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

FORM 10-Q

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

For the quarterly period ended March 31, 2018

OR

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

For the transition period from to

Commission File Number: 001-34387

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)

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§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). ☒ Yes ☐ No

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

Large accelerated filer	☒		Accelerated filer	☐
Non-accelerated filer	☐	(Do not check if a smaller reporting company)	Smaller reporting company	☐
			Emerging growth company	☐

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

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

As of April 27, 2018, the registrant had 59,222,487 shares of common stock outstanding.

MEDIDATA SOLUTIONS, INC.

QUARTERLY REPORT ON FORM 10-Q

FOR THE QUARTERLY PERIOD ENDED March 31, 2018

TABLE OF CONTENTS

Table of Contents

PART I - FINANCIAL INFORMATION

Item 1. Financial Statements (Unaudited)

MEDIDATA SOLUTIONS, INC.

CONDENSED CONSOLIDATED BALANCE SHEETS (Unaudited)

	March 31, 2018	December 31, 2017	
	(Amounts in thousands, except per share data)		
ASSETS			
Current assets:			
Cash and cash equivalents	$ 226,588	$ 237,325	
Marketable securities	296,816	246,967	
Accounts receivable, net of allowance for doubtful accounts of $1,481 and $1,454, respectively	133,453	110,685	
Prepaid commission expense	17,615	12,404	(1)
Prepaid expenses and other current assets	33,056	33,636	(1)
Total current assets	707,528	641,017	
Restricted cash	5,520	5,518	
Furniture, fixtures and equipment, net	92,905	88,091	
Marketable securities – long-term	121,790	179,041	
Goodwill	47,597	47,435	
Intangible assets, net	16,374	17,587	
Deferred income taxes – long-term	35,054	35,789	(1)
Other assets	49,213	46,755	(1)
Total assets	$ 1,075,981	$ 1,061,233	
LIABILITIES AND STOCKHOLDERS' EQUITY			
Current liabilities:			
Accounts payable	$ 8,164	$ 5,009	
Accrued payroll and other compensation	21,347	32,537	
Accrued expenses and other	35,704	36,041	
Deferred revenue	87,369	77,375	(1)
1.00% convertible senior notes, net	281,894	278,094	
Total current liabilities	434,478	429,056	
Noncurrent liabilities:			
Term loan, net	93,052	92,841	
Deferred revenue, less current portion	4,702	5,256	
Deferred tax liabilities	105	99	
Other long-term liabilities	21,441	21,371	
Total noncurrent liabilities	119,300	119,567	
Total liabilities	553,778	548,623	
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; 63,674 and 62,801 shares issued; 59,189 and 58,607 shares outstanding, respectively	637	628	
Additional paid-in capital	501,718	486,147	
Treasury stock, 4,485 and 4,194 shares, respectively	(149,319)	(132,705)	
Accumulated other comprehensive loss	(3,075)	(3,377)	
Retained earnings	172,242	161,917	(1)
Total stockholders' equity	522,203	512,610	
Total liabilities and stockholders' equity	$ 1,075,981	$ 1,061,233	

(1) The condensed consolidated balance sheet as of December 31, 2017 has been recast to reflect the Company's January 1, 2018 full retrospective adoption of Accounting Standards Codification ("ASC") 606. For additional details, see Note 1, "Summary of Significant Accounting Policies — Recently Adopted Accounting Pronouncements."

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

MEDIDATA SOLUTIONS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS (Unaudited)

	Three Months Ended March 31,		
	2018	2017	
	(Amounts in thousands, except per share data)		
Revenues			
Subscription	$ 126,819	$ 107,893	(3)
Professional services	22,379	19,751	
Total revenues	149,198	127,644	
Cost of revenues (1)(2)			
Subscription	20,341	17,129	
Professional services	15,961	13,485	
Total cost of revenues	36,302	30,614	
Gross profit	112,896	97,030	
Operating costs and expenses			
Research and development (1)	37,522	29,937	
Sales and marketing (1)(2)	36,861	30,226	(3)
General and administrative (1)	25,187	23,988	
Total operating costs and expenses	99,570	84,151	
Operating income	13,326	12,879	
Interest and other income (expense)			
Interest expense	(5,575)	(4,327)	
Interest income	2,088	1,171	
Other expense, net	(96)	—	
Total interest and other expense, net	(3,583)	(3,156)	
Income before income taxes	9,743	9,723	
Provision for income taxes	(582)	(257)	(3)
Net income	$ 10,325	$ 9,980	(3)
Earnings per share			
Basic	$ 0.18	$ 0.18	(3)
Diluted	$ 0.17	$ 0.17	(3)
Weighted average common shares outstanding			
Basic	57,055	56,072	
Diluted	60,098	58,083	
(1) Stock-based compensation expense included in cost of revenues and operating costs and expenses is as follows:			
Cost of revenues	$ 1,268	$ 1,169	
Research and development	2,854	2,835	
Sales and marketing	2,644	1,175	
General and administrative	6,389	5,142	
Total stock-based compensation	$ 13,155	$ 10,321	
(2) Amortization of intangible assets included in cost of revenues and operating costs and expenses is as follows:			
Cost of revenues	$ 1,094	$ 454	
Sales and marketing	120	83	
Total amortization of intangible assets	$ 1,214	$ 537	

(3) The condensed consolidated statement of operations for the three months ended March 31, 2017 has been recast to reflect the Company's January 1, 2018 full retrospective adoption of ASC 606. For additional details, see Note 1, "Summary of Significant Accounting Policies — Recently Adopted Accounting Pronouncements."

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

MEDIDATA SOLUTIONS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (Unaudited)

	Three Months Ended March 31,		
	2018	2017	
	(Amounts in thousands)		
Net income	$ 10,325	$ 9,980	(1)
Other comprehensive income (loss)			
Foreign currency translation adjustments	1,270	423	
Unrealized (loss) gain on marketable securities	(1,026)	112	
Other comprehensive income	244	535	
Income tax related to unrealized gain or loss on marketable securities	58	(43)	
Other comprehensive income, net of tax	302	492	
Comprehensive income, net of tax	$ 10,627	$ 10,472	(1)

(1) The condensed consolidated statement of comprehensive income for the three months ended March 31, 2017 has been recast to reflect the Company's January 1, 2018 full retrospective adoption of ASC 606. For additional details, see Note 1, "Summary of Significant Accounting Policies — Recently Adopted Accounting Pronouncements."

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

Table of Contents

MEDIDATA SOLUTIONS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS (Unaudited)

	Three Months Ended March 31,		
	2018	2017	
Cash flows from operating activities	(Amounts in thousands)		
Net income	$ 10,325	$ 9,980	(1)
Adjustments to reconcile net income to net cash provided by operating activities			
Amortization of intangible assets and depreciation	7,813	4,476	
Stock-based compensation	13,155	10,321	
Amortization of discounts or premiums on marketable securities	147	413	
Deferred income taxes	818	1,599	(1)
Amortization of debt issuance costs	427	319	
Amortization of debt discount	3,481	3,279	
Provision for doubtful accounts	373	680	
Loss (gain) on fixed asset disposal	96	(2)	
Changes in fair value of contingent consideration	(72)	—	
Changes in operating assets and liabilities:			
Accounts receivable	(23,141)	12,045	
Prepaid commission expense	(5,700)	(1,746)	(1)
Prepaid expenses and other current assets	(658)	(6,771)	(1)
Other assets	125	1,712	
Accounts payable	2,600	130	
Accrued payroll and other compensation	(13,711)	(15,557)	
Accrued expenses and other	(778)	(2,397)	
Deferred revenue	9,440	3,267	(1)
Other long-term liabilities	236	737	
Net cash provided by operating activities	4,976	22,485	
Cash flows from investing activities			
Purchases of furniture, fixtures and equipment	(11,147)	(6,790)	
Purchases of available-for-sale securities	(57,974)	(81,985)	
Proceeds from sale of available-for-sale securities	64,202	80,426	
Acquisition of business, net of cash acquired	—	(8,702)	
Net cash used in investing activities	(4,919)	(17,051)	
Cash flows from financing activities			
Proceeds from exercise of stock options	2,366	2,597	
Proceeds from employee stock purchase plan	3,121	2,090	
Acquisition of treasury stock	(16,614)	(13,617)	
Payment of acquisition-related earn-out	(87)	—	
Payments of credit facility financing costs	(175)	—	
Net cash used in financing activities	(11,389)	(8,930)	
Effect of exchange rate changes on cash, cash equivalents and restricted cash	597	150	
Net decrease in cash, cash equivalents and restricted cash	(10,735)	(3,346)	
Cash, cash equivalents and restricted cash – Beginning of period	242,843	99,279	
Cash, cash equivalents and restricted cash – End of period	$ 232,108	$ 95,933	

(1) The condensed consolidated statement of cash flows for the three months ended March 31, 2017 has been recast to reflect the Company's January 1, 2018 full retrospective adoption of ASC 606. For additional details, see Note 1, "Summary of Significant Accounting Policies — Recently Adopted Accounting Pronouncements."

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

MEDIDATA SOLUTIONS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS, CONTINUED (Unaudited)

	Three Months Ended March 31,	
	2018	2017
Supplemental disclosures of cash flow information:		
Cash paid during the period for:		
Interest	$ 2,200	$ 1,438
Income taxes	$ 1,099	$ 640
Noncash investing activities:		
Furniture, fixtures, and equipment acquired but not yet paid for at period-end	$ 3,901	$ 2,743
Contingent consideration associated with acquisition of business, at fair value	$ —	$ 5,697

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

MEDIDATA SOLUTIONS, INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Unaudited)

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.

Except to the extent updated or described below, the Company's significant accounting policies as of March 31, 2018 are the same as those at December 31, 2017, which are included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017, filed with the Securities and Exchange Commission ("SEC") on February 28, 2018.

Basis of Presentation — The accompanying interim condensed consolidated balance sheets as of March 31, 2018 and December 31, 2017, the condensed consolidated statements of operations for the three months ended March 31, 2018 and 2017, the condensed consolidated statements of comprehensive income for the three months ended March 31, 2018 and 2017, and the condensed consolidated statements of cash flows for the three months ended March 31, 2018 and 2017 are unaudited and have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") and applicable rules and regulations of the SEC for interim financial reporting. Accordingly, certain information and footnote disclosures have been condensed or omitted pursuant to SEC rules that would ordinarily be required by U.S. GAAP for complete financial statements. These unaudited interim condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and accompanying notes thereto for the fiscal year ended December 31, 2017 included in the Company's Annual Report on Form 10-K filed with the SEC on February 28, 2018.

The unaudited interim condensed consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements and, in the opinion of management, reflect all adjustments consisting of normal recurring accruals considered necessary to present fairly the Company's financial position as of March 31, 2018, results of its operations for the three months ended March 31, 2018 and 2017, comprehensive income for the three months ended March 31, 2018 and 2017, and cash flows for the three months ended March 31, 2018 and 2017. The results of operations for the three months ended March 31, 2018 are not necessarily indicative of the results that may be expected for the year ending December 31, 2018.

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. This 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 March 31, 2018 and December 31, 2017, unbilled accounts receivable of $15.2 million and $12.5 million, respectively, were included in accounts receivable on the Company's condensed consolidated balance sheets. In general, there is a direct relationship between the Company's accounts receivable balance and its transaction volume.

Revenue Recognition — Revenues are recognized when control of the promised goods or services are transferred to a customer, in an amount that reflects the consideration that the Company expects to receive in exchange for those goods or services. The Company derives its revenues from two sources: (1) subscription revenues, which are comprised of subscription fees from customers utilizing 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 applies the following five steps in order to determine the appropriate amount of revenue to be recognized as it fulfills its obligations under each of its agreements:

- identify the contract with a customer;
- identify the performance obligations in the contract;
- determine the transaction price;
- allocate the transaction price to performance obligations in the contract; and
- recognize revenue as the performance obligation is satisfied.

For further information, see Note 2, "Revenues," to the condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

Subscription

The Company derives its subscription revenues from multi-study and single-study arrangements that grant the customer the right to utilize 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.

Subscription services are transferred to customers over time. The Company uses the passage of time as its measurement method, as control of the services is simultaneously transferred to and used by the customer throughout the contractual term. As a result, revenue for subscription services is recognized ratably over the term of the agreement, which is generally aligned with the dates during which the customer has access to the Company's cloud-based applications.

Fees for subscription services are generally invoiced in advance installments and typically have payment terms of net 30 or net 45 days.

Professional Services

The Company also makes available a range of professional services, including implementation, enablement, training, and strategic consulting. Professional services do not result in significant alterations to the underlying solutions. Professional services engagements involving implementation and training tend to be shorter term in nature (expected durations of less than one year), while enablement and consulting type engagements are longer in term (expected durations of one to five years).

Professional services are transferred to customers over time. For fixed price arrangements, the Company measures its progress in transferring services to a customer using a proportional performance method. The proportional performance method is reflective of the variable rates at which services are transferred to the customer, and results in recognition of revenue that is consistent with the services provided to date. For time and materials contracts, the Company recognizes revenue as services are rendered.

Fees for professional services are generally invoiced either in milestone installments based on work performed or, for time and materials based arrangements, as services are rendered, and typically have payment terms of net 30 or net 45 days.

Performance Obligations

The Company enters into contracts that contain multiple distinct performance obligations, combining a cloud-based technology subscription with various professional services.

The Company has determined that its subscriptions and professional services are distinct performance obligations because both can be and are sold by the Company on a standalone basis, and because other vendors sell similar technologies and services on a standalone basis.

For each performance obligation identified, the Company estimates the standalone selling price, which represents the price at which the Company would sell the good or service separately. If the standalone selling price is not observable through past transactions, the Company estimates the standalone selling price, taking into account available information such as market conditions, review historical pricing data, and internal pricing guidelines related to the performance obligations. The Company then allocates the transaction price among those obligations based on the estimation of standalone selling price. Transaction prices for the Company's contracts may include both fixed and variable consideration, but do not contain significant financing components or noncash consideration.

Cost to Obtain and Fulfill a Contract

The Company capitalizes commission expenses paid to internal sales personnel that are incremental to obtaining customer contracts. Costs related to nonrenewable contracts are deferred and amortized on a straight-line basis over the duration of the contractual term. Costs related to renewable contracts are deferred and amortized on a straight-line basis over a period equal to twice the contractual term, which the Company deems to be the expected period of benefit for these costs. In developing this estimate, the Company considered its historical renewal rates and customer retention rates, as well as technology development life cycles and other industry factors. The Company defers these costs in prepaid commission expense and other current assets, net of any long term portion included in other noncurrent assets in the Company's condensed consolidated balance sheet. These costs are periodically reviewed for impairment.

Income Taxes — The Company’s interim period provision for income taxes is computed by using an estimate of the annual effective tax rate, adjusted for discrete items taken into account in the relevant period, if any. Each quarter, the annual effective income tax rate is recomputed and if there are material changes in the estimate, a cumulative adjustment is made.

Recently Adopted Accounting Pronouncements — In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, *Revenue from Contracts with Customers*, which supersedes the existing accounting standards for revenue recognition in Accounting Standards Codification ("ASC") 605, 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 also creates a new subtopic under ASC 340, *Other Assets and Deferred Costs*, which discusses the deferral of incremental costs of obtaining a contract with a customer, including the period of amortization of such costs. The Company adopted ASU No. 2014-09 on January 1, 2018, using the full retrospective method. Refer to Note 2, "Revenues," for related disclosures.

MEDIDATA SOLUTIONS, INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Unaudited)

The following tables summarize the impact of adoption of ASC 606 on the Company's condensed consolidated financial statements as of December 31, 2017 and for the three months ended March 31, 2017 (in thousands, except per share data):

Condensed Consolidated Balance Sheet

	As of December 31, 2017		
	As Reported Under ASC 605	Impact of ASC 606 Adoption	As Adjusted
Assets			
Current assets:			
Prepaid commission expense	$ 5,352	$ 7,052	$ 12,404
Prepaid expenses and other current assets	37,287	(3,651)	33,636
Noncurrent assets			
Deferred income taxes – long-term	40,847	(5,058)	35,789
Other assets	29,979	16,776	46,755
Liabilities			
Current liabilities:			
Deferred revenue	77,434	(59)	77,375
Stockholders' equity:			
Retained earnings	$ 146,739	$ 15,178	$ 161,917

Condensed Consolidated Statement of Operations

	Three Months Ended March 31, 2017		
	As Reported Under ASC 605	Impact of ASC 606 Adoption	As Adjusted
Revenues			
Subscription	$ 107,070	$ 823	$ 107,893
Professional services	19,751	—	19,751
Total revenues	126,821	823	127,644
Operating costs and expenses			
Sales and marketing	30,109	117	30,226
Operating income	12,173	706	12,879
Provision for income taxes	(501)	244	(257)
Net income	$ 9,518	$ 462	$ 9,980
Earnings per share			
Basic	$ 0.17	$ 0.01	$ 0.18
Diluted	$ 0.16	$ 0.01	$ 0.17

The adoption has no cash flow impact.

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 adopted ASU No. 2016-01 on January 1, 2018, and the adoption did not have a material impact on its condensed consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, *Cash Flows - Classification of Certain Cash Receipts and Cash Payments*, which addresses the diversity in practice around presentation of certain cash receipts and payments in the statement of cash flows. ASU No. 2016-15 is effective for annual periods beginning after December 15, 2017, and interim periods within those annual periods. The Company adopted ASU No. 2016-15 on January 1, 2018, and the adoption did not have a material impact on its condensed consolidated financial statements.

In January 2017, the FASB issued ASU No. 2017-01, *Clarifying the Definition of a Business*, which provides a more specific definition of a business than was afforded under previous guidance. The definition of a business affects many areas of accounting, including acquisitions, disposals, goodwill, and consolidation. ASU No. 2017-01 is effective for annual periods beginning after December 15, 2017, including interim periods within those annual periods. The Company adopted ASU No. 2017-01 on January 1, 2018, and the adoption had no impact on its condensed consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, *Scope of Modification Accounting*, which clarifies when a change in the terms or conditions of a share-based payment award should be accounted for as a modification. ASU No. 2017-09 is effective for annual periods beginning after December 15, 2017, including interim periods within those annual periods. The Company adopted ASU No. 2017-09 on January 1, 2018, and the adoption did not have a material impact on its condensed consolidated financial statements.

Recently Issued Accounting Pronouncements — There have been no changes in the expected dates of adoption or estimated effects on the Company's consolidated financial statements of recently issued accounting pronouncements from those disclosed in the Company's Annual Report on Form 10-K, except as described below.

In February 2018, the FASB issued ASU No. 2018-02, *Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income,* which permits companies to reclassify disproportionate tax effects in accumulated other comprehensive income caused by the U.S. Tax Cuts and Jobs Act enacted in December 2017 to retained earnings. ASU No. 2018-02 is effective for annual reporting periods beginning after December 15, 2018, and interim periods within those annual periods. The Company will adopt ASU No. 2018-02 on January 1, 2019, and does not expect the adoption to have a material impact on its condensed consolidated financial statements.

2. REVENUES

Disaggregation of Revenue

The following table provides information about the Company's revenues, disaggregated by geographical market and revenue type, for the three months ended March 31, 2018 and 2017 (in thousands):

	Three Months Ended March 31,					
	2018			2017		
	Subscription	Professional Services	Total	Subscription	Professional Services	Total
Revenues:						
United States	$ 96,165	$ 15,984	$ 112,149	$ 84,339	$ 13,908	$ 98,247
Rest of Americas	1,115	376	1,491	30	25	55
Total Americas	97,280	16,360	113,640	84,369	13,933	98,302
Japan	8,112	1,794	9,906	6,649	1,807	8,456
Rest of Asia Pacific	3,701	977	4,678	2,349	946	3,295
Total Asia Pacific	11,813	2,771	14,584	8,998	2,753	11,751
Europe, Middle East and Africa	17,726	3,248	20,974	14,526	3,065	17,591
Total	$ 126,819	$ 22,379	$ 149,198	$ 107,893	$ 19,751	$ 127,644

The above table presents revenues according to the region in which they were generated, separately displaying those individual countries that, in any of the periods presented, constituted 5% or more or of total revenues. All of the Company's performance obligations are transferred to customers over time; as a result, no disaggregation of revenues by timing of revenue recognition is provided.

Contract Balances

The following table provides information about changes in the Company's deferred revenue balances during the three months ended March 31, 2018 and 2017 (in thousands):

	Deferred Revenue	
	2018	2017
Balance as of January 1	$ 82,631	$ 75,850
Revenue recognized that was included in deferred revenue at the beginning of the period	(63,720)	(58,834)
Revenue recognized that was not included in deferred revenue at the beginning of the period	(85,275)	(68,448)
Increases due to invoicing	155,416	131,612
Other	3,019	(1,038)
Balance as of March 31	$ 92,071	$ 79,142

Aside from the accounts receivable presented on its condensed consolidated balance sheets, the Company did not have any material contract assets for any of the periods presented.

Transaction Price Allocated to the Remaining Performance Obligations

As of March 31, 2018, the Company has unsatisfied performance obligations associated with subscription services that extend through 2030. The total multi-year transaction price allocated to unsatisfied subscription performance obligations, which the Company also refers to as total multi-year subscription backlog, is approximately $1 billion, representing the future contract value of outstanding multi-study and single study arrangements, billed and unbilled as of March 31, 2018. Of this amount, approximately $357 million, $323 million, and $344 million are expected to be recognized in 2018, 2019, and thereafter, respectively.

As of March 31, 2018, the total transaction price allocated to unsatisfied professional services performance obligations is immaterial.

Costs to Obtain and Fulfill a Contract with a Customer

Sales commissions earned are considered incremental and recoverable costs of obtaining a contract with a customer and therefore are capitalized as contract costs. Capitalized contract costs were $44.1 million and $36.9 million as of March 31, 2018 and December 31, 2017, respectively. Amortization of capitalized contract costs was $4.9 million and $6.4 million for the three months ended March 31, 2018 and 2017, respectively. There have been no impairment losses related to capitalized contract costs.

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.

Treasury Stock — From time to time, the Company grants nonvested restricted stock awards ("RSAs"), restricted stock units ("RSUs"), and performance-based restricted stock units ("PBRSUs") to its employees pursuant to the terms of its 2017 Long-Term Incentive Plan ("2017 Plan") and formerly pursuant to the terms of its Second Amended and Restated 2009 Long-Term Incentive Plan ("2009 Plan”). Under the provisions of the 2017 Plan and 2009 Plan, unless otherwise elected, participants fulfill their related income tax obligation by having shares withheld at the time of vesting. On the date of vesting, the Company divides the participant's income tax withholding obligation in 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.

During the three months ended March 31, 2018 and 2017, the Company withheld 248,831 shares at an average price of $66.77 and 242,998 shares at an average price of $56.04, respectively, in connection with the vesting of equity awards.

Nonvested restricted stock awards forfeited by plan participants are transferred to the Company's treasury stock at par. During the three months ended March 31, 2018 and 2017, 42,176 and 89,386 forfeited shares, respectively, were transferred to treasury stock at their par value of $0.01.

4. INVESTMENTS

Marketable Securities

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 condensed consolidated balance sheets.

The following tables provide the Company’s marketable securities by security type as of March 31, 2018 and December 31, 2017 (in thousands):

	As of March 31, 2018			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Commercial paper and corporate bonds	$ 386,105	$ —	$ (2,343)	$ 383,762
U.S. government agency debt securities	35,015	—	(171)	34,844
Total	$ 421,120	$ —	$ (2,514)	$ 418,606

	As of December 31, 2017			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Commercial paper and corporate bonds	$ 392,481	$ —	$ (1,334)	$ 391,147
U.S. government agency debt securities	35,016	—	(155)	34,861
Total	$ 427,497	$ —	$ (1,489)	$ 426,008

Contractual maturities of the Company’s marketable securities as of March 31, 2018 and December 31, 2017 are summarized as follows (in thousands):

	As of March 31, 2018		As of December 31, 2017	
	Cost	Estimated Fair Value	Cost	Estimated Fair Value
Due in one year or less	$ 297,996	$ 296,816	$ 247,495	$ 246,967
Due in one to five years	123,124	121,790	180,002	179,041
Total	$ 421,120	$ 418,606	$ 427,497	$ 426,008

At March 31, 2018, the Company had $2.5 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. Investments that are impaired are those that are considered to have losses that are other-than-temporary. 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 March 31, 2018 are temporary in nature. Accordingly, the Company did not consider its investments in marketable securities to be other-than-temporarily impaired as of March 31, 2018.

The following tables provide the fair market value and gross unrealized losses of the Company's marketable securities with unrealized losses, aggregated by security type, as of March 31, 2018 and December 31, 2017 (in thousands):

	In Loss Position for Less than 12 Months			
	As of March 31, 2018		As of December 31, 2017	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Commercial paper and corporate bonds	$ 313,381	$ (2,104)	$ 295,224	$ (1,137)
U.S. government agency debt securities	12,911	(105)	18,431	(86)
Total	$ 326,292	$ (2,209)	$ 313,655	$ (1,223)

	In Loss Position for More than 12 Months			
	As of March 31, 2018		As of December 31, 2017	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Commercial paper and corporate bonds	$ 75,277	$ (239)	$ 95,923	$ (197)
U.S. government agency debt securities	21,933	(66)	16,430	(69)
Total	$ 97,210	$ (305)	$ 112,353	$ (266)

During the three months ended March 31, 2018 and 2017, the Company recorded an insignificant amount of net realized gains from the sale of marketable securities.

Other Investments

The Company holds shares of Series Seed Preferred Stock and Series B Preferred Stock of SHYFT Analytics, Inc. ("SHYFT"), purchased via private placements. These investments do not have a readily determinable fair value and are carried at original cost in other assets on the Company's condensed consolidated balance sheets. Their total carrying value was $5.1 million as of March 31, 2018 and December 31, 2017.

The Company holds shares of Series D Preferred Stock of Syapse Inc. ("Syapse") via a private placement. This investment does not have a readily determinable fair value and is carried at original cost in other assets on the Company's condensed consolidated balance sheets. This investment had a carrying value of $3.0 million as of March 31, 2018 and December 31, 2017.

The Company periodically evaluates these investments to determine if impairment charges are required; no impairment charges were recognized during the three months ended March 31, 2018.

5. FAIR VALUE

The following table summarizes, as of March 31, 2018 and December 31, 2017, the Company's financial assets and liabilities that are measured at fair value on a recurring basis, according to the fair value hierarchy described in the significant accounting policies included in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2017 (in thousands):

	As of March 31, 2018				As of December 31, 2017			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Cash	$ 218,176	$ —	$ —	$ 218,176	$ 237,149	$ —	$ —	$ 237,149
Money market funds	20	—	—	20	176	—	—	176
Commercial paper and corporate bonds	—	8,392	—	8,392	—	—	—	—
Total cash and cash equivalents	218,196	8,392	—	226,588	237,325	—	—	237,325
Commercial paper and corporate bonds	—	383,762	—	383,762	—	391,147	—	391,147
U.S. government agency debt securities	—	34,844	—	34,844	—	34,861	—	34,861
Total marketable securities	—	418,606	—	418,606	—	426,008	—	426,008
Total financial assets measured at fair value on a recurring basis	$ 218,196	$ 426,998	$ —	$ 645,194	$ 237,325	$ 426,008	$ —	$ 663,333
Contingent consideration – short-term	$ —	$ —	$ 4,714	$ 4,714	$ —	$ —	$ 3,993	$ 3,993
Contingent consideration – long-term	—	—	1,140	1,140	—	—	2,012	2,012
Total financial liabilities measured at fair value on a recurring basis	$ —	$ —	$ 5,854	$ 5,854	$ —	$ —	$ 6,005	$ 6,005

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 the three months ended March 31, 2018 and 2017, there were no transfers of financial assets between Level 1 and Level 2.

Contingent consideration liabilities associated with earn-out payments related to the Company's February 2017 acquisition of CHITA Inc. ("CHITA") are classified as Level 3 in the fair value hierarchy because they rely significantly on inputs that are unobservable in the market. The fair value of portions of contingent consideration related to the achievement of a technical milestone have been estimated using situation-based modeling, which considers the probability-weighted present value of the expected payout amount. The fair value of portions of contingent consideration related to achievement of revenue targets have been estimated using a Monte Carlo simulation to simulate future performance of the acquired business under a risk-neutral framework; significant inputs to the simulation include a risk-adjusted discount rate of 10.2% and revenue volatility of 8.0%. Short-term and long-term contingent consideration are recorded in accrued expenses and other and other long-term liabilities, respectively, on the Company's condensed consolidated balance sheet as of March 31, 2018.

The following table provides a summary of changes in fair value of the Company's Level 3 financial liabilities during the three months ended March 31, 2018 (in thousands):

Balance as of January 1, 2018	$	6,005
Due to sellers		(79)
Fair value adjustment (included in general and administrative expenses)		(72)
Balance as of March 31, 2018	$	5,854

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

6. ACQUISITION

The Company did not make any acquisitions during the three months ended March 31, 2018.

During the three months ended March 31, 2017 the Company acquired all outstanding equity interests in CHITA and its parent company, Daybreak Information Technology Holdings Limited, adding regulated content and standard operating procedure management to the Company's portfolio of offerings. Total purchase consideration of $14.7 million included contingent consideration that had a fair value of $5.7 million at closing.

7. GOODWILL AND INTANGIBLE ASSETS

The change in the carrying amount of goodwill during the three months ended March 31, 2018 was as follows (in thousands):

Balance as of January 1, 2018	$	47,435
Foreign currency translation adjustments		162
Balance as of March 31, 2018	$	47,597

Total intangible assets are summarized as follows (in thousands):

	As of March 31, 2018			As of December 31, 2017		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Developed technology	$ 24,491	$ (10,031)	$ 14,460	$ 24,436	$ (8,883)	$ 15,553
Customer relationships	4,504	(2,714)	1,790	4,489	(2,595)	1,894
Non-competition agreements	260	(136)	124	260	(120)	140
Total	$ 29,255	$ (12,881)	$ 16,374	$ 29,185	$ (11,598)	$ 17,587

Future amortization of intangible assets is expected to be as follows (in thousands):

Remainder of 2018	$	3,574
2019		4,530
2020		3,787
2021		3,517
2022		921
2023		45
Thereafter		—
Total	$	16,374

8. DEBT

1.00% Convertible Senior Notes

The Company's 1.00% convertible senior notes (the "Notes"), issued in August 2013, consisted of the following components as of March 31, 2018 and December 31, 2017 (in thousands):

	March 31, 2018	December 31, 2017
Equity component, net of equity issue costs	$ 60,222	$ 60,222
Liability component:		
Principal	287,500	287,500
Less: unamortized debt discount	(5,180)	(8,661)
Less: unamortized debt issuance costs	(426)	(745)
Net carrying amount	$ 281,894	$ 278,094

As of March 31, 2018 and December 31, 2017, the estimated fair value of the Notes was $322.8 million and $336.4 million, respectively. The Company considers this disclosure 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 active market.

The Notes mature on August 1, 2018 unless earlier repurchased or converted. 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; as such, the Notes are convertible as of March 31, 2018. Based on the closing price of the Company's common stock as of March 31, 2018 of $62.81, the if-converted value of the Notes exceeded their face value by $23.6 million. Upon conversion, the Company has elected to pay cash for the principal amount of the Notes and to deliver shares of common stock for any amounts in excess of principal. As of March 31, 2018, the remaining life of the Notes is approximately 4 months, and the Notes are classified as current liabilities on the Company's condensed consolidated balance sheet.

The following table sets forth total interest expense recognized related to the Notes for the three months ended March 31, 2018 and 2017 (in thousands except percentages):

	Three Months Ended March 31,	
	2018	2017
Contractual interest expense	$ 719	$ 719
Amortization of debt issuance costs	319	319
Amortization of debt discount	3,481	3,279
Total	$ 4,519	$ 4,317
Effective interest rate	6.5%	6.5%

Credit Facility

The Company's credit facility agreement (the "Credit Facility"), entered into in December 2017, consists of revolving commitments with a maximum borrowing amount of $400.0 million (the "Revolver"), currently undrawn, and term loans (the "Term Loans") in an aggregate principal amount of $100.0 million. The repayment terms of the Term Loans provide for monthly interest payments and quarterly principal payments, with a maturity date of December 2022.

The Credit Facility consisted of the following components as of March 31, 2018 and December 31, 2017 (in thousands):

	March 31, 2018	December 31, 2017
Term Loans	$ 100,000	$ 100,000
Less: unamortized debt issuance costs	(2,051)	(2,159)
Net carrying amount (1)	$ 97,949	$ 97,841

(1) Of the total carrying amount of the Term Loans, $4.9 million and $5.0 million were included in accrued expenses and other on the Company's condensed consolidated balance sheets as of March 31, 2018 and December 31, 2017, respectively.

For the three months ended March 31, 2018, the contractual interest rate on the Term Loans was 3.229%, and there was a 0.200% commitment fee on the undrawn Revolver. The following table sets forth total interest expense recognized related to the the Credit Facility for the three months ended March 31, 2018 (in thousands):

	Three Months Ended March 31, 2018
Contractual interest expense on Term Loans	$ 748
Amortization of debt issuance costs	108
Unused commitment fee on Revolver	200
Total	$ 1,056

As of March 31, 2018 the remaining term of the Credit Facility is approximately 57 months. The Company was in compliance with all financial covenants related to the Credit Facility as of March 31, 2018.

9. STOCK-BASED COMPENSATION

For the three months ended March 31, 2018 and 2017, the components of stock-based compensation expense were as follows (in thousands):

	Three Months Ended March 31,	
	2018	2017
Stock options	$ 572	$ 917
Restricted stock awards and units	7,867	6,919
Performance-based restricted stock units	3,227	1,628
Employee stock purchase plan	1,548	928
Total stock-based compensation (1)	$ 13,214	$ 10,392

(1) Total stock-based compensation is presented in this table on a gross basis, consistent with the additional paid-in capital impact recorded in stockholders' equity. On the Company's condensed consolidated statements of operations and condensed consolidated statements of cash flows, stock-based compensation is presented net of foreign exchange impact and capitalization of eligible software development-related costs.

Stock Options

The fair value of each stock option granted during the three months ended March 31, 2018 and 2017 was estimated on the date of grant using a Black-Scholes pricing model with the following weighted-average assumptions:

	Three Months Ended March 31,	
	2018	2017
Expected volatility	—%	44%
Expected life	0 years	6 years
Risk-free interest rate	—%	2.09%
Dividend yield	—	—

The following table summarizes the status of the Company's stock options as of March 31, 2018, and changes during the three months 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, 2018	1,511	$22.72		
Granted	—	—		
Exercised	(144)	16.48		
Forfeited	(16)	35.21		
Expired	—	—		
Outstanding at March 31, 2018	1,351	$23.24	4.03	$53,804
Exercisable at March 31, 2018	1,168	$18.55	3.52	$51,711
Vested and expected to vest at March 31, 2018	1,338	$22.88	4.00	$53,682

No stock options were granted during the three months ended March 31, 2018. The weighted-average grant-date fair value of stock options granted during the three months ended March 31, 2017 was $25.33. The total intrinsic value of stock options exercised during the three months ended March 31, 2018 and 2017 was $7.6 million and $4.0 million, respectively.

As of March 31, 2018, there was $3.8 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 2.27 years.

Restricted Stock Awards and Units

The following table summarizes the status of the Company's nonvested time-based RSAs and RSUs as of March 31, 2018, and changes during the three months then ended (in thousands, except per share data):

	Number of Shares	Weighted-Average Grant-Date Fair Value
Nonvested at January 1, 2018	1,754	$48.45
Granted	611	67.44
Vested	(476)	45.70
Forfeited	(44)	48.69
Nonvested at March 31, 2018	1,845	$55.44

The total fair value of RSAs and RSUs vested during the three months ended March 31, 2018 and 2017 was $31.6 million and $26.3 million, respectively.

As of March 31, 2018, there was $90.3 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 2.77 years.

Performance-Based Restricted Stock Units

During the three months ended March 31, 2018, the Company granted: (1) 116 thousand PBRSUs ("2018 TSR PBRSUs") with market conditions based on the Company's total stockholder return ("TSR") relative to that of the Russell 2000 Index over the three-year period ending December 31, 2020, vesting in full in three years with the number of shares ultimately earned ranging from zero to 200% of the target number of shares; (2) 117 thousand PBRSUs ("2018 Net Income PBRSUs") with performance conditions based on the compound annual growth rate of net income over the three-year period ending December 31, 2020, vesting in full in three years with the number of shares ultimately earned ranging from zero to 200% of the target number of shares. The Company also granted an immaterial number of other PBRSUs with performance conditions based on achievement of certain individual and team objectives.

During the three months ended March 31, 2017, the Company granted: (1) 132 thousand PBRSUs ("2017 TSR PBRSUs") with market conditions based on the Company's TSR relative to that of the Russell 2000 Index over the three-year period ending December 31, 2019, vesting in full in three years with the number of shares ultimately earned ranging from zero to 200% of the target number of shares; (2) 132 thousand PBRSUs ("2017 Net Income PBRSUs") with performance conditions based on the compound annual growth rate of net income over the three-year period ending December 31, 2019, vesting in full in three years with the number of shares ultimately earned ranging from zero to 200% of the target number of shares.

The fair value of PBRSUs with market conditions granted during the three months ended March 31, 2018 and 2017 was estimated as of the date of grant using a Monte Carlo valuation model with the following weighted average assumptions:

	2018 TSR PBRSUs	2017 TSR PBRSUs
Expected volatility - Medidata	37%	42%
Expected volatility - comparison index	42%	43%
Expected life	2.86 years	2.85 years
Risk-free interest rate	2.36%	1.40%
Dividend yield	—	—

The following table summarizes the status of the Company's PBRSUs based upon expected performance as of March 31, 2018, and changes during the three months then ended (in thousands, except per share data):

	Net Income	TSR	Other	Total Number of Shares	Weighted-Average Grant Date Fair Value
Nonvested at January 1, 2018	110	613	13	736	$ 62.96
Granted (based on performance at 100% of targeted levels)	117	116	1	234	85.63
Adjustment related to expected performance	—	33	12	45	69.13
Vested	—	(120)	—	(120)	69.92
Forfeited	—	—	—	—	—
Nonvested at March 31, 2018	227	642	26	895	$ 68.26

The total fair value of PBRSUs vested during the three months ended March 31, 2018 and 2017 was $8.1 million and $5.1 million, respectively.

As of March 31, 2018, there was $33.3 million in unrecognized compensation cost related to all nonvested PBRSUs. This cost is expected to be recognized over a weighted-average remaining period of 1.96 years.

Employee Stock Purchase Plan

The fair value of shares granted under the Company's employee stock purchase plan ("ESPP") was estimated using a Black-Scholes pricing model with the following weighted-average assumptions:

	Three Months Ended March 31,	
	2018	2017
Expected volatility	37%	40%
Expected life	1.69 years	1.51 years
Risk-free interest rate	1.10%	0.63%
Dividend yield	—	—

No shares were purchased under the ESPP during the three months ended March 31, 2018 and 2017.

As of March 31, 2018, there was $3.8 million in unrecognized compensation cost related to ESPP shares. This cost is expected to be recognized over a weighted-average remaining period of 1.10 years.

Modifications

Aggregate incremental expense associated with modifications to stock options, RSAs and PBRSUs in connection with separation agreements during the three months ended March 31, 2018 and 2017 was $0.2 million and $0.1 million, respectively.

10. ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

The changes in the balances of each component of accumulated other comprehensive loss during the three months ended March 31, 2018 are as follows (in thousands):

	Foreign currency translation adjustments	Unrealized gains (losses) on marketable securities	Total
Balance as of January 1, 2018	$ (2,459)	$ (918)	$ (3,377)
Other comprehensive income	1,270	(968)	302
Balance as of March 31, 2018	$ (1,189)	$ (1,886)	$ (3,075)

For the three months ended March 31, 2018 and 2017, reclassifications of items from accumulated other comprehensive loss to net income were insignificant.

11. 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 will settle the principal amount of the Notes (see Note 8, "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 above principal at the average stock price for the period. During the three months ended March 31, 2017, 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 that period.

A reconciliation of the numerator and denominator of basic earnings per share and diluted earnings per share for the three months ended March 31, 2018 and 2017 is shown in the following table (in thousands, except per share data):

	Three Months Ended March 31,		
	2018	2017	
Numerator			
Net income	$ 10,325	$ 9,980	(1)
Denominator			
Denominator for basic earnings per share:			
Weighted average common shares outstanding	57,055	56,072	
Denominator for diluted earnings per share:			
Dilutive potential common shares:			
Stock options	922	932	
Restricted stock awards and units	743	735	
Performance-based restricted stock units	494	298	
Employee stock purchase plan	250	46	
Convertible senior notes	634	—	
Weighted average common shares outstanding with assumed conversion	60,098	58,083	
Basic earnings per share	$ 0.18	$ 0.18	(1)
Diluted earnings per share	$ 0.17	$ 0.17	(1)

(1) Figures for the three months ended March 31, 2017 have been recast to reflect the Company's January 1, 2018 full retrospective adoption of ASC 606.

Anti-dilutive common stock equivalents excluded from the calculation of diluted earnings per share for the three months ended March 31, 2018 and 2017 are shown in the following table (in thousands, except per share data):

	Three Months Ended March 31,	
	2018	2017
Stock options	94	343
Restricted stock awards and units	263	252
Performance-based restricted stock units	54	157
Employee stock purchase plan	188	365
Total	599	1,117

12. INCOME TAXES

Unrecognized Tax Benefits

The Company's unrecognized tax benefits were approximately $4.1 million as of March 31, 2018, and were unchanged from December 31, 2017.

U.S. Tax Reform

The U.S. Tax Cuts and Jobs Act (the "Tax Act") was enacted on December 22, 2017, is effective January 1, 2018, and introduces significant changes to U.S. income tax law. Due to the timing of the enactment and the complexity involved in applying the provisions of the Tax Act, the Company made a reasonable estimate of the effects and recorded provisional amounts in its financial statements in the fourth quarter of 2017. The Company made immaterial revisions to the provisional amounts during the three months ended March 31, 2018. The Company will continue to interpret the Tax Act and any additional guidance issued by the U.S. Treasury Department, the Internal Revenue Service, and other standard-setting bodies, and may make further adjustments to these provisional amounts in future periods, but no later than twelve months from the date of enactment.

13. COMMITMENTS AND CONTINGENCIES

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.

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 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 sum of the officer’s base salary and target bonus amount (except that such payment for the Company's chief executive officer and president would be two times such sum); (b) continuation of health benefits for one year (except that such continuation for the Company's chief executive officer and president would be for two years); and (c) immediate vesting of remaining unvested equity awards, unless otherwise specified in the equity award agreements.

Wire Transaction Claim — In September 2014, the Company discovered that it had been the victim of a crime involving the fraudulently induced transfer of $4.8 million. The Company filed an insurance claim for its loss, and its insurer, Federal Insurance Co. ("Federal"), denied coverage. The Company commenced legal action, alleging that Federal had wrongly denied coverage. On July 21, 2017, the United States District Court for the Southern District of New York granted the Company's motion for summary judgment, and denied Federal's motion. Federal filed a Notice of Appeal with the United States Court of Appeals for the Second Circuit on August 11, 2017. That appeal is pending.

Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations

This Quarterly Report on Form 10-Q contains “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended ("Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended ("Exchange Act"). 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,” “future,” “intends,” “plans,” “believes,” “estimates,” “appears,” “projects” and similar expressions, as well as statements in the future tense, 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 at the time 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. Important factors that could cause such differences include, but are not limited to the factors discussed under the “Risk Factors” section included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 filed with the Securities and Exchange Commission ("SEC") on February 28, 2018.

The following is a discussion and analysis of our financial condition and results of operations and should be read together with our condensed consolidated financial statements and related notes to condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q and our audited consolidated financial statements and related notes to audited consolidated financial statements included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017.

Overview

Our unified platform, pioneering analytics, and clinical technology expertise power the development of new therapies for over one thousand pharmaceutical companies, biotech and medical device firms, academic medical centers, and contract research organizations around the world. The Medidata Clinical Cloud connects patients, physicians, and life sciences professionals, and companies on the Medidata platform are individually and collaboratively reinventing the way research is done to create smarter, more precise treatments.

First Quarter 2018 Highlights

- Total revenues increased 17% to $149.2 million, compared with $127.6 million in the first quarter of 2017.
- Subscription revenues increased 18% to $126.8 million, compared with $107.9 million in the first quarter of 2017.
- Professional services revenues grew 13% to $22.4 million, compared with $19.8 million in the first quarter of 2017.
- Operating income was $13.3 million, up 3% compared with $12.9 million in the first quarter of 2017.
- Net income was $10.3 million, up 3% compared with $10.0 million in the first quarter of 2017.

Results of Operations

Revenues

Revenues for the three months ended March 31, 2018 and 2017 were as follows:

	Three Months Ended March 31,		
	2018	2017	Change
Revenues:	(amounts in thousands except percentages)		
Subscription	$ 126,819	$ 107,893 (1)	17.5%
Percentage of total revenues	85.0%	84.5%	
Professional services	22,379	19,751	13.3%
Percentage of total revenues	15.0%	15.5%	
Total revenues	$ 149,198	$ 127,644	16.9%

(1) Figures for the three months ended March 31, 2017 have been recast to reflect our January 1, 2018 full retrospective adoption of Accounting Standards Codification ("ASC") 606. For additional details, see Note 1, "Summary of Significant Accounting Policies — Recently Adopted Accounting Pronouncements" to the condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

Year-over-year growth in subscription revenues was driven by sales growth among existing customers, both in the form of additional project subscriptions (which we refer to as "density") and increased usage under existing subscriptions (which we refer to as "intensity"), as well as new customer wins. Our electronic data capture, data analytics, and imaging solutions were strong contributors. As of March 31, 2018, we had remaining subscription backlog of $356 million, representing the future contract value of outstanding arrangements, billed and unbilled, to be recognized during the remainder of 2018, excluding renewals. This reflects an increase of 28% compared with remaining backlog of $278 million at March 31, 2017.

Year-over-year growth in professional services revenues was driven by strong demand from new and existing customers implementing our platform, data analytics, and strategic services.

Cost of Revenues

Cost of revenues for the three months ended March 31, 2018 and 2017 was as follows:

	Three Months Ended March 31,		
	2018	2017	Change
Cost of revenues:	(amounts in thousands except percentages)		
Subscription	$ 20,341	$ 17,129	18.8%
Percentage of total revenues	13.6%	13.4%	
Professional services	15,961	13,485	18.4%
Percentage of total revenues	10.7%	10.6%	
Total cost of revenues	$ 36,302	$ 30,614	18.6%
Percentage of total revenues	24.3%	24.0%	
Gross profit	$ 112,896	$ 97,030	
Gross margin	75.7%	76.0%	
Subscription margin	84.0%	84.1%	
Professional services margin	28.7%	31.7%	

Year-over-year growth in cost of subscription revenues was primarily driven by an increase in depreciation and amortization of $2.9 million associated with internally developed technology assets, acquired technology assets, and purchased hosting equipment. Expenses were also impacted by increased expenses from software-related contracts with outside vendors and by higher personnel costs resulting from headcount additions to support our business growth.

Year-over-year growth in cost of professional fees was primarily driven by an increase in personnel costs of $2.5 million, associated with a 24% year-over-year headcount increase to support strong customer demand and expanding skill requirements for professional services.

Overall gross margin decreased to 75.7% for the three months ended March 31, 2018 compared with 76.0% for the three months ended March 31, 2017, driven predominantly by a lower professional services margin reflecting the aforementioned skill set investments.

Operating Costs and Expenses

Operating costs and expenses for the three months ended March 31, 2018 and 2017 were as follows:

	Three Months Ended March 31,		
	2018	2017	Change
Operating costs and expenses:	(amounts in thousands except percentages)		
Research and development	$ 37,522	$ 29,937	25.3%
Percentage of total revenues	25.2%	23.4%	
Sales and marketing	36,861	30,226 (1)	22.0%
Percentage of total revenues	24.7%	23.7%	
General and administrative	25,187	23,988	5.0%
Percentage of total revenues	16.9%	18.8%	
Total operating costs and expenses	$ 99,570	$ 84,151	18.3%
Percentage of total revenues	66.8%	65.9%	
Operating income	$ 13,326	$ 12,879	3.5%
Operating margin	8.9%	10.1%	

(1) Figures for the three months ended March 31, 2017 have been recast to reflect our January 1, 2018 full retrospective adoption of ASC 606. For additional details, see Note 1, "Summary of Significant Accounting Policies — Recently Adopted Accounting Pronouncements" to the condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

The year-over-year growth in research and development expenses was primarily driven by an increase in personnel costs of $4.7 million, resulting from an 18% year-over-year headcount increase due to our continued hiring of skilled engineering and our 2017 acquisitions. Research and development expenses were also impacted by higher third-party software costs of $1.4 million and increased costs for specialized consultants and outside experts of $1.2 million.

The year-over-year growth in sales and marketing expenses was predominantly driven by an increase in personnel costs of $6.4 million, resulting from a 20% year-over-year headcount increase to expand our global sales organization and partner team.

The year-over-year increase in general and administrative expenses was primarily driven by an increase in personnel costs of $1.5 million resulting from an 8% year-over-year headcount increase, partially offset by decreased legal and professional fees.

Income Taxes

Provision for income taxes for the three months ended March 31, 2018 and 2017 was as follows:

	Three Months Ended March 31,	
	2018	2017
	(amounts in thousands)	
Provision for income taxes	$ (582)	$ (257) (1)

(1) Figures for the three months ended March 31, 2017 have been recast to reflect our January 1, 2018 full retrospective adoption of ASC 606. For additional details, see Note 1, "Summary of Significant Accounting Policies — Recently Adopted Accounting Pronouncements" to the condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

The difference between our effective tax rate and the U.S. statutory rate is primarily due to the relative mix of pre-tax income subject to tax in various jurisdictions, state taxes, share-based compensation, and U.S. tax credits and incentives. The benefits from U.S. credits and incentives will likely continue to have a favorable impact on our overall effective tax rate in the future. Stock-based compensation will also continue to have an impact on our effective tax rate which may or may not be favorable.

Our quarterly tax provision and quarterly estimate of the annual effective tax rate are subject to significant variation due to several factors, including variability in accuracy of predictions of pre-tax book and taxable income or loss, the mix of jurisdictions to which they relate, and changes in tax law in the jurisdictions in which we conduct business.

The U.S. Tax Cuts and Jobs Act (the “Tax Act”) was enacted in December 2017, and introduced significant changes to U.S. income tax law, including, among other things, reducing the tax rate from 35% to 21% effective 2018. Due to the timing of the enactment and the complexity involved in applying the provisions of the Tax Act, we made a reasonable estimate of the effects of the new law and recorded a provisional net charge of $4.0 million in the fourth quarter of 2017 in accordance with Staff Accounting Bulletin ("SAB") No. 118. We have continued to interpret the Tax Act and, given recent and anticipated guidance from the U.S

Treasury Department, the Internal Revenue Service, and other standard-setting bodies, our provisional charge may be adjusted during 2018, with the expectation that it will be finalized no later than the fourth quarter of 2018, as provided for in SAB No. 118. Other provisions of the Tax Act that impact future tax years are still being assessed.

Critical Accounting Estimates

Our condensed consolidated 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. These estimates inherently involve levels of subjectivity and judgment and may have a material impact on our financial condition or results of operations. Accordingly, actual results could differ from those estimates. Except as described below, our critical accounting estimates as of March 31, 2018 are the same as those at December 31, 2017, which are included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017. Also see Note 1, "Summary of Significant Accounting Policies," to the condensed consolidated financial statements included in this Quarterly Report on Form 10-Q, which discusses our significant accounting policies.

Revenue Recognition

We recognize revenue when control of promised goods or services is transferred to customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services. To determine the amount revenue to be recognized, we apply the following five steps:

- identify the contract with a customer;
- identify the performance obligations in the contract;
- determine the transaction price;
- allocate the transaction price to performance obligations in the contract; and
- recognize revenue as the performance obligation is satisfied.

The application of these steps is inherently subjective.

With regard to identification of contracts, contract modifications are common in our our business, and we exercise judgment in determining whether each of those modifications constitutes a separate contract, a cancellation of an old and execution of a new contract, or the continuation of a single performance obligation.

To identify the performance obligations within a contract, we must exercise judgment with regard to whether the promises within the contract are capable of being distinct and are separately identifiable from other promises in the contract.

With regard to determination of transaction price, although most of our contracts state a fixed price, from time to time, contracts may include variable consideration; in these cases, we are required to estimate the amount of consideration we ultimately expect to be entitled to, based upon factors such as our historical experience and our assessment of the probability of a range of outcomes.

When allocating the transaction price to performance obligations, we rely on a determination of standalone selling price. If standalone selling price is not observable, it must be estimated. We most commonly estimate standalone selling price using an adjusted market assessment approach that relies on a range of historical selling prices at which that deliverable was sold to other customers we deem to be economically similar.

With regard to satisfaction of performance obligations, for professional services arrangements that bear a fixed price, we measure our delivery progress using a proportional performance method, which relies on our estimate of the total number of hours that will be required to fully satisfy the obligation.

Effects of Recently Issued Accounting Pronouncements on Current and Future Trends

Refer to Note 1, "Summary of Significant Accounting Policies — Recently Issued Accounting Pronouncements," to the condensed consolidated financial statements included in this Quarterly Report on Form 10-Q. No other recently issued accounting pronouncements have had or are expected to have a material impact on our current or future trends.

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 March 31, 2018 and December 31, 2017, and for the three months ended March 31, 2018 and 2017 (in thousands):

	March 31, 2018	December 31, 2017
Cash, cash equivalents, and marketable securities	$ 645,194	$ 663,333
Furniture, fixtures and equipment, net	92,905	88,091
1.00% convertible senior notes, net	281,894	278,094
Term loan, net (including current maturities)	97,949	97,841

	Three Months Ended March 31,	
	2018	2017
Cash provided by operating activities	$ 4,976	$ 22,485
Cash used in investing activities	(4,919)	(17,051)
Cash used in financing activities	(11,389)	(8,930)

Cash, Cash Equivalents, and Marketable Securities

For the three months ended March 31, 2018, cash provided by operating activities of $5.0 million was driven by strong customer collections, partially offset by operating expenditures and cash interest expense on our 1.00% convertible senior notes. Cash used in investing activities of $4.9 million consisted of capital expenditures of $11.1 million partially offset by net sales of marketable securities of $6.2 million. Cash used in financing activities of $11.4 million resulted primarily from the acquisition of $16.6 million of treasury stock in connection with equity plan participant tax withholdings upon vesting and $0.2 million in payments of credit facility financing costs, partially offset by equity plan proceeds of $5.5 million.

For the three months ended March 31, 2017, cash provided by operating activities of $22.5 million was driven by strong customer collections, partially offset by operating expenditures and cash interest expense on our 1.00% convertible senior notes. Cash used in investing activities of $17.1 million consisted of a net payment of $8.7 million to acquire CHITA Inc. ("CHITA"), cash payments for capital expenditures of $6.8 million, and net purchases of marketable securities of $1.6 million. Cash used in financing activities of $8.9 million resulted primarily from the acquisition of $13.6 million of treasury stock in connection with equity plan participant tax withholdings upon vesting, partially offset by equity plan proceeds of $4.7 million.

Capital Assets

We acquired $10.7 million in capital assets during the three months ended March 31, 2018, predominantly related to continued enhancements to our existing infrastructure and facilities and capitalization of software development costs. On a cash basis, our capital expenditures during the three months ended March 31, 2018 were $11.1 million and included payments for previously accrued assets. We expect to acquire approximately approximately $30 million in additional capital assets during the remainder of 2018.

Debt

In August 2013, we issued $287.5 million of 1.00% convertible senior notes ("the Notes") which will mature on August 1, 2018 unless earlier repurchased or converted. Upon conversion, we have elected to pay cash for the principal amount of the Notes and to deliver shares of common stock for any amounts in excess of principal. As of March 31, 2018 the Notes are classified as current liabilities on our condensed consolidated balance sheet.

In December 2017, we entered into a credit agreement that provides us with a senior secured first lien credit facility in an aggregate principal amount of $500.0 million, consisting of (a) term loans in an aggregate principal amount of $100.0 million and (b) revolving commitments in an aggregate principal amount of $400.0 million. The credit facility is scheduled to mature on December 21, 2022, with the term loans payable in quarterly installments. We intend to use the net proceeds from our debt 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 8, “Debt,” to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

Contractual Obligations, Commitments and Contingencies

There was no material change in our contractual obligations during the first three months of 2018.

Legal Matters

For a discussion of legal matters, refer to Note 13, "Commitments and Contingencies — Legal Matters," to the condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Interest Rate Sensitivity

We had unrestricted cash and cash equivalents totaling $226.6 million at March 31, 2018. Our cash equivalents are invested principally in commercial paper and corporate bonds. We also had investments in marketable securities, which we classify as available-for-sale securities, totaling $418.6 million at March 31, 2018. Substantially all of our marketable securities are fixed income securities, which primarily consist of high quality commercial paper and corporate bonds. Due to the short duration, laddered maturities, and 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.

Our exposure to interest rate risk mainly relates to current and future borrowings under our credit facility. Based on the $100.0 million of term loans outstanding under our credit facility as of March 31, 2018, the estimated potential impact of a hypothetical 1% increase in interest rate would amount to $0.2 million for the three months ended March 31, 2018.

Exchange Rate Sensitivity

Our non-U.S. operating subsidiaries are located in the United Kingdom, Japan, South Korea, Singapore, China, and Germany. 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 the three months ended March 31, 2018 resulting from a hypothetical 10% adverse change in quoted foreign currency exchange rates amounted to $3.6 million.

We bill our customers primarily in U.S. dollars. The majority of our foreign billings are billed from Medidata Solutions, Inc., a U.S. entity, and are mainly denominated in Euros, British pounds sterling, Australian dollars, and Canadian dollars. Our foreign currency-denominated costs and expenses are mainly incurred by our non-U.S. operating subsidiaries. Accordingly, future changes in currency exchange rates will impact our future operating results. For the three months ended March 31, 2018, 4.5% of our revenues and 17.9% of our expenses were denominated in foreign currencies. Total loss arising from transactions denominated in foreign currencies amounted to $0.2 million for the three months ended March 31, 2018.

Impact of Inflation

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

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As of March 31, 2018, 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 March 31, 2018.

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.

PART II - OTHER INFORMATION

Item 1. Legal Proceedings

See Note 13, "Commitments and Contingencies – Legal Matters," to the condensed consolidated financial statements included in this Quarterly Report on Form 10-Q for a description of current legal proceedings.

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 in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 are those that we believe are the material risks we face. There have been no material changes in our risk factors since our Annual Report on Form 10-K for the fiscal year ended December 31, 2017. Any of those disclosed risk factors 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.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

From time to time, we grant nonvested restricted stock awards, restricted stock units, or performance-based restricted stock units to our employees pursuant to the terms of our 2017 Long-Term Incentive Plan ("2017 Plan") and formerly pursuant to the terms of our Second Amended and Restated 2009 Long-Term Incentive Plan ("2009 Plan"). Under the provisions of the 2017 Plan and 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, we divide the participant's income tax withholding obligation in dollars by the closing price of our common stock and withhold the resulting number of vested shares.

A summary of our repurchases of shares of our common stock for the three months ended March 31, 2018 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
January 1 – January 31, 2018	3,295	$ 65.37	—	—
February 1 – February 28, 2018	242,394	$ 66.82	—	—
March 1 – March 31, 2018	3,142	$ 64.40	—	—
Total	248,831	$ 66.77	—	—

(1) Represents the number of shares acquired as payment by employees of applicable statutory withholding taxes owed upon vesting of restricted stock awards, restricted stock units, or performance-based restricted stock units granted under the 2017 Plan and 2009 Plan.

Item 3. Defaults upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

Exhibit No.	Description
10.1†*	Form of Medidata Solutions, Inc. 2018 Performance-Based Restricted Stock Unit Agreement
31.1*	Certification of CEO pursuant to Rule 13a-14(a) or Rule 15d-14(a) under the Exchange Act
31.2*	Certification of CFO pursuant to Rule 13a-14(a) or Rule 15d-14(a) under the Exchange Act
32.1**	Certification of CEO pursuant to Rules 13a-14(b) or 15d-14(b) under the Exchange Act and 18 U.S.C. 1350
32.2**	Certification of CFO pursuant to Rules 13a-14(b) or 15d-14(b) under the Exchange Act and 18 U.S.C. 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 Extension Presentation Linkbase Document

* Filed herewith.

** Furnished herewith.

† Indicates a management contract or any compensatory plan, contract, or arrangement.

Signature

Pursuant to the requirements 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/ ROUVEN BERGMANN

Rouven Bergmann
Chief Financial Officer (Principal Financial and Principal Accounting Officer)

Date: May 4, 2018

MEDIDATA SOLUTIONS, INC. 2018 PERFORMANCE-BASED RESTRICTED STOCK UNIT AGREEMENT

THIS AGREEMENT is made as of February 20th, 2018, by and between MEDIDATA SOLUTIONS, INC. (the "Company"), and [PARTICIPANT] (the "Participant").

1. Award. In accordance with the Medidata Solutions, Inc. 2017 Long-Term Incentive Plan (the "Plan"), the Company hereby grants to the Participant a target incentive award for a total of [XXX] (the "Target Number") performance-based restricted stock units ("PBRSUs"). Each PBRSU represents a contingent right to receive one share of the Company's common stock (a "Share"). Capitalized terms used but not defined in this Agreement shall have the meanings ascribed to them by the Plan.

2. Certain Defined Terms. The following capitalized terms shall have the meanings set forth below for the purposes of determining the number of PBRSUs earned by the Participant under Section 3 and Exhibits A and B of this Agreement.

(a) "Company TSR" means, the percentage difference (positive or negative) between (i) the Value per Share on January 1, 2018, and (ii) the sum of (A) the Value per Share on the last day of the Performance Period, plus (B) the amount of any dividends (including the cash value of non-cash dividends) paid or payable with respect to such share during such period. For this purpose, dividends will be taken into account on the ex-dividend date.

(b) "Material Acquisition" means (x) any acquisition (including by way of merger or consolidation) of assets comprising all or substantially all of a business or constituting all or substantially all of the common stock of a company that (y) generates revenue greater than seven percent (7%) of the Company's revenue for the full fiscal year prior to the acquisition date.

(c) "Net Income" means, for any period, the net income (or loss) of the Company during such period, calculated on a consolidated basis in accordance with GAAP; provided that there shall be excluded from such net income (to the extent otherwise included therein) the net income (or loss) related to any Material Acquisition of the Company.

(d) "Net Income Performance Percentage" means the percentage determined under the table set forth in Exhibit B, based upon the Company's Net Income attainment for the year ending December 31, 2020.

(e) "Net Income Target Number" means 50% of the Target Number.

(f) "Performance Period" means the period starting on January 1, 2018 and ending on December 31, 2020.

(g) "Russell Index TSR" means the percentage difference (positive or negative) between (i) the Value per share of the most widely publicly traded class of stock of each company in the Russell 2000 Index on January 1, 2018, and (ii) the sum of (A) the Value per share of such stock on the last day of the Performance Period, plus (B) the amount of any dividends (including the cash value of non-cash dividends) paid or payable with respect to such share during such period. For this purpose, dividends will be taken into account on the ex-dividend date.

(h) "TSR Performance Percentage" means the percentage determined under the table set forth in Exhibit A, based upon the difference (positive or negative) between the Company TSR and the 50th percentile of the Russell Index TSRs during the Performance Period.

(i) "TSR Target Number" means 50% of the Target Number.

(j) "Value" means, with respect to the stock of either the Company or a company in the Russell 2000 Index: (i) as of January 1, 2018, the average closing price per share for the preceding thirty trading days; and (ii) as of the last day of the Performance Period, the average closing price per share for the last thirty trading days of such Performance Period.

3. Earning of PBRSUs. The Participant will earn a number of PBRSUs with 50% of the PBRSUs earned based on TSR Performance and 50% of the PBRSUs earned based on Net Income Performance. The number of PBRSUs earned for TSR Performance shall be equal to the product of (i) the TSR Performance Percentage determined under Exhibit A (which may range from 0% to 200%), multiplied by (ii) the Participant's TSR Target Number. The number of PBRSUs earned for Net Income Performance shall be equal to the product of (i) the Net Income Performance Percentage determined under Exhibit B (which may range from 0% to 200%), multiplied by (ii) the Participant's Net Income Target Number.

The number of PBRSUs (if any) earned by the Participant will be determined as soon as practicable after the end of the Performance Period by the Compensation Committee of the Company's Board of Directors (the "Committee"), acting in accordance with this Agreement (including Exhibits A and B) and the Plan. All such determinations will be evidenced in writing by the Committee and will be final and binding on the Company, the Participant and any other interested persons. PBRSUs earned by the Participant under this Agreement will be settled in the form of Shares and/or cash in accordance with Section 5 below.

4. Termination of Employment During the Performance Period; Effect of a Sale Event.

(a) General. If the Participant's employment terminates during the Performance Period, then, except as otherwise specified in this Section 4, the Participant will earn no PBRSUs, and this Agreement will thereupon terminate and be of no further force or effect. For the purposes of this Agreement, the Participant's employment will be considered terminated if (and only if) the Participant is no longer employed by or providing services to the Company or any of its subsidiaries.

(b) Termination Due to Death or Disability. If, prior to the end of the Performance Period, the Participant's employment terminates by reason of the Participant's death or the Company terminates the Participant's employment by reason of "Disability" (as defined below), then the Participant will be deemed to have earned a pro-rata portion of the number of PBRSUs, if any, that the Participant would have earned under this Agreement for such Performance Period (including, if applicable, pursuant to Section 4(c) below) if the Participant's employment had continued through the end of the Performance Period, based upon the ratio of (i) the number of full months elapsed from the first day of the Performance Period to the date the Participant's employment terminated, to (ii) 36. For the purpose of this Agreement, the term "Disability" means the inability of the Participant to perform the essential duties of the Participant's employment with the Company or a subsidiary for a period of 120 consecutive days or an aggregate of 180 days during any twelve-month period, by reason of a physical or mental illness or injury, as determined in the good faith by the Committee acting in accordance with its discretionary authority under the Plan.

(c) Effect of a Sale Event. If a Sale Event (as defined in the Plan) occurs during the Performance Period, then the Performance Period will end on the day preceding the Sale Event and, if the Participant's employment has not previously terminated, the Participant will be deemed to have earned a number of PBRSUs equal to the sum of:

(i) a number of TSR-based PBRSUs equal to (A x B), where—

A = the TSR Target Number; and

B = the TSR Performance Percentage determined under the table in Exhibit A, based upon the Company TSR and the Russell Index TSRs for the period beginning January 1, 2018 and ending on the day preceding the date of the Sale Event; plus

(ii) the Net Income Target Number.

Immediately prior to the Sale Event, the PBRSUs that are deemed to have been earned pursuant to this Section 4(c) shall be converted into the right to receive an amount of cash and/or a number of freely tradable shares of common stock of the acquiring or successor company or parent thereof having a value equal to the Sale Event transaction value of the Shares covered by such PBRSUs as if such Shares were issued and outstanding at the time of the Sale Event. If the settlement obligation with respect to such converted PBRSUs is assumed by the successor or acquiring company as part of the Sale Event transaction, the Participant's right to receive such cash payment and/or shares of common stock will be conditioned upon the Participant's continuing employment or service with the successor or acquiring company through the end of the Performance Period, provided that, if the Participant's employment or service is terminated before the end of the Performance Period by the Company without Cause (as such term is defined in Medidata's Executive Change in Control Agreement), by the Participant for Good Reason (as such term is defined in Medidata's Executive Change in Control Agreement) or by reason of the Participant's death, then the continuing service condition will thereupon be waived and the Participant will be entitled to immediate payment of such cash and/or shares in full and final settlement of the converted PBRSUs, and provided further that, if the Participant's employment or service is terminated before the end of the Performance Period for any other reason, the Participant will thereupon forfeit any and all interest in and rights with respect to such converted PBRSUs. If the settlement obligation with respect to such PBRSUs is not assumed by the successor or acquiring company, then the converted PBRSUs will be deemed to be fully vested and will be settled upon and as part of the Sale Transaction.

5. Settlement of Earned PBRSUs; Rights as a Shareholder.

(a) General. The PBRSUs earned by the Participant for the Performance Period (including a short Performance period resulting from a Sale Event) will be settled in accordance with this Section 5 as soon as practicable after the end of the Performance Period (but in no event later than March 15 of the following calendar year). At the time of settlement, the Company will issue and deliver to the Participant the Shares represented by such earned PBRSUs in certificated or electronic form. Unless an insider trading blackout period is in effect and absent other extraordinary circumstances, the Company intends to complete the settlement promptly after the Committee determines the number of PBRSUs that are earned for the Performance Period. Notwithstanding the foregoing, if a Sale Event occurs, any earned PBRSUs that have not previously been settled (including any PBRSUs deemed to have been earned prior to the Sale Event pursuant to Section 4(c) above) will be settled (if at all) at the time and in the manner prescribed in Section 4(c).

(b) Tax Withholding. As a condition of the issuance of Shares under this Agreement, the Company shall require the Participant to satisfy any applicable tax withholding obligations. Toward that end, the Company and its Subsidiaries may require the Participant to remit an amount sufficient to satisfy such withholding obligations or deduct or withhold such amount from any payments otherwise owed the Participant (whether or not under this Agreement or the Plan). The Participant expressly authorizes the Company to deduct from any compensation or any other payment of any kind due to the Participant, including (if the Company so consents) withholding Shares that would otherwise be issued to the Participant in settlement of vested PBRSUs, for the amount of any such tax withholding obligations, provided, however, that the value of any Shares withheld may not exceed the statutory minimum withholding amount required by law.

(c) Rights as a Shareholder. The Participant shall have no voting or other rights of a shareholder with respect to the Shares covered by PBRSUs unless and until such Shares are issued to the Participant in accordance with the provisions hereof.

6. Transfer Restrictions. The Participant may not sell, assign, transfer, pledge, hedge, hypothecate, encumber or dispose of in any way (whether by operation of law or otherwise) any of the Participant's rights under this Agreement, and none of such rights shall be subject to execution, attachment or similar process. Any attempt by the Participant or

any other person claiming against, through or under the Participant to cause any of the Participant's rights under this Agreement to be transferred or assigned in any manner shall be null and void and without effect upon the Company, the Participant or any other person. Notwithstanding the foregoing, if the Participant dies on or after the date that any PBRSUs have been earned and determined and before the settlement of such earned PBRSUs, the settlement will be made to the Participant's Beneficiary (as determined under the Plan).

7. Provisions of the Plan Control; Effect of Other Agreements. This Agreement shall be subject to the provisions of the Plan and to such rules, regulations and interpretations as may be established or made by the Committee acting within the scope of its authority under the Plan. The Participant acknowledges receipt of a copy of the Plan prior to the execution of this Agreement. If and to the extent that any provision of this Agreement (including the Plan, as it applies to this Agreement) is inconsistent with any provision of any employment, separation, change in control or other agreement between the Company or a subsidiary and the Participant in effect at any time or from time to time, the terms of this Agreement (including the Plan, as it applies to this Agreement) shall govern.

8. No Employment Rights. Nothing contained herein or in the Plan shall confer upon the Participant any right with respect to the continuation of the Participant's employment or other service with the Company or a subsidiary or interfere in any way with the right of the Company and its subsidiaries at any time to terminate such employment or other service or to increase or decrease, or otherwise adjust, the Participant's compensation and any other terms and conditions of the Participant's employment or other service.

9. Recoupment. The Participant's rights with respect to this award shall in all events be subject to (a) any right that the Company may have under any Company recoupment, claw back and/or forfeiture policy of the Company as in effect from time to time, and (b) any right or obligation the Company may have regarding the claw back of "incentive-based compensation" under the requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable securities law or the listing requirements of any national securities exchange on which the Company's Shares are listed.

10. Committee Determinations Final. The Committee shall have complete discretion in the exercise of its authority, powers, and duties under the Plan and this Agreement. Any determination made by the Committee with respect to this Agreement and the Plan shall be final, conclusive, and binding on all interested persons. The Committee may designate any individual or individuals to perform any of its ministerial functions to be performed hereunder.

11. Successors. This Agreement shall be binding upon and inure to the benefit of the Company any of its successors and assigns, as well as the Participant and, if applicable, the Participant's surviving spouse or estate. For the avoidance of doubt, if a Sale Event occurs, the term "Company" shall be deemed to include the successor or acquiring company, any parent company and any of its or their affiliates.

12. Entire Agreement. This Agreement (including Exhibits A and B) constitutes the entire agreement between the parties with respect to the subject matter hereof and may not be amended, except as provided in the Plan, other than by a written instrument executed by the parties hereto.

13. Governing Law. All rights and obligations under this Agreement and the Plan shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to its principles of conflict of laws.

14. Counterparts. This Agreement may be executed in separate counterparts, each of which will be an original and all of which taken together shall constitute one and the same agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first above written.

MEDIDATA SOLUTIONS, INC.

By: ___________________________

____
Participant

EXHIBIT A

TSR PERFORMANCE PERCENTAGE

This Exhibit A is attached to and made a part of the Participant's 2018 Performance-Based Restricted Stock Unit Agreement (the "Agreement"). Capitalized terms that are used but not defined in this Exhibit A will have the meanings ascribed to them in the main body of the Agreement, including with respect to the factors used in this Exhibit.

The number of PBRSUs the Participant will earn for the Performance Period based on the Company's TSR performance (subject to the provisions of the Agreement) will be expressed as a percentage (from 0% to 200%) of the Participant's TSR Target Number. That percentage is called the TSR Performance Percentage.

The TSR Performance Percentage for the Performance Period is determined under the following table, based upon the difference (positive or negative) between the Company TSR for the Performance Period and the 50th percentile of the Russell Index TSRs for that same period. If, the difference between the Company TSR and the 50th percentile of the Russell Index TSRs is above one specified level and below another level, then the TSR Performance Percentage for the Performance Period will be increased accordingly by linear interpolation between the two levels.

TSR PERFORMANCE
<u>PERCENTAGE TABLE</u>

Difference Between Company TSR and the 50th Percentile of Russell Index TSRs	TSR Performance Percentage	Difference Between Company TSR and the 50th Percentile of Russell Index TSRs	TSR Performance Percentage
25% or more	200%	-5%	90%
20%	180%	-10%	80%
15%	160%	-15%	70%
10%	140%	-20%	60%
5%	120%	-25%	50%
0%	100%	-30% or more	0%

<u>*Example*</u>. Participant X receives a 2018 PBRSU award for a total Target Number of 2,000 shares, the Participant's TSR Target Number is 1,000 shares (50% of the 1,000 share Target Number).

(a) Using the above table, if the Company TSR for the Performance Period is 10% higher than the 50^{th} percentile of the Russell 2000 Index TSRs for the same period, then the TSR Performance Percentage will be 140%. As such, X will earn a total of 1,400 PBRSUs (1,000 x 140%) on account of the Company's TSR performance.

(b) If the Company TSR for the Performance Period is 25% or more than the 50^{th} percentile of the Russell Index TSRs for the same period, then the TSR Performance Percentage for 2018 will be 200% and X will earn a total of 2,000 PBRSUs for the Performance Period (1,000 x 200%) on account of the Company's TSR performance.

(c) If the Company TSR for the Performance Period is 15% less than the 50^{th} percentile of the Russell Index TSRs for the same period, then the TSR Performance Percentage will be 70%, and X will earn a total of 700 PBRSUs on account of the Company's TSR performance.

Note that the TSR Performance Percentage will be based on the *cumulative* Company TSR relative to the 50th percentile of the cumulative Russell Index TSRs during the Performance Period.

EXHIBIT B

NET INCOME PERFORMANCE PERCENTAGE

This Exhibit B is attached to and made a part of the Participant's 2018 Performance-Based Restricted Stock Unit Agreement (the "Agreement"). Capitalized terms that are used but not defined in this Exhibit B will have the meanings ascribed to them in the main body of the Agreement, including with respect to the factors used in this Exhibit.

The number of PBRSUs the Participant will earn for the Performance Period based upon the Company's Net Income (subject to the provisions of the Agreement) will be expressed as a percentage (from 0% to 200%) of the Participant's Net Income Target Number. That percentage is called the Net Income Performance Percentage.

The Net Income Performance Percentage is determined under the following table, based upon based upon the Company's Net Income attainment for the year ending December 31, 2020. If, the Company's Net Income attainment for that year is above one specified level and below another level, then the Net Income Performance Percentage will be increased accordingly by linear interpolation between the two levels.

NET INCOME PERFORMANCE
PERCENTAGE TABLE

Net Income		Target Attainment
2020 (USD million)	**CAGR ('17 – '20)**	
29.1	1%	0%
30.3	2%	8%
31.5	3%	16%
32.8	4%	24%
34.0	5%	32%
35.4	6%	40%
39.3	8.8%	50%
40.7	9.8%	52%
42.2	10.8%	54%
43.6	11.7%	57%
45.2	12.7%	59%
46.7	13.6%	61%
48.3	14.6%	63%
50.0	15.6%	66%
51.7	16.5%	68%
53.4	17.5%	70%
55.2	18.5%	73%
57.1	19.5%	77%
59.1	20.5%	80%
61.0	21.5%	90%
63.1	22.5%	100%
65.2	23.5%	120%
67.3	24.5%	140%
69.5	25.5%	160%
71.7	26.5%	180%
74.0	27.5%	200%

Exhibit 31.1

CERTIFICATION PURSUANT TO RULE 13a-14(a) or 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Tarek A. Sherif, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Medidata Solutions, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   c. evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   d. disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):
   a. all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   b. any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 4, 2018

By: /s/ TAREK A. SHERIF

Tarek A. Sherif
Chairman and Chief Executive Officer
Medidata Solutions, Inc.

Exhibit 31.2

CERTIFICATION PURSUANT TO RULE 13a-14(a) or 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Rouven Bergmann, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Medidata Solutions, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
    a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c. evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d. disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):
    a. all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    b. any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 4, 2018

By: /s/ ROUVEN BERGMANN

Rouven Bergmann
Chief Financial Officer
Medidata Solutions, Inc.

Exhibit 32.1

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

In connection with the Quarterly Report on Form 10-Q of Medidata Solutions, Inc. (the “Company”) for the period ended March 31, 2018, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Tarek A. Sherif, Chairman and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that

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

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

Date: May 4, 2018

By: /s/ TAREK A. SHERIF

Tarek A. Sherif
Chairman and Chief Executive Officer
Medidata Solutions, Inc.

* A signed original of this written statement required by Section 906 has been provided to Medidata Solutions, Inc. and will be retained by Medidata Solutions, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 32.2

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

In connection with the Quarterly Report on Form 10-Q of Medidata Solutions, Inc. (the “Company”) for the period ended March 31, 2018, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Rouven Bergmann, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that

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

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

Date: May 4, 2018

By: /s/ ROUVEN BERGMANN

Rouven Bergmann
Chief Financial Officer
Medidata Solutions, Inc.

* A signed original of this written statement required by Section 906 has been provided to Medidata Solutions, Inc. and will be retained by Medidata Solutions, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.