

**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 June 30, 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
(State or other jurisdiction of
incorporation or organization)

13-4066508
(I.R.S. Employer
Identification No.)

350 Hudson Street, 9th Floor
New York, New York
(Address of principal executive offices)

10014
(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	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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 July 30, 2018, the registrant had 59,676,491 shares of common stock outstanding.

MEDIDATA SOLUTIONS, INC.
QUARTERLY REPORT ON FORM 10-Q
FOR THE QUARTERLY PERIOD ENDED June 30, 2018
TABLE OF CONTENTS

	Page
PART I	FINANCIAL INFORMATION
Item 1.	Financial Statements (Unaudited)
	Condensed Consolidated Balance Sheets as of June 30, 2018 and December 31, 2017 3
	Condensed Consolidated Statements of Operations for the Three and Six Months Ended June 30, 2018 and 2017 4
	Condensed Consolidated Statements of Comprehensive Income for the Three and Six Months Ended June 30, 2018 and 2017 5
	Condensed Consolidated Statements of Cash Flows for the Six Months Ended June 30, 2018 and 2017 6
	Notes to Condensed Consolidated Financial Statements 8
Item 2.	Management's Discussion and Analysis of Financial Condition and Results of Operations 24
Item 3.	Quantitative and Qualitative Disclosures about Market Risk 29
Item 4.	Controls and Procedures 29
PART II	OTHER INFORMATION 31
Item 1.	Legal Proceedings 31
Item 1A.	Risk Factors 31
Item 2.	Unregistered Sales of Equity Securities and Use of Proceeds 31
Item 3.	Defaults upon Senior Securities 31
Item 4.	Mine Safety Disclosures 31
Item 5.	Other Information 31
Item 6.	Exhibits 32
	 SIGNATURES 33

PART I - FINANCIAL INFORMATION

Item 1. Financial Statements (Unaudited)

MEDIDATA SOLUTIONS, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS (Unaudited)

	June 30, 2018	December 31, 2017
	(Amounts in thousands, except per share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 120,298	\$ 237,325
Marketable securities	287,603	246,967
Accounts receivable, net of allowance for doubtful accounts of \$1,668 and \$1,454, respectively	137,169	110,685
Prepaid commission expense	17,612	12,404
Prepaid expenses and other current assets	37,109	33,636
Total current assets	599,791	641,017
Restricted cash	5,523	5,518
Furniture, fixtures and equipment, net	93,088	88,091
Marketable securities – long-term	69,476	179,041
Goodwill	198,780	47,435
Intangible assets, net	54,938	17,587
Deferred income taxes – long-term	37,414	35,789
Other assets	43,775	46,755
Total assets	\$ 1,102,785	\$ 1,061,233
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 6,527	\$ 5,009
Accrued payroll and other compensation	23,061	32,537
Accrued expenses and other	37,624	36,041
Deferred revenue	72,075	77,375
1.00% convertible senior notes, net	285,748	278,094
Total current liabilities	425,035	429,056
Noncurrent liabilities:		
Term loan, net	91,906	92,841
Deferred revenue, less current portion	3,993	5,256
Deferred tax liabilities	100	99
Other long-term liabilities	20,395	21,371
Total noncurrent liabilities	116,394	119,567
Total liabilities	541,429	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; 64,289 and 62,801 shares issued; 59,634 and 58,607 shares outstanding, respectively	643	628
Additional paid-in capital	527,336	486,147
Treasury stock, 4,655 and 4,194 shares, respectively	(150,964)	(132,705)
Accumulated other comprehensive loss	(4,490)	(3,377)
Retained earnings	188,831	161,917
Total stockholders' equity	561,356	512,610
Total liabilities and stockholders' equity	\$ 1,102,785	\$ 1,061,233

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 June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
(Amounts in thousands, except per share data)				
Revenues				
Subscription	\$ 130,486	\$ 112,904 ⁽³⁾	\$ 257,305	\$ 220,797 ⁽³⁾
Professional services	25,419	23,123	47,798	42,874
Total revenues	<u>155,905</u>	<u>136,027</u>	<u>305,103</u>	<u>263,671</u>
Cost of revenues (1)(2)				
Subscription	21,602	17,017	41,943	34,146
Professional services	15,899	14,903	31,860	28,388
Total cost of revenues	<u>37,501</u>	<u>31,920</u>	<u>73,803</u>	<u>62,534</u>
Gross profit	118,404	104,107	231,300	201,137
Operating costs and expenses				
Research and development (1)	40,789	35,884	78,311	65,821
Sales and marketing (1)(2)	37,106	32,479 ⁽³⁾	73,967	62,705 ⁽³⁾
General and administrative (1)	27,672	23,083	52,859	47,071
Total operating costs and expenses	<u>105,567</u>	<u>91,446</u>	<u>205,137</u>	<u>175,597</u>
Operating income	12,837	12,661	26,163	25,540
Interest and other income (expense)				
Interest expense	(5,700)	(4,383)	(11,275)	(8,710)
Interest income	2,328	1,328	4,416	2,499
Other income, net	7,729	—	7,633	—
Total interest and other income (expense), net	<u>4,357</u>	<u>(3,055)</u>	<u>774</u>	<u>(6,211)</u>
Income before income taxes	17,194	9,606	26,937	19,329
Provision for income taxes	605	2,065 ⁽³⁾	23	1,808 ⁽³⁾
Net income	<u>\$ 16,589</u>	<u>\$ 7,541 ⁽³⁾</u>	<u>\$ 26,914</u>	<u>\$ 17,521 ⁽³⁾</u>
Earnings per share				
Basic	<u>\$ 0.29</u>	<u>\$ 0.13 ⁽³⁾</u>	<u>\$ 0.47</u>	<u>\$ 0.31 ⁽³⁾</u>
Diluted	<u>\$ 0.27</u>	<u>\$ 0.13 ⁽³⁾</u>	<u>\$ 0.44</u>	<u>\$ 0.30 ⁽³⁾</u>
Weighted average common shares outstanding				
Basic	57,448	56,433	57,252	56,254
Diluted	60,874	59,835	60,564	59,051
(1) Stock-based compensation expense included in cost of revenues and operating costs and expenses is as follows:				
Cost of revenues	\$ 1,506	\$ 1,246	\$ 2,774	\$ 2,415
Research and development	3,319	3,427	6,173	6,262
Sales and marketing	2,917	1,836	5,561	3,011
General and administrative	7,377	6,183	13,766	11,325
Total stock-based compensation	<u>\$ 15,119</u>	<u>\$ 12,692</u>	<u>\$ 28,274</u>	<u>\$ 23,013</u>
(2) Amortization of intangible assets included in cost of revenues and operating costs and expenses is as follows:				
Cost of revenues	\$ 1,205	\$ 1,022	\$ 2,299	\$ 1,476
Sales and marketing	231	119	351	202
Total amortization of intangible assets	<u>\$ 1,436</u>	<u>\$ 1,141</u>	<u>\$ 2,650</u>	<u>\$ 1,678</u>
(3) The condensed consolidated statement of operations for the three and six months ended June 30, 2017 have 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 June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
	(Amounts in thousands)			
Net income	\$ 16,589	\$ 7,541 ⁽¹⁾	\$ 26,914	\$ 17,521 ⁽¹⁾
Other comprehensive income (loss)				
Foreign currency translation adjustments	(1,954)	879	(684)	1,302
Unrealized gain (loss) on marketable securities	719	128	(307)	240
Other comprehensive (loss) income	(1,235)	1,007	(991)	1,542
Income tax related to unrealized gain or loss on marketable securities	(180)	(49)	(122)	(92)
Other comprehensive (loss) income, net of tax	(1,415)	958	(1,113)	1,450
Comprehensive income, net of tax	\$ 15,174	\$ 8,499 ⁽¹⁾	\$ 25,801	\$ 18,971 ⁽¹⁾

(1) The condensed consolidated statement of comprehensive income for the three and six months ended June 30, 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 (Unaudited)

	Six Months Ended June 30,	
	2018	2017
Cash flows from operating activities	(Amounts in thousands)	
Net income	\$ 26,914	\$ 17,521 ⁽¹⁾
Adjustments to reconcile net income to net cash provided by operating activities		
Amortization of intangible assets and depreciation	16,218	10,065
Stock-based compensation	28,274	23,013
Amortization of discounts or premiums on marketable securities	50	757
Deferred income taxes	106	2,406 ⁽¹⁾
Amortization of debt issuance costs	856	639
Amortization of debt discount	7,015	6,607
Provision for doubtful accounts	763	526
Loss (gain) on fixed asset disposal	127	(2)
Gain recognized on step acquisition	(7,648)	—
Changes in fair value of contingent consideration	7	58
Changes in operating assets and liabilities:		
Accounts receivable	(27,247)	4,058
Prepaid commission expense	(7,205)	(5,514) ⁽¹⁾
Prepaid expenses and other current assets	(3,008)	(12,366) ⁽¹⁾
Other assets	1,591	1,171
Accounts payable	1,753	4,490
Accrued payroll and other compensation	(8,909)	(10,122)
Accrued expenses and other	3,236	5,313
Deferred revenue	(9,572)	11,198 ⁽¹⁾
Other long-term liabilities	455	884
Net cash provided by operating activities	<u>23,776</u>	<u>60,702</u>
Cash flows from investing activities		
Purchases of furniture, fixtures and equipment	(19,520)	(16,642)
Purchases of available-for-sale securities	(69,214)	(157,228)
Proceeds from sale of available-for-sale securities	137,786	154,117
Acquisition of businesses, net of cash acquired	(178,568)	(22,941)
Net cash used in investing activities	<u>(129,516)</u>	<u>(42,694)</u>
Cash flows from financing activities		
Proceeds from exercise of stock options	6,351	9,057
Proceeds from employee stock purchase plan	6,345	4,248
Acquisition of treasury stock	(18,257)	(14,785)
Term loan principal payments	(1,250)	—
Payment of acquisition-related earn-outs	(4,087)	—
Payment of credit facility financing costs	(175)	—
Net cash used in financing activities	<u>(11,073)</u>	<u>(1,480)</u>
Effect of exchange rate changes on cash, cash equivalents and restricted cash	<u>(209)</u>	<u>414</u>
Net (decrease) increase in cash, cash equivalents and restricted cash	(117,022)	16,942
Cash, cash equivalents and restricted cash – Beginning of period	242,843	99,279
Cash, cash equivalents and restricted cash – End of period	<u>\$ 125,821</u>	<u>\$ 116,221</u>

(1) The condensed consolidated statement of cash flows for the six months ended June 30, 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)

	Six Months Ended June 30,	
	2018	2017
Supplemental disclosures of cash flow information:		
Cash paid during the period for:		
Interest	\$ 3,263	\$ 1,441
Income taxes	\$ 2,253	\$ 2,877
Noncash investing activities:		
Furniture, fixtures, and equipment acquired but not yet paid for at period-end	\$ 3,054	\$ 4,671
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 June 30, 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 June 30, 2018 and December 31, 2017, the condensed consolidated statements of operations for the three and six months ended June 30, 2018 and 2017, the condensed consolidated statements of comprehensive income for the three and six months ended June 30, 2018 and 2017, and the condensed consolidated statements of cash flows for the six months ended June 30, 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 June 30, 2018, results of its operations for the three and six months ended June 30, 2018 and 2017, comprehensive income for the three and six months ended June 30, 2018 and 2017, and cash flows for the six months ended June 30, 2018 and 2017. The results of operations for the three and six months ended June 30, 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 June 30, 2018 and December 31, 2017, unbilled accounts receivable of \$11.8 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

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

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 of 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 sheets. 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, and 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 statements of operations for the three and six months ended June 30, 2017 (in thousands, except per share data):

	Three Months Ended June 30, 2017			Six Months Ended June 30, 2017		
	As Reported Under ASC 605	Impact of ASC 606 Adoption	As Adjusted	As Reported Under ASC 605	Impact of ASC 606 Adoption	As Adjusted
Revenues						
Subscription	\$ 114,291	\$ (1,387)	\$ 112,904	\$ 221,361	\$ (564)	\$ 220,797
Professional services	23,123	—	23,123	42,874	—	42,874
Total revenues	137,414	(1,387)	136,027	264,235	(564)	263,671
Operating costs and expenses						
Sales and marketing	32,784	(305)	32,479	62,893	(188)	62,705
Operating income	13,743	(1,082)	12,661	25,916	(376)	25,540
Provision for income taxes	2,438	(373)	2,065	1,937	(129)	1,808
Net income	\$ 8,250	\$ (709)	\$ 7,541	\$ 17,768	\$ (247)	\$ 17,521
Earnings per share						
Basic	\$ 0.15	\$ (0.02)	\$ 0.13	\$ 0.32	\$ (0.01)	\$ 0.31
Diluted	\$ 0.14	\$ (0.01)	\$ 0.13	\$ 0.30	\$ —	\$ 0.30

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.

In June 2018, the FASB issued ASU No. 2018-07, *Improvements to Nonemployee Share-Based Payment Accounting*, which simplifies several aspects of the accounting for nonemployee share-based payment transactions by expanding the scope of the stock-based compensation guidance in ASC 718 to include share-based payment transactions for acquiring goods and services from non-employees. ASU No. 2018-07 is effective for annual periods beginning after December 15, 2018, including interim periods within those annual periods. Early adoption is permitted, but entities may not adopt prior to adopting the new revenue recognition guidance in ASC 606. The Company early adopted ASU No. 2018-07 in the second quarter of 2018, and the adoption did not have a material impact on its consolidated financial statements.

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

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 2016, the FASB issued ASU No. 2016-02, *Leases*, which replaces previous lease guidance in its entirety with ASC 842 and requires lessees to recognize lease assets and lease liabilities for those arrangements classified as operating leases under previous guidance, with the exception of leases with a term of twelve months or less. The new guidance also adds quantitative and qualitative disclosure requirements around leasing activities. ASU No. 2016-02 is effective for annual periods beginning after December 15, 2018, including interim periods within those annual periods. The Company will adopt ASU No. 2016-02 on January 1, 2019. The Company expects that this standard will have a material effect on its financial condition, with the most significant change relating to the recognition of new right-of-use assets and lease liabilities on its consolidated balance sheets for its facility operating leases. The Company estimates that the hypothetical balance sheet impact of recognizing these assets and liabilities would be approximately 5% of total assets and 10% of total liabilities as of June 30, 2018, based on the present value of the remaining minimum rental payments under current leasing standards for existing operating leases. The final quantitative impact of the adoption of the new lease guidance is subject to change from these estimates, pending the completion of the Company's implementation in the first quarter of 2019.

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 tables provide information about the Company's revenues, disaggregated by geographical market and revenue type, for the three and six months ended June 30, 2018 and 2017 (in thousands):

	Three Months Ended June 30,						
	2018		2017				
	Subscription	Professional Services	Total	Subscription	Professional Services	Total	
Revenues:							
United States	\$ 99,646	\$ 18,526	\$ 118,172	\$ 85,425	\$ 16,708	\$ 102,133	
Rest of Americas	1,689	277	1,966	57	196	253	
Total Americas	101,335	18,803	120,138	85,482	16,904	102,386	
Japan	7,665	1,261	8,926	7,627	1,222	8,849	
Rest of Asia Pacific	3,875	1,243	5,118	2,603	1,351	3,954	
Total Asia Pacific	11,540	2,504	14,044	10,230	2,573	12,803	
Europe, Middle East and Africa	17,611	4,112	21,723	17,192	3,646	20,838	
Total	\$ 130,486	\$ 25,419	\$ 155,905	\$ 112,904	\$ 23,123	\$ 136,027	

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

	Six Months Ended June 30,					
	2018		2017			
	Subscription	Professional Services	Total	Subscription	Professional Services	Total
Revenues:						
United States	\$ 195,811	\$ 34,510	\$ 230,321	\$ 169,764	\$ 30,616	\$ 200,380
Rest of Americas	1,998	481	2,479	87	221	308
Total Americas	197,809	34,991	232,800	169,851	30,837	200,688
Japan	15,777	3,055	18,832	14,276	3,029	17,305
Rest of Asia Pacific	7,576	2,381	9,957	4,952	2,297	7,249
Total Asia Pacific	23,353	5,436	28,789	19,228	5,326	24,554
Europe, Middle East and Africa	36,143	7,371	43,514	31,718	6,711	38,429
Total	\$ 257,305	\$ 47,798	\$ 305,103	\$ 220,797	\$ 42,874	\$ 263,671

The above tables present 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 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 six months ended June 30, 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	(71,137)	(64,581)
Revenue recognized that was not included in deferred revenue at the beginning of the period	(233,400)	(198,379)
Increases due to invoicing	297,161	277,087
Other	813	(2,705)
Balance as of June 30	\$ 76,068	\$ 87,272

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 June 30, 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 June 30, 2018. Of this amount, approximately \$257 million, \$371 million, and \$389 million are expected to be recognized in 2018, 2019, and thereafter, respectively.

As of June 30, 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 \$44.4 million and \$36.9 million as of June 30, 2018 and December 31, 2017, respectively. Amortization of capitalized contract costs was \$4.6 million and \$5.7 million for the three months ended June 30, 2018 and 2017, respectively, and \$9.5 million and \$12.1 million for the six months ended June 30, 2018 and 2017, respectively. There have been no impairment losses related to capitalized contract costs.

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

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 Amended and Restated 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 six months ended June 30, 2018 and 2017, the Company withheld 271,585 shares at an average price of \$67.23 and 260,737 shares at an average price of \$56.71, 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 six months ended June 30, 2018 and 2017, 189,668 and 154,106 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 June 30, 2018 and December 31, 2017 (in thousands):

	As of June 30, 2018			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Commercial paper and corporate bonds	\$ 333,185	\$ —	\$ (1,650)	\$ 331,535
U.S. government agency debt securities	25,690	—	(146)	25,544
Total	\$ 358,875	\$ —	\$ (1,796)	\$ 357,079

	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 June 30, 2018 and December 31, 2017 are summarized as follows (in thousands):

	As of June 30, 2018		As of December 31, 2017	
	Cost	Estimated Fair Value	Cost	Estimated Fair Value
Due in one year or less	\$ 288,628	\$ 287,603	\$ 247,495	\$ 246,967
Due in one to five years	70,247	69,476	180,002	179,041
Total	\$ 358,875	\$ 357,079	\$ 427,497	\$ 426,008

At June 30, 2018, the Company had \$1.8 million of gross unrealized losses primarily due to a decrease in the fair value of certain corporate bonds.

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

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 June 30, 2018 are temporary in nature. Accordingly, the Company did not consider its investments in marketable securities to be other-than-temporarily impaired as of June 30, 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 June 30, 2018 and December 31, 2017 (in thousands):

	In Loss Position for Less than 12 Months			
	As of June 30, 2018		As of December 31, 2017	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Commercial paper and corporate bonds	\$ 254,385	\$ (1,353)	\$ 295,224	\$ (1,137)
U.S. government agency debt securities	10,575	(116)	18,431	(86)
Total	<u>\$ 264,960</u>	<u>\$ (1,469)</u>	<u>\$ 313,655</u>	<u>\$ (1,223)</u>

	In Loss Position for More than 12 Months			
	As of June 30, 2018		As of December 31, 2017	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Commercial paper and corporate bonds	\$ 77,151	\$ (297)	\$ 95,923	\$ (197)
U.S. government agency debt securities	14,970	(30)	16,430	(69)
Total	<u>\$ 92,121</u>	<u>\$ (327)</u>	<u>\$ 112,353</u>	<u>\$ (266)</u>

During the three and six months ended June 30, 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 D Preferred Stock of Syapse Inc. ("Syapse") purchased in 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 June 30, 2018 and December 31, 2017. The Company periodically evaluates this investment to determine if impairment charges are required; no impairment charges were recognized during the three and six months ended June 30, 2018.

As of December 31, 2017, the Company held shares of Series Seed Preferred Stock and Series B Preferred Stock of SHYFT Analytics, Inc. ("SHYFT"), purchased in private placements. These investments did not have a readily determinable fair value and were carried at original cost of \$5.1 million in other assets on the Company's condensed consolidated balance sheets. In June 2018, the Company acquired SHYFT and realized a gain on step acquisition of \$7.6 million based upon the implied fair value of its previous holdings relative to the enterprise value for the transaction. This gain is included in other income, net on the Company's condensed consolidated statements of operations for the three and six months ended June 30, 2018. Refer to [Note 6](#), "Acquisitions," for further discussion of the Company's acquisition of SHYFT.

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

5. FAIR VALUE

The following table summarizes, as of June 30, 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 June 30, 2018				As of December 31, 2017			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Cash	\$ 118,584	\$ —	\$ —	\$ 118,584	\$ 237,149	\$ —	\$ —	\$ 237,149
Money market funds	1,714	—	—	1,714	176	—	—	176
Total cash and cash equivalents	120,298	—	—	120,298	237,325	—	—	237,325
Commercial paper and corporate bonds	—	331,534	—	331,534	—	391,147	—	391,147
U.S. government agency debt securities	—	25,545	—	25,545	—	34,861	—	34,861
Total marketable securities	—	357,079	—	357,079	—	426,008	—	426,008
Total financial assets measured at fair value on a recurring basis	\$ 120,298	\$ 357,079	\$ —	\$ 477,377	\$ 237,325	\$ 426,008	\$ —	\$ 663,333
Contingent consideration – short-term	\$ —	\$ —	\$ 1,351	\$ 1,351	\$ —	\$ —	\$ 3,993	\$ 3,993
Contingent consideration – long-term	—	—	581	581	—	—	2,012	2,012
Total financial liabilities measured at fair value on a recurring basis	\$ —	\$ —	\$ 1,932	\$ 1,932	\$ —	\$ —	\$ 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 six months ended June 30, 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 portions of contingent consideration are recorded in accrued expenses and other and other long-term liabilities, respectively, on the Company's condensed consolidated balance sheets.

The following table provides a summary of changes in fair value of the Company's Level 3 financial liabilities during the six months ended June 30, 2018 (in thousands):

Balance as of January 1, 2018	\$ 6,005
Amounts earned by sellers	(4,080)
Fair value adjustment (included in general and administrative expenses)	7
Balance as of June 30, 2018	<u>\$ 1,932</u>

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. ACQUISITIONS

Three and Six Months Ended June 30, 2018

On June 20, 2018, the Company acquired all outstanding equity interests in SHYFT, a Waltham, Massachusetts provider of cloud data analytics for life sciences. With this acquisition, the Company expands its offerings to include commercial and real-world data analytics solutions that are designed specifically for the pharmaceutical and biotech industries.

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

The total purchase price of \$196.5 million was composed of cash consideration of \$183.8 million and the Company's previous investment in SHYFT, which had a fair value of \$12.7 million as of the acquisition date. (Refer to [Note 4](#), "Investments — Other Investments" for further information on the initial investment and gain recognized on step acquisition.)

In connection with this acquisition, the Company acquired \$4.7 million in cash and cash equivalents, assumed \$1.9 million in net tangible liabilities, and recognized a deferred tax asset of \$1.9 million; given the transaction's proximity to the end of the current reporting period, valuation of identified intangible assets is still in progress and allocation of the remaining \$191.8 million of purchase price between intangible assets and goodwill is incomplete. The Company anticipates that this transaction will generate significant goodwill due to the skilled workforce of approximately 150 employees acquired and considerable synergies expected. As of June 30, 2018, the Company has recorded a provisional estimate based on observation of industry trends, consisting of \$40.0 million of intangible assets and \$151.8 million of goodwill. The Company expects to finalize valuation and useful life determination for the acquired customer relationships, developed technology, non-competition agreements, and trade name during the third quarter of 2018. The purchase price and the allocation thereof are subject to change within the relevant one-year measurement period as a result of customary working capital adjustments.

The Company's consolidated results of operations for the three and six months ended June 30, 2018 include the revenues and expenses of SHYFT since the date of acquisition. The Company does not consider this acquisition to be significant to its results of operations; as such, pro forma revenue and earnings information is not provided.

Three and Six Months Ended June 30, 2017

The Company acquired all outstanding equity interests in CHITA and Mytrus, Incorporated ("Mytrus") on February 17, 2017 and April 18, 2017, respectively, adding regulated document and standard operating procedure ("SOP") management, electronic trial master file ("eTMF"), and eConsent capabilities to its platform. Aggregate purchase consideration of \$28.9 million consisted of upfront consideration of \$23.2 million and contingent consideration (associated with CHITA) initially valued at \$5.7 million.

7. GOODWILL AND INTANGIBLE ASSETS

The change in the carrying amount of goodwill during the six months ended June 30, 2018 was as follows (in thousands):

Balance as of January 1, 2018	\$	47,435
Additions related to current period acquisition - SHYFT		151,857
Final purchase price adjustment - Mytrus		(422)
Foreign currency translation adjustments		(90)
Balance as of June 30, 2018	\$	198,780

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

	As of June 30, 2018			As of December 31, 2017		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Developed technology	\$ 44,407	\$ (11,152)	\$ 33,255	\$ 24,436	\$ (8,883)	\$ 15,553
Customer relationships	24,481	(2,907)	21,574	4,489	(2,595)	1,894
Non-competition agreements	260	(151)	109	260	(120)	140
Total	\$ 69,148	\$ (14,210)	\$ 54,938	\$ 29,185	\$ (11,598)	\$ 17,587

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

Remainder of 2018	\$	6,339
2019		12,486
2020		11,742
2021		11,472
2022		8,877
2023		4,022
Thereafter		—
Total	\$	54,938

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

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 June 30, 2018 and December 31, 2017 (in thousands):

	June 30, 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	(1,646)	(8,661)
Less: unamortized debt issuance costs	(106)	(745)
Net carrying amount	<u>\$ 285,748</u>	<u>\$ 278,094</u>

As of June 30, 2018 and December 31, 2017, the estimated fair value of the Notes was \$395.7 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. 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 June 30, 2018. Based on the closing price of the Company's common stock as of June 30, 2018 of \$80.56, the if-converted value of the Notes exceeded their face value by \$111.5 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 June 30, 2018, the remaining life of the Notes is approximately 1 month, 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 and six months ended June 30, 2018 and 2017 (in thousands except percentages):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Contractual interest expense	\$ 719	\$ 719	\$ 1,438	\$ 1,438
Amortization of debt issuance costs	320	320	639	639
Amortization of debt discount	3,534	3,328	7,015	6,607
Total	<u>\$ 4,573</u>	<u>\$ 4,367</u>	<u>\$ 9,092</u>	<u>\$ 8,684</u>
Effective interest rate	<u>6.5%</u>	<u>6.5%</u>	<u>6.5%</u>	<u>6.5%</u>

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 June 30, 2018 and December 31, 2017 (in thousands):

	June 30, 2018	December 31, 2017
Term Loans	\$ 98,750	\$ 100,000
Less: unamortized debt issuance costs	(1,942)	(2,159)
Net carrying amount (1)	<u>\$ 96,808</u>	<u>\$ 97,841</u>

(1) Of the total carrying amount of the Term Loans, short-term maturities of \$4.9 million and \$5.0 million were included in accrued expenses and other on the Company's condensed consolidated balance sheets as of June 30, 2018 and December 31, 2017, respectively.

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

As of June 30, 2018, the contractual interest rate on the Term Loans was 3.465%, and there was a 0.200% commitment fee on the undrawn Revolver. The following table sets forth total interest expense recognized related to the Credit Facility for the three and six months ended June 30, 2018 (in thousands):

	Three Months Ended June 30, 2018	
	\$	\$
Contractual interest expense on Term Loans	811	1,559
Amortization of debt issuance costs	109	217
Unused commitment fee on Revolver	209	409
Total	\$ 1,129	\$ 2,185

As of June 30, 2018 the remaining term of the Credit Facility is approximately 54 months. The Company was in compliance with all financial covenants related to the Credit Facility as of June 30, 2018.

9. STOCK-BASED COMPENSATION

For the three and six months ended June 30, 2018 and 2017, the components of stock-based compensation expense were as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Stock options	\$ 522	\$ 938	\$ 1,094	\$ 1,855
Restricted stock awards and units	9,024	7,769	16,891	14,688
Performance-based restricted stock units	3,932	3,074	7,159	4,702
Employee stock purchase plan	1,712	969	3,260	1,897
Total stock-based compensation (1)	\$ 15,190	\$ 12,750	\$ 28,404	\$ 23,142

(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 and six months ended June 30, 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 June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Expected volatility	42%	43%	42%	44%
Expected life	4.78 years	6.00 years	4.78 years	6.00 years
Risk-free interest rate	2.82%	2.02%	2.82%	2.07%
Dividend yield	—	—	—	—

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

The following table summarizes the status of the Company's stock options as of June 30, 2018, and changes during the six 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	35	72.27		
Exercised	(248)	25.62		
Forfeited	(34)	45.55		
Expired	—	—		
Outstanding at June 30, 2018	<u>1,264</u>	\$22.91	3.88	\$72,894
Exercisable at June 30, 2018	<u>1,092</u>	\$17.45	3.16	\$68,942
Vested and expected to vest at June 30, 2018	<u>1,252</u>	\$22.52	3.83	\$72,657

The weighted-average grant-date fair value of stock options granted during the three months ended June 30, 2018 and 2017 was \$28.93 and \$25.47, respectively. The weighted-average grant-date fair value of stock options granted during the six months ended June 30, 2018 and 2017 was \$28.93 and \$25.37, respectively. The total intrinsic value of stock options exercised during the three months ended June 30, 2018 and 2017 was \$3.8 million and \$4.0 million, respectively. The total intrinsic value of stock options exercised during the six months ended June 30, 2018 and 2017 was \$11.4 million and \$8.0 million, respectively.

As of June 30, 2018, there was \$3.9 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 2.46 years.

Restricted Stock Awards and Units

The following table summarizes the status of the Company's nonvested time-based RSAs and RSUs as of June 30, 2018, and changes during the six 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	982	72.56
Vested	(554)	46.99
Forfeited	(191)	50.03
Nonvested at June 30, 2018	<u>1,991</u>	\$60.60

The total fair value of RSAs and RSUs vested during the three months ended June 30, 2018 and 2017 was \$5.7 million and \$4.7 million, respectively. The total fair value of RSAs and RSUs vested during the six months ended June 30, 2018 and 2017 was \$37.3 million and \$31.0 million, respectively.

As of June 30, 2018, there was \$107.0 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 2.65 years.

Performance-Based Restricted Stock Units

During the three months ended June 30, 2018, the Company granted (1) 6 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) 5 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 PBRsUs with performance conditions based on achievement of certain individual and team objectives.

No PBRsUs were granted during the three months ended June 30, 2017.

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

During the six months ended June 30, 2018, the Company granted: (1) 122 thousand 2018 TSR PBRUs; (2) 122 thousand 2018 Net Income PBRUs. The Company also granted an immaterial number of other PBRUs with performance conditions based on achievement of certain individual and team objectives.

During the six months ended June 30, 2017, the Company granted: (1) 132 thousand PBRUs ("2017 TSR PBRUs") 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 PBRUs ("2017 Net Income PBRUs") 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 PBRUs with market conditions granted during the three and six months ended June 30, 2018 and 2017 was estimated as of the date of grant using a Monte Carlo valuation model with the following weighted average assumptions:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Expected volatility - Medidata	36%	42%	37%	42%
Expected volatility - comparison index	43%	43%	42%	43%
Expected life	2.69 years	2.85 years	2.85 years	2.85 years
Risk-free interest rate	2.58%	1.40%	2.37%	1.40%
Dividend yield	—	—	—	—

The following table summarizes the status of the Company's PBRUs based upon expected performance as of June 30, 2018, and changes during the six 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)	122	122	2	246	85.92
Adjustment related to expected performance	—	171	10	181	78.54
Vested	—	(120)	—	(120)	69.92
Forfeited	—	—	(1)	(1)	77.64
Nonvested at June 30, 2018	<u>232</u>	<u>786</u>	<u>24</u>	<u>1,042</u>	\$ 70.27

No PBRUs vested during the three months ended June 30, 2018 and 2017. The total fair value of PBRUs vested during the six months ended June 30, 2018 and 2017 was \$8.1 million and \$5.1 million, respectively.

As of June 30, 2018, there was \$30.3 million in unrecognized compensation cost related to all nonvested PBRUs. This cost is expected to be recognized over a weighted-average remaining period of 1.72 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 June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Expected volatility	37%	39%	37%	39%
Expected life	1.70 years	1.49 years	1.70 years	1.49 years
Risk-free interest rate	1.09%	0.62%	1.09%	0.62%
Dividend yield	—	—	—	—

During the three and six months ended June 30, 2018, 150 thousand shares were purchased under the ESPP at a weighted-average price of \$43.04. During the three and six months ended June 30, 2017, 103 thousand shares were purchased under the ESPP at a weighted-average price of \$40.50.

As of June 30, 2018, there was \$2.2 million in unrecognized compensation cost related to ESPP shares. This cost is expected to be recognized over a weighted-average remaining period of 1.23 years.

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

Modifications

Aggregate incremental expense associated with modifications to stock options, RSAs and PBRSUs in connection with separation agreements during the three months ended June 30, 2018 and 2017 was \$0.2 million and none, respectively. Incremental expense during the six months ended June 30, 2018 and 2017 was \$0.4 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 six months ended June 30, 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	(684)	(429)	(1,113)
Balance as of June 30, 2018	<u>\$ (3,143)</u>	<u>\$ (1,347)</u>	<u>\$ (4,490)</u>

For the six months ended June 30, 2018 and 2017, reclassifications of items from accumulated other comprehensive loss to net income were insignificant.

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

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. Given the Company's election to settle the principal amount of the Notes (see [Note 8](#), "Debt") in cash upon conversion, their dilutive effect is 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.

A reconciliation of the numerator and denominator of basic earnings per share and diluted earnings per share for the three and six months ended June 30, 2018 and 2017 is shown in the following table (in thousands, except per share data):

	Three Months Ended June 30,			Six Months Ended June 30,		
	2018	2017		2018	2017	
Numerator						
Net income	\$ 16,589	\$ 7,541	(1)	\$ 26,914	\$ 17,521	(1)
Denominator						
Denominator for basic earnings per share:						
Weighted average common shares outstanding	57,448	56,433		57,252	56,254	
Denominator for diluted earnings per share:						
Dilutive potential common shares:						
Stock options	866	1,001		897	976	
Restricted stock awards and units	612	798		752	835	
Performance-based restricted stock units	610	625		586	560	
Employee stock purchase plan	220	149		181	114	
Convertible senior notes	1,118	829		896	312	
Weighted average common shares outstanding with assumed conversion	60,874	59,835		60,564	59,051	
Basic earnings per share	\$ 0.29	\$ 0.13	(1)	\$ 0.47	\$ 0.31	(1)
Diluted earnings per share	\$ 0.27	\$ 0.13	(1)	\$ 0.44	\$ 0.30	(1)

(1) Figures for the three and six months ended June 30, 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 and six months ended June 30, 2018 and 2017 are shown in the following table (in thousands, except per share data):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Stock options	79	94	78	202
Restricted stock awards and units	34	1	30	10
Performance-based restricted stock units	—	—	—	—
Employee stock purchase plan	84	275	84	275
Total	197	370	192	487

12. INCOME TAXES
Unrecognized Tax Benefits

The Company's unrecognized tax benefits were approximately \$4.1 million as of June 30, 2018, and were unchanged from December 31, 2017.

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

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 first quarter of 2018. No further revisions were made during the three months ended June 30, 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 was the victim of a crime involving the transfer of \$4.8 million to an overseas account. As a result, the Company recorded charges of \$4.9 million and \$0.9 million to its operating costs and expenses in the third and fourth quarters of 2014, respectively, for the loss and related investigation costs incurred. 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. In light of this ruling, the Company recognized the probable recovery of the originally recorded \$4.8 million loss as a credit to its operating costs and expenses in the third quarter of 2017. Federal filed a Notice of Appeal with the United States Court of Appeals for the Second Circuit ("the Court") on August 11, 2017. On July 6, 2018, the Court affirmed the Company's judgment against Federal, awarding the Company a total of \$5.8 million, which includes interest. On July 20, 2018, Federal filed a Petition for Panel Rehearing and Rehearing En Banc, which is currently pending with the Court.

14. SUBSEQUENT EVENT

The Notes matured on August 1, 2018, and the Company received notices of conversion for substantially all of the outstanding Notes prior to the maturity date. Pursuant to its election, the Company settled the \$287.5 million principal amount of the Notes in cash and the conversion premium in shares of its common stock. The Company issued 1,439,704 shares of common stock in settlement of the premium, determined by a calculation based on the volume-weighted average price of the Company's common stock over the 40 trading-day observation period beginning on and including June 1, 2018, as specified in the indenture governing the Notes.

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.

Second Quarter and First Half 2018 Highlights

- Total revenues increased 15% and 16% compared with the second quarter and first half of 2017, respectively.
- Subscription revenues increased 16% and 17% compared with the second quarter and first half of 2017, respectively.
- Professional services revenues increased 10% and 11% compared with the second quarter and first half of 2017, respectively.
- Operating income increased 1% and 2% compared with the second quarter and first half of 2017, respectively.
- Net income increased 120% and 54% compared with the second quarter and first half of 2017, respectively, inclusive of a \$7.6 million gain on the step acquisition of SHYFT Analytics, Inc. ("SHYFT").

Results of Operations

Revenues

Revenues for the three and six months ended June 30, 2018 and 2017 were as follows:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
Revenues:	(amounts in thousands except percentages)					
Subscription	\$ 130,486	\$ 112,904	(1) 15.6%	\$ 257,305	\$ 220,797	(1) 16.5%
Percentage of total revenues	83.7%	83.0%		84.3%	83.7%	
Professional services	25,419	23,123	9.9%	47,798	42,874	11.5%
Percentage of total revenues	16.3%	17.0%		15.7%	16.3%	
Total revenues	<u>\$ 155,905</u>	<u>\$ 136,027</u>	14.6%	<u>\$ 305,103</u>	<u>\$ 263,671</u>	15.7%

(1) Figures for the three and six months ended June 30, 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 and risk-based monitoring solutions were strong contributors. As of June 30, 2018, we had remaining subscription backlog of \$257 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 26% compared with remaining backlog of \$204 million at June 30, 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 and six months ended June 30, 2018 and 2017 was as follows:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
Cost of revenues:	(amounts in thousands except percentages)					
Subscription	\$ 21,602	\$ 17,017	26.9%	\$ 41,943	\$ 34,146	22.8%
Percentage of total revenues	13.9%	12.5%		13.8%	12.9%	
Professional services	15,899	14,903	6.7%	31,860	28,388	12.2%
Percentage of total revenues	10.2%	11.0%		10.4%	10.8%	
Total cost of revenues	<u>\$ 37,501</u>	<u>\$ 31,920</u>	17.5%	<u>\$ 73,803</u>	<u>\$ 62,534</u>	18.0%
Percentage of total revenues	24.1%	23.5%		24.2%	23.7%	
Gross profit	\$ 118,404	\$ 104,107		\$ 231,300	\$ 201,137	
Gross margin	75.9%	76.5%		75.8%	76.3%	
Subscription margin	83.4%	84.9%		83.7%	84.5%	
Professional services margin	37.5%	35.5%		33.3%	33.8%	

Year-over-year growth in cost of subscription revenues was primarily driven by increases in depreciation and amortization of \$2.3 million and \$5.1 million for the three and six months ended June 30, 2018, respectively, associated with additional internally developed technology assets and purchased hosting equipment. Expenses were also impacted by higher personnel costs of \$0.6 million and \$0.7 million for the three and six months ended June 30, 2018, respectively, resulting from headcount additions in connection with overall business growth and acquisitions, and by increased expenses from software-related contracts with outside vendors of \$0.8 million and \$0.5 million for the three and six months ended June 30, 2018, respectively.

Year-over-year growth in cost of professional services was primarily driven by increases in personnel costs associated with a 33% year-over-year headcount increase to support strong customer demand and expanding skill set requirements for professional services, and in connection with our acquisition of SHYFT.

[Table of Contents](#)

Overall gross margin decreased to 75.9% and 75.8% for the three and six months ended June 30, 2018, respectively, compared with 76.5% and 76.3% for the three and six months ended June 30, 2017, driven predominantly by a lower subscription margin reflecting the aforementioned infrastructure and workforce investments.

Operating Costs and Expenses

Operating costs and expenses for the three and six months ended June 30, 2018 and 2017 were as follows:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
Operating costs and expenses:	(amounts in thousands except percentages)					
Research and development	\$ 40,789	\$ 35,884	13.7%	\$ 78,311	\$ 65,821	19.0%
Percentage of total revenues	26.2%	26.4%		25.7%	25.0%	
Sales and marketing	37,106	32,479	(1) 14.2%	73,967	62,705	(1) 18.0%
Percentage of total revenues	23.8%	23.9%		24.2%	23.8%	
General and administrative	27,672	23,083	19.9%	52,859	47,071	12.3%
Percentage of total revenues	17.7%	16.9%		17.3%	17.8%	
Total operating costs and expenses	\$ 105,567	\$ 91,446	15.4%	\$ 205,137	\$ 175,597	16.8%
Percentage of total revenues	67.7%	67.2%		67.2%	66.6%	
Operating income	\$ 12,837	\$ 12,661	1.4%	\$ 26,163	\$ 25,540	2.4%
Operating margin	8.2%	9.3%		8.6%	9.7%	

(1) Figures for the three and six months ended June 30, 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 increases in personnel costs of \$3.0 million and \$7.8 million for the three and six months ended June 30, 2018, respectively, resulting from a 12% year-over-year headcount increase due to our continued hiring of skilled engineering talent and our acquisitions. Research and development expenses were also impacted by increased costs for specialized consultants and outside experts of \$1.2 million and \$2.6 million for the three and six months ended June 30, 2018, respectively, and higher third-party software costs of \$0.5 million and \$1.9 million for the three and six months ended June 30, 2018, respectively.

The year-over-year growth in sales and marketing expenses was predominantly driven by increases in personnel costs of \$5.1 million and \$11.2 million for the three and six months ended June 30, 2018, respectively, resulting from a 27% 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 increases in personnel costs of \$2.7 million and \$4.9 million for the three and six months ended June 30, 2018, respectively, resulting from a 15% year-over-year headcount increase. Higher legal and professional fees, associated with litigation matters and our acquisition of SHYFT, also impacted expenses.

Interest and Other Income (Expense), net

Interest and other income (expense) for the three and six months ended June 30, 2018 and 2017 was as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
(amounts in thousands)				
Interest and other income (expense), net	\$4,357	(\$3,055)	\$ 774	\$ (6,211)

The year-over-year increase in total interest and other income was primarily driven by a gain on step acquisition of SHYFT of \$7.6 million for both the three and six months ended June 30, 2018, as well as increased interest income on our available-for-sale marketable securities of \$1.0 million and \$1.9 million for the three and six months ended June 30, 2018, respectively. This income was partially offset by new interest expense on our credit facility, entered into in December 2017, of \$1.1 million and \$2.2 million for the three and six months ended June 30, 2018, respectively.

Income Taxes

Provision for income taxes for the three and six months ended June 30, 2018 and 2017 was as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
	(amounts in thousands)			
Provision for income taxes	\$605	\$2,065 ⁽¹⁾	\$ 23	\$ 1,808 ⁽¹⁾

(1) Figures for the three and six months ended June 30, 2017 have been recast to reflect our January 1, 2018 full retrospective adoption of ASC 606.

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 June 30, 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 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.

[Table of Contents](#)

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 that 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 June 30, 2018 and December 31, 2017, and for the six months ended June 30, 2018 and 2017 (in thousands):

	June 30, 2018	December 31, 2017
Cash, cash equivalents, and marketable securities	\$ 477,377	\$ 663,333
Furniture, fixtures and equipment, net	93,088	88,091
1.00% convertible senior notes, net	285,748	278,094
Term loan, net (including current maturities)	96,808	97,841

	Six Months Ended June 30, 2018	2017
Cash provided by operating activities	\$ 23,776	\$ 60,702
Cash used in investing activities	(129,516)	(42,694)
Cash used in financing activities	(11,073)	(1,480)

Cash, Cash Equivalents, and Marketable Securities

For the six months ended June 30, 2018, cash provided by operating activities of \$23.8 million was driven by customer collections, partially offset by operating expenditures and cash interest expense on our 1.00% convertible senior notes and term loan. Cash used in investing activities of \$129.5 million consisted of a net payment of \$178.6 million to acquire SHYFT Analytics, Inc. ("SHYFT") and cash payments for capital expenditures of \$19.5 million, partially offset by net sales of marketable securities of \$68.6 million. Cash used in financing activities of \$11.1 million resulted primarily from the acquisition of \$18.3 million of treasury stock in connection with equity plan participant tax withholdings upon vesting, \$4.1 million in earn-out payments related to the 2017 acquisition of CHITA Inc. ("CHITA"), \$1.3 million in term loan principal payments, and \$0.2 million in payments of credit facility financing costs, partially offset by equity plan proceeds of \$12.7 million.

For the six months ended June 30, 2017, cash provided by operating activities of \$60.7 million was driven by customer collections, partially offset by operating expenditures and cash interest expense on our 1.00% convertible senior notes. Cash used in investing activities of \$42.7 million consisted of net payments of \$22.9 million in aggregate to acquire CHITA and Mytrus, Incorporated, cash payments for capital expenditures of \$16.6 million, and net purchases of marketable securities of \$3.1 million. Cash used in financing activities of \$1.5 million resulted from the acquisition of \$14.8 million of treasury stock in connection with equity plan participant tax withholdings upon vesting, partially offset by equity plan proceeds of \$13.3 million.

Capital Assets

We acquired \$18.2 million in capital assets during the six months ended June 30, 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 six months ended June 30, 2018 were \$19.5 million and included payments for previously accrued assets. We expect to acquire approximately \$20 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 mature on August 1, 2018 unless earlier 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. The cash portion of the settlement will be funded with a mix of cash on hand and sales of our available-for-sale marketable securities. As of June 30, 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 six 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 \$120.3 million at June 30, 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 \$357.1 million at June 30, 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 \$98.8 million of term loans outstanding under our credit facility as of June 30, 2018, the estimated potential impact of a hypothetical 1% increase in interest rate would amount to \$0.5 million for the six months ended June 30, 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 six months ended June 30, 2018 resulting from a hypothetical 10% adverse change in quoted foreign currency exchange rates amounted to \$3.4 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 six months ended June 30, 2018, 4.4% of our revenues and 17.1% of our expenses were denominated in foreign currencies. Total loss arising from transactions denominated in foreign currencies amounted to \$0.5 million for the six months ended June 30, 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 June 30, 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

[Table of Contents](#)

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 June 30, 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 Amended and Restated 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 June 30, 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
April 1 – April 30, 2018	10,959	\$ 67.74	—	—
May 1 – May 31, 2018	8,433	\$ 75.34	—	—
June 1 – June 30, 2018	3,362	\$ 79.10	—	—
Total	22,754	\$ 72.23	—	—

(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	Incorporated by Reference		
		Form	File No.	Date Filed
2.1	Agreement and Plan of Merger, dated as of June 11, 2018 by and among Medidata Solutions, Inc., Storm Merger Sub, Inc. and SHYFT Analytics, Inc.	8-K	001-34387	6/12/2018
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.

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: August 2, 2018

**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: August 2, 2018

By: /s/ TAREK A. SHERIF

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

**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: August 2, 2018

By: /s/ ROUVEN BERGMANN

Rouven Bergmann
Chief Financial Officer
Medidata Solutions, Inc.

**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 June 30, 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: August 2, 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.

**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 June 30, 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: August 2, 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.

