for the three years ended December 31, 2015 are shown in the following table (in thousands):

	2015	2014	2013
Stock options	481	357	211
Restricted stock awards and units	7	30	23
Performance-based restricted stock units	3	1	3
Employee stock purchase plan	184	125	—
Total	675	513	237

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

14. INCOME TAXES

For financial reporting purposes, income before income taxes included the following components (in thousands):

	2015	2014	2013
U.S. income	$15,410	$1,241	$14,549
Non-U.S. income	365	5,273	3,833
Income before income taxes	$15,775	$6,514	$18,382

The components of income tax expense are as follows (in thousands):

	2015	2014	2013
Current expense:			
U.S. federal and state	$4,329	$9,581	$1,372
Foreign	1,488	1,706	1,165
Current expense	5,817	11,287	2,537
Deferred expense (benefit):			
U.S. federal and state	(3,403)	(10,828)	2,381
Foreign	194	(37)	(439)
Valuation allowance	—	—	(2,758)
Deferred benefit	(3,209)	(10,865)	(816)
Total income tax expense	$2,608	$422	$1,721

A reconciliation of the statutory federal income tax rate to the effective income tax rate is as follows:

	2015	2014	2013
Tax computed at U.S. federal statutory rate	35.0%	35.0%	35.0%
Increase (decrease) in effective tax rate resulting from:			
State tax expense, net of federal benefit	1.1%	(2.5)%	3.6%
Valuation allowance	—%	—%	(15.0)%
U.S. credits and incentives	(30.7)%	(43.7)%	(19.0)%
Excess compensation deduction	—%	—%	5.2%
Foreign earnings	3.7%	(0.8)%	(1.2)%
Stock-based compensation	5.7%	12.3%	(0.8)%
Other	1.7%	6.2%	1.6%
Effective tax rate	16.5%	6.5%	9.4%

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

As of December 31, 2015 and 2014, the components of deferred tax assets (liabilities) are as follows (in thousands):

	As of December 31,	
	2015	2014
Assets:		
Net operating loss carryforwards	$3,725	$4,185
Deferred revenue	115	777
Stock-based compensation	13,762	15,418
Debt issuance costs	346	480
Foreign tax credit	995	—
Deferred rent	6,264	4,760
Wire transaction loss	1,908	2,205
Other (1)	4,180	2,829
Gross deferred tax assets	31,295	30,654
Liabilities:		
Depreciable and amortizable assets	(7,266)	(6,033)
Convertible notes	(13,235)	(17,759)
Other	(787)	(720)
Gross deferred tax liabilities	(21,288)	(24,512)
Net deferred tax assets	$10,007	$6,142
Net current deferred tax assets	$88	$96
Net long-term deferred tax assets	12,128	8,066
Net current deferred tax liabilities (included in accrued expenses and other)	(1,795)	(1,782)
Net long-term deferred tax liabilities	(414)	(238)
Net deferred tax assets	$10,007	$6,142

(1) Prior period information has been broken out to conform with current period presentation.

As of December 31, 2015 and 2014, the Company had approximately $83.2 million and $32.5 million of federal net operating loss carryforwards ("NOLs") available to offset future taxable income expiring from 2020 through 2035. The total amount of state and local NOLs in aggregate was $48.2 million and $15.1 million as of December 31, 2015 and 2014, respectively, expiring from 2020 through 2035. Certain NOLs are subject to limitations under Section 382 of the Internal Revenue Code.

As of December 31, 2015 and 2014, the federal NOLs included $76.7 million and $23.4 million, respectively, attributable to excess tax deductions on equity award activity which were not included in the recorded deferred tax assets. In addition, as of December 31, 2015 and 2014, the Company had approximately $23.8 million and $14.7 million, respectively, of tax credits which were not included in the recorded deferred tax assets. The tax benefit of these NOLs and credits will be recognized through additional paid-in capital at such time as the attributes are used to reduce income taxes payable.

As of December 31, 2015 and 2014, the Company had no valuation allowance against its deferred tax assets as it is more likely than not that the deferred tax assets will be fully realized. As of December 31, 2012, the Company maintained a valuation allowance against its deferred tax asset related to foreign tax credits, as its future utilization remained uncertain at that time. The net decrease in valuation allowance of $2.8 million during 2013 was due primarily to the utilization of foreign tax credit carryforwards.

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

The Company has recorded unrecognized tax benefits, which would affect the Company's effective tax rate if recognized, in other long-term liabilities on its consolidated balance sheets. The aggregate changes in the balance of the Company’s gross unrecognized tax benefits for the three years ended December 31, 2015 are as follows (in thousands):

	2015	2014	2013
Gross unrecognized tax benefits as of beginning of period	$4,992	$4,109	$2,946
Increases based on tax positions related to the current year	1,678	438	429
Increases related to tax positions from prior fiscal years	1,444	445	734
Settlements with tax authority	(45)	—	—
Total gross unrecognized tax benefits as of end of period	$8,069	$4,992	$4,109

If recognized, unrecognized tax benefits of approximately $7.7 million would have a net impact on the effective tax rate. The Company accounts for interest and penalties related to uncertain tax positions as part of its provision for income taxes. Recognized interest and penalties were $0.3 million, $0.2 million, and $0.2 million for 2015, 2014, and 2013, respectively.

The Company regularly reevaluates its tax positions and the associated interest and penalties, if applicable, resulting from audits of federal, state, and foreign income tax filings, as well as changes in tax law (including regulations, administrative pronouncements, and judicial precedents), that would reduce the technical merits of the positions to below more likely than not. The Company believes that its accruals for tax liabilities are adequate for all open years. Many factors are considered in making these evaluations, including past history, recent interpretations of tax law, and the specifics of each matter. Because tax regulations are subject to interpretation and tax litigation is inherently uncertain, these evaluations can involve a series of complex judgments about future events and can rely heavily on estimates and assumptions. The Company applies a variety of methodologies in making these estimates and assumptions.

The Company is subject to audit in various jurisdictions for tax returns for the years 2011 through 2014. The Company has recorded changes in the liability for unrecognized tax benefits for current and prior year tax positions related to ongoing income tax audits in various jurisdictions. The Company's 2012 federal income tax return is currently under examination by the Internal Revenue Service ("IRS"). It expects the audit of its 2012 federal income tax return to close within the next twelve months. It is reasonably possible that the amount of the unrecognized tax benefits related to research and development tax credits could change significantly during that time; however, it is difficult to estimate a range of possible outcomes until the examination closes.

For 2015 and 2014, the Company has not provided for deferred taxes on investments in its foreign subsidiaries as there is no excess of financial reporting basis over tax basis with regard to these subsidiaries. If financial reporting basis exceeds tax basis in the future and the Company does not intend to permanently reinvest the earnings of its foreign subsidiaries, deferred taxes will be provided.

15. COMMITMENTS AND CONTINGENCIES

401(k) Plan—The Company has a pre-tax savings and profit sharing plan (the “401(k) Plan”) under Section 401(k) of the Internal Revenue Code for substantially all employees. Under the 401(k) Plan, eligible employees are able to contribute up to 15% of their compensation not to exceed the maximum IRS annual deferral amount. The Company provides a 50% match of the first 4% of eligible compensation contributed each period by the employees. The maximum match by the Company is therefore 2% of eligible compensation. The Company incurred expense of $2.2 million, $1.7 million, and $1.4 million relating to matching contributions in 2015, 2014, and 2013, respectively.

Legal Matters—The Company is subject to legal proceedings and claims that arise in the ordinary course of business and records an estimated liability for these matters when an adverse outcome is considered to be probable and can be reasonably estimated. Although the outcome of the litigation cannot be predicted with certainty and some lawsuits, claims, or proceedings may be disposed of unfavorably to the Company, which could materially and adversely affect its financial condition or results of operations, the Company does not believe that it is currently a party to any material legal proceedings.

On March 4, 2011, DataTrak International, Inc. ("DataTrak") filed a complaint for alleged patent infringement against the Company in DataTrak International v. Medidata Solutions, C.A. No. 1:11-cv-00458 in the U.S. District Court for the Northern District of Ohio (the "NDOH District Court"). The complaint asserted infringement of U.S. Patent No. 7,464,087 (the “'087 Patent”). On November 6, 2015 the NDOH District Court granted the Company's motion to dismiss DataTrak's complaint on the grounds that the '087 Patent is invalid for lack of patentable subject matter under 35 U.S.C. §101. On January 5, 2016, the Company entered into a settlement agreement resolving all related aspects of its litigation with DataTrak. No monies were exchanged.

Contractual Warranties—The Company typically provides contractual warranties to its customers covering its solutions and services. To date, any refunds provided to customers have been immaterial.

Change in Control Agreements—The Company has change in control agreements with its chief executive officer and certain other executive officers. These agreements provide for payments to be made to such officers upon involuntary

Table of Contents
MEDIDATA SOLUTIONS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS, CONTINUED

termination of their employment by the Company without cause or by such officers for good reason as defined in the agreements, within a period of 2 years following a change in control. The agreements provide that, upon a qualifying termination event, such officers will be entitled to (a) a severance payment equal to the officer's base salary plus target bonus amount; (b) continuation of health benefits for 12 months; and (c) immediate vesting of any remaining unvested equity awards, unless otherwise specified in the equity award agreements.

16. UNAUDITED SELECTED QUARTERLY FINANCIAL DATA

The following table presents the Company's unaudited selected quarterly financial data for 2015 and 2014 (in thousands, except for share data):

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
For the fiscal year 2015:				
Total revenues	$92,440	$98,084	$103,113	$98,869
Gross profit	70,264	75,173	80,320	76,961
Operating income	3,466	4,987	11,104	9,675
Net income	157	1,513	4,681	6,816
Earnings per share:				
Basic	$0.00	$0.03	$0.09	$0.13
Diluted	$0.00	$0.03	$0.08	$0.12
For the fiscal year 2014:				
Total revenues	$76,640	$83,223	$85,996	$89,212
Gross profit	55,841	62,249	65,001	67,060
2014 wire transaction loss (1)	—	—	(4,880)	(904)
Operating income	274	7,140	3,575	9,075
Net (loss) income	(1,815)	2,296	161	5,450
(Loss) earnings per share:				
Basic	$(0.03)	$0.04	$0.00	$0.10
Diluted	$(0.03)	$0.04	$0.00	$0.10

(1) Amounts represent pre-tax charges associated with the international wire transfer fraud committed against the Company and related investigation costs. For additional details, see Note 2, "2014 Wire Transaction Loss."

Table of Contents

Schedule II—Valuation and Qualifying Accounts

The allowance for doubtful accounts as of December 31, 2015 and 2014 was $2.0 million and $1.5 million, respectively. The table below details the activity in the account for the three years ended December 31, 2015 (in thousands):

	2015	2014	2013
Balance at beginning of period	$1,517	$1,055	$747
Charged to costs and expenses	597	648	657
Charged to other accounts	—	—	—
Deductions	(122)	(186)	(349)
Balance at end of period	$1,992	$1,517	$1,055