Medidata Solutions, Inc.
Form 10-Q
November 03, 2016
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

ý QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended September 30, 2016
OR
¨ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to
Commission File Number: 001-34387

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

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

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

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. ý Yes ¨ No
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). ý Yes ¨ No
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of “large accelerated filer”, “accelerated filer”, and “smaller reporting company” in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ý	Accelerated filer ¨
Non-accelerated filer ¨ (Do not check if a smaller reporting company)	Smaller reporting company ¨

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). ¨ Yes ý No
As of October 31, 2016, the registrant had 57,633,313 shares of common stock outstanding.

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FOR THE QUARTERLY PERIOD ENDED SEPTEMBER 30, 2016
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PART I - FINANCIAL INFORMATION

Item 1. Financial Statements (Unaudited)

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

	September 30, 2016	December 31, 2015
	(Amounts in thousands, except per share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	$65,165	$ 49,562
Marketable securities	264,903	220,126
Accounts receivable, net of allowance for doubtful accounts of $2,064 and $1,992, respectively	114,886	90,590
Prepaid commission expense	2,830	1,670
Prepaid expenses and other current assets	22,301	21,165
Deferred income taxes	104	88
Total current assets	470,189	383,201
Restricted cash	5,759	5,755
Furniture, fixtures and equipment, net	54,296	51,043
Marketable securities – long-term	154,161	209,041
Goodwill	30,232	18,797
Intangible assets, net	5,489	1,172
Deferred income taxes – long-term	50,668	12,128
Other assets	14,972	3,043
Total assets	$785,766	$ 684,180
LIABILITIES AND STOCKHOLDERS’ EQUITY		
Current liabilities:		
Accounts payable	$1,185	$ 6,283
Accrued payroll and other compensation	24,740	23,744
Accrued expenses and other	20,394	15,469
Deferred revenue	77,252	75,582
Total current liabilities	123,571	121,078
Noncurrent liabilities:		
1.00% convertible senior notes, net	259,851	249,487
Deferred revenue, less current portion	3,312	2,993
Deferred tax liabilities	446	414
Other long-term liabilities	19,475	26,052
Total noncurrent liabilities	283,084	278,946
Total liabilities	406,655	400,024
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; 61,214 and 59,455 shares issued; 57,599 and 56,311 shares outstanding, respectively	612	594
Additional paid-in capital	403,765	364,973
Treasury stock, 3,615 and 3,144 shares, respectively	(113,070)	(100,806)
Accumulated other comprehensive loss	(3,715)	(3,404)
Retained earnings	91,519	22,799
Total stockholders’ equity	379,111	284,156

Total liabilities and stockholders’ equity	$785,766	$ 684,180

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

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MEDIDATA SOLUTIONS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS (Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
	(Amounts in thousands, except per share data)			
Revenues				
Subscription	$101,560	$88,878	$288,288	$251,556
Professional services	18,501	14,235	50,621	42,081
Total revenues	120,061	103,113	338,909	293,637
Cost of revenues (1)(2)				
Subscription	16,095	12,489	46,024	36,316
Professional services	13,133	10,304	36,929	31,564
Total cost of revenues	29,228	22,793	82,953	67,880
Gross profit	90,833	80,320	255,956	225,757
Operating costs and expenses				
Research and development (1)	28,028	24,192	84,523	68,622
Sales and marketing (1)(2)	27,789	25,881	80,856	75,923
General and administrative (1)	20,089	19,143	57,866	61,655
Total operating costs and expenses	75,906	69,216	223,245	206,200
Operating income	14,927	11,104	32,711	19,557
Interest and other income (expense)				
Interest expense	(4,220)	(4,038)	(12,530)	(11,993)
Interest income	1,005	739	2,809	1,885
Other (expense) income, net	(7)	3	(8)	(65)
Total interest and other expense, net	(3,222)	(3,296)	(9,729)	(10,173)
Income before income taxes	11,705	7,808	22,982	9,384
Provision for income taxes	4,347	3,127	4,839	3,033
Net income	$7,358	$4,681	$18,143	$6,351
Earnings per share				
Basic	$0.13	$0.09	$0.33	$0.12
Diluted	$0.13	$0.08	$0.32	$0.11
Weighted average common shares outstanding				
Basic	55,670	53,933	55,395	53,615
Diluted	57,738	56,687	57,272	55,985

(1) Stock-based compensation expense included in cost of revenues and operating costs and expenses is as follows:

Cost of revenues	$1,154	$1,246	$3,603	$3,805
Research and development	2,292	2,105	6,809	5,904
Sales and marketing	1,633	2,343	5,349	7,170
General and administrative	5,379	6,408	15,394	21,029
Total stock-based compensation	$10,458	$12,102	$31,155	$37,908

(2) Amortization of intangible assets included in cost of revenues and operating costs and expenses is as follows:

Cost of revenues	$314	$79	$707	$438
Sales and marketing	84	30	193	89
Total amortization of intangible assets	$398	$109	$900	$527

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

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MEDIDATA SOLUTIONS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
	(Amounts in thousands)			
Net income	$7,358	$4,681	$18,143	$6,351
Other comprehensive income (loss)				
Foreign currency translation adjustments	(376)	(564)	(1,028)	(391)
Unrealized (loss) gain on marketable securities	(548)	(389)	1,159	(186)
Other comprehensive (loss) income	(924)	(953)	131	(577)
Income tax effect of unrealized gain or loss on marketable securities	139	155	(442)	87
Other comprehensive loss, net of tax	(785)	(798)	(311)	(490)
Comprehensive income, net of tax	$6,573	$3,883	$17,832	$5,861

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

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MEDIDATA SOLUTIONS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS (Unaudited)

	Nine Months Ended September 30,				
	2016		2015		
Cash flows from operating activities	(Amounts in thousands)				
Net income	$ 18,143		$ 6,351		
Adjustments to reconcile net income to net cash provided by operating activities					
Amortization of intangible assets and depreciation	10,901		7,941		
Stock-based compensation	31,155		37,908		
Amortization of discounts or premiums on marketable securities	2,268		3,667		
Deferred income taxes	3,768		(1,235	)	
Amortization of debt issuance costs	959		958		
Amortization of debt discount	9,405		8,859		
Provision for doubtful accounts	863		539		
Loss on fixed asset disposal	15		—		
Changes in operating assets and liabilities:					
Accounts receivable	(32,414	)	(32,284	)	
Prepaid commission expense	(3,096	)	374		
Prepaid expenses and other current assets	(1,747	)	(5,268	)	
Other assets	(5,443	)	1,814		
Accounts payable	(1,883	)	(1,235	)	
Accrued payroll and other compensation	863		3,376		
Accrued expenses and other	10,525		1,644		
Deferred revenue	10,661		22,842		
Other long-term liabilities	(6,577	)	1,902		
Net cash provided by operating activities	48,366		58,153		(1)
Cash flows from investing activities					
	(15,872	)	(11,017	)	

Purchases of furniture, fixtures and equipment					
Purchases of available-for-sale securities	(214,670	)	(207,126	)	
Proceeds from sale of available-for-sale securities	223,664		190,656		
Purchase of cost method investment	(4,000	)	—		
Acquisition of business, net of cash acquired	(17,186	)	—		
Net decrease (increase) in restricted cash	80		(464	)	
Net cash used in investing activities	(27,984	)	(27,951	)	
Cash flows from financing activities					
Proceeds from exercise of stock options	4,269		5,770		
Proceeds from employee stock purchase plan	5,190		4,675		
Repayment of notes payable	(100	)	(32	)	
Repayment of obligations under capital leases	—		(26	)	
Acquisition of treasury stock	(14,437	)	(16,915	)	
Net cash used in financing activities	(5,078	)	(6,528	)	(1)
Effect of exchange rate changes on cash and cash equivalents	299		(12	)	
Net increase in cash and cash equivalents	15,603		23,662		
Cash and cash equivalents – Beginning of period	49,562		39,517		
Cash and cash equivalents – End of period	$ 65,165		$ 63,179		

(1) As a result of the Company's early adoption of Accounting Standards Update No. 2016-09, which requires excess tax benefit on equity awards to be presented as an operating activity, the consolidated statement of cash flows for the nine months ended September 30, 2015 has been adjusted to reflect an offsetting increase of $1,706 thousand to net cash provided by operating activities and net cash used in financing activities. Refer to Note 1, "Summary of Significant Accounting Policies — Recently Adopted Accounting Pronouncements" for further information.

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

MEDIDATA SOLUTIONS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS, CONTINUED (Unaudited)

	Nine Months Ended September 30,	
	2016	2015
Supplemental disclosures of cash flow information:		
Cash paid during the period for:		
Interest	$2,882	$2,876
Income taxes	$1,514	$595
Noncash investing activities:		
Furniture, fixtures, and equipment acquired but not yet paid for at period-end	$1,833	$2,682

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

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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 September 30, 2016 are the same as those at December 31, 2015, which are included in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2015 filed with the Securities and Exchange Commission (“SEC”) on February 29, 2016.
Basis of Presentation — The accompanying interim condensed consolidated balance sheets as of September 30, 2016 and December 31, 2015, the condensed consolidated statements of operations for the three and nine months ended September 30, 2016 and 2015, the condensed consolidated statements of comprehensive income for the three and nine months ended September 30, 2016 and 2015, and the condensed consolidated statements of cash flows for the nine months ended September 30, 2016 and 2015 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, 2015 included in the Company’s Annual Report on Form 10-K filed with the SEC on February 29, 2016.
Except for the changes resulting from early adoption of Accounting Standards Update ("ASU") No 2016-09, which is described in the "Recently Adopted Accounting Pronouncements" section of this Note, 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 September 30, 2016, results of its operations for the three and nine months ended September 30, 2016 and 2015, comprehensive income for the three and nine months ended September 30, 2016 and 2015, and cash flows for the nine months ended September 30, 2016 and 2015. The results of operations for the three and nine months ended September 30, 2016 are not necessarily indicative of the results that may be expected for the year ending December 31, 2016.
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.
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 September 30, 2016 and December 31, 2015, unbilled accounts receivable of $14.1 million and $10.3 million, respectively, were included in accounts receivable on the Company's consolidated balance sheets. In general, there is a direct relationship between the Company's accounts receivable balance and its transaction volume.
Recently Adopted Accounting Pronouncements — In August 2014, the Financial Accounting Standards Board ("FASB") issued ASU No. 2014-15, Presentation of Financial Statements—Going Concern. This new guidance formally establishes management's responsibility to evaluate at each reporting period whether there is substantial doubt about the entity's ability to continue as a going concern for a period of one year after the date the financial statements are issued, and to provide related footnote disclosures. ASU No. 2014-15 is effective for annual reporting periods ending

after December 15, 2016, and for interim and annual periods thereafter. The Company will adopt ASU No. 2014-15 for the annual reporting period ending December 31, 2016, and the adoption is not expected to have a material impact on its consolidated financial statements.

In April 2015, the FASB issued ASU No. 2015-03, Simplifying the Presentation of Debt Issuance Costs. ASU No. 2015-03 requires that debt issuance costs be presented not as an asset but as a reduction of the carrying amount of the related debt liability, similar to a debt discount. ASU No. 2015-03 is effective for annual periods beginning after December 15, 2015, and interim periods within those annual periods, with early adoption permitted. The Company adopted ASU No. 2015-03 retrospectively on January 1, 2016, and the adoption did not have a material impact on its consolidated financial statements, aside from a balance sheet reclassification. Refer to Note 6, "Debt," for details.

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

In May 2015, the FASB issued ASU No. 2015-07, Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent). ASU No. 2015-07 removes the requirement to categorize within the fair value hierarchy those investments that are measured at fair value using net asset value per share as a practical expedient and requires that sufficient information be provided to permit reconciliation of the fair value of assets categorized within the fair value hierarchy to amounts presented on the balance sheets. ASU No. 2015-07 is effective for annual periods beginning after December 15, 2015, and interim periods within those annual periods, with early adoption permitted. The Company adopted ASU No. 2015-07 retrospectively on January 1, 2016, and the adoption did not have a material impact on its consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-09, Improvements to Employee Share-Based Payment Accounting, which simplifies several aspects of the accounting for share-based payment transactions, including income tax consequences, classification of awards as either equity or liability, and classification on the statement of cash flows. ASU No. 2016-09 is effective for annual periods beginning after December 15, 2016, and interim periods within those annual periods. Early adoption is permitted in any interim or annual period; if an entity adopts the amendments in an interim period, any adjustments must be reflected as of the beginning of the fiscal year that includes that interim period. The Company's early adoption of ASU No. 2016-09 in the third quarter of 2016 impacted its consolidated financial statements as follows:

- The new guidance requires excess tax benefits and tax deficiencies on equity awards, which were formerly recognized in additional paid-in capital, to be recognized in the income statement when the awards vest or are settled; adoption of this portion of ASU No. 2016-09 resulted in recognition of deferred tax assets for all excess tax benefits that had not been previously recognized because the related tax deduction had not reduced income taxes payable. This was effected through a $50.6 million cumulative-effect adjustment to opening retained earnings as of January 1, 2016.
- The new guidance requires cash flows related to excess tax benefits, which were formerly classified as a financing activity on the statement of cash flows, to be classified as an operating activity; as a result of the adoption of ASU No. 2016-09, the Company has classified the excess tax benefit for the nine months ended September 30, 2016 as an operating activity on the statement of cash flows. Use of the permitted modified retrospective approach has resulted in an offsetting increase of $1.7 million to cash provided by operating activities and cash used in financing activities for the nine months ended September 30, 2015.

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 January 2016, the FASB issued ASU No. 2016-01, Recognition and Measurement of Financial Assets and Financial Liabilities, which enhances the reporting model for financial instruments by amending certain aspects of existing guidance on recognition, measurement, presentation, and disclosure to provide financial statement users with more decision-useful information. ASU No. 2016-01 is effective for annual periods beginning after December 15, 2017, and interim periods within those annual periods. The Company will adopt ASU No. 2016-01 on January 1, 2018, and is presently evaluating the impact of the adoption on its consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, Leases, which replaces previous lease guidance in its entirety with Accounting Standards Codification ("ASC") 842, Leases. The new guidance 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, and requires a modified retrospective approach. Early adoption is permitted. The Company will adopt ASU No. 2016-02 on January 1, 2019, and is presently evaluating the impact of the adoption on its consolidated financial statements.

In August 2015, 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 does not expect the adoption to have a material impact on its consolidated financial statements and may consider early adoption, which is permitted in any interim or annual period.

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MEDIDATA SOLUTIONS, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Unaudited)

2. 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 Second Amended and Restated 2009 Long-Term Incentive Plan (the “2009 Plan”). Under the provisions of the 2009 Plan, unless otherwise elected, participants fulfill their related income tax withholding obligation by having shares withheld at the time of vesting. On the date of vesting, the Company divides the participant's income tax 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 for future reissuance. During the nine months ended September 30, 2016 and 2015, the Company withheld 338,523 shares at an average price of $36.22 and 338,792 shares at an average price of $50.27, respectively, in connection with the vesting of equity awards.

Nonvested RSAs forfeited by plan participants are transferred to the Company's treasury stock at par. During the nine months ended September 30, 2016 and 2015, 132,626 and 80,752 forfeited shares, respectively, were transferred to treasury stock at their par value of $0.01.

3. 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 consolidated balance sheet.

The following table provides the Company’s marketable securities by security type as of September 30, 2016 and December 31, 2015 (in thousands):

	As of September 30, 2016			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Commercial paper and corporate bonds	$386,881	$ 33	$ (471)	$386,443
U.S. government agency debt securities	32,639	—	(18)	32,621
Total	$419,520	$ 33	$ (489)	$419,064

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

Contractual maturities of the Company’s marketable securities as of September 30, 2016 and December 31, 2015 are summarized as follows (in thousands):

	As of September 30, 2016		As of December 31, 2015	
	Cost	Estimated Fair Value	Cost	Estimated Fair Value
Due in one year or less	$265,154	$264,903	$220,492	$220,126
Due in one to five years	154,366	154,161	210,290	209,041
Total	$419,520	$419,064	$430,782	$429,167

At September 30, 2016, the Company had $0.5 million of gross unrealized losses primarily due to a decrease in the fair value of certain corporate bonds.

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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 until maturity, the Company has determined that the gross unrealized losses on such investments at September 30, 2016 are temporary in nature. Accordingly, the Company did not consider its investments in marketable securities to be other-than-temporarily impaired as of September 30, 2016.
The following tables provide the fair market value and the gross unrealized losses of the Company's marketable securities with unrealized losses, aggregated by security type, as of September 30, 2016 and December 31, 2015 (in thousands):

	In Loss Position for Less than 12 Months			
	As of September 30, 2016		As of December 31, 2015	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Commercial paper and corporate bonds	$259,180	$ (364)	$359,566	$ (1,443)
U.S. government agency debt securities	22,824	(15)	25,863	(95)
Total	$282,004	$ (379)	$385,429	$ (1,538)

	In Loss Position for More than 12 Months			
	As of September 30, 2016		As of December 31, 2015	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Commercial paper and corporate bonds	$82,509	$ (107)	$38,726	$ (79)
U.S. government agency debt securities	4,797	(3)	—	—
Total	$87,306	$ (110)	$38,726	$ (79)

During the three and nine months ended September 30, 2016 and 2015, the Company recorded an insignificant amount of net realized gains from the sale of marketable securities.
Cost Method Investment
In August 2016, the Company purchased shares of Series B Preferred Stock of SHYFT Analytics, Inc. ("SHYFT") via a private placement. This investment is accounted for under the cost method and is included in other assets on the Company's consolidated balance sheet as of September 30, 2016 at its purchase price of $4.0 million.
The Company's vice chairman, Steven Hirschfeld, has served on the board of directors of SHYFT since 2014 in an individual capacity and not as a representative of the Company.

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

4. FAIR VALUE

The following table summarizes, as of September 30, 2016 and December 31, 2015, our financial assets that are measured at fair value on a recurring basis, according to the fair value hierarchy described in our significant accounting policies included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2015 (in thousands):

	As of September 30, 2016			As of December 31, 2015		
	Level 1	Level 2	Total	Level 1	Level 2	Total
Cash	62,867	—	62,867	48,917	—	48,917
Money market funds	2,298	—	2,298	645	—	645
Commercial paper	—	—	—	—	—	—
Total cash and cash equivalents	65,165	—	65,165	49,562	—	49,562
Commercial paper and corporate bonds	—	386,443	386,443	—	400,302	400,302
U.S. government agency debt securities	—	32,621	32,621	—	28,865	28,865
Total marketable securities	—	419,064	419,064	—	429,167	429,167
Total financial assets measured at fair value on a recurring basis	65,165	419,064	484,229	49,562	429,167	478,729

As of September 30, 2016 and December 31, 2015, the Company had no financial liabilities measured at fair value on a recurring basis, and none of its financial assets measured at fair value on a recurring basis relied upon Level 3 inputs.

Investments in 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 prices for similar instruments if available. During the nine months ended September 30, 2016 and 2015, there were no transfers of financial assets between Level 1 and Level 2.

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

5. GOODWILL AND INTANGIBLE ASSETS

On April 1, 2016, the Company acquired Intelemage, LLC ("Intelemage"), a medical image sharing and workflow management company for a net purchase price of $17.2 million, broadening its offerings with the addition of digital image management technology. The acquisition resulted in the recognition of the following intangible assets (in thousands):

	Acquisition-Date Fair Value	Weighted-Average Useful Life
Acquired technology	$ 3,750	4 years
Customer relationships	1,472	6 years
Total	$ 5,222	

The change in the carrying amount of goodwill during the nine months ended September 30, 2016 was as follows (in thousands):

Balance as of January 1, 2016	$18,797
Additions related to acquisition of Intelemage	$12,007
Foreign currency translation adjustments	(572)

Balance as of September 30, 2016	$30,232

MEDIDATA SOLUTIONS, INC.
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Total intangible assets are summarized as follows (in thousands):

	As of September 30, 2016			As of December 31, 2015		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Acquired technology	$ 8,780	$ (4,851)	$ 3,929	$ 5,223	$ (4,336)	$ 887
Customer relationships	3,585	(2,116)	1,469	2,165	(1,994)	171
Non-competition agreements	150	(59)	91	150	(36)	114
Total	$ 12,515	$ (7,026)	$ 5,489	$ 7,538	$ (6,366)	$ 1,172

Amortization of intangible assets for the next five years is expected to be as follows (in thousands):

Remainder of year ending December 31, 2016	$ 398
Years ending December 31,	
2017	1,569
2018	1,488
2019	1,230
2020	498
2021	245

6. DEBT

The Company's 1.00% convertible senior notes (the "Notes"), issued in August 2013, consisted of the following components as of September 30, 2016 and December 31, 2015 (in thousands):

	September 30, 2016	December 31, 2015
Equity component, net of equity issue costs	$ 60,222	$ 60,222
Liability component:		
Principal	287,500	287,500
Less: unamortized debt discount	(25,307)	(34,712)
Less: unamortized debt issuance costs	(2,342)	(3,301)
Net carrying amount	$ 259,851	$ 249,487

On January 1, 2016, the Company retrospectively adopted ASU No. 2015-03, Simplifying the Presentation of Debt Issuance Costs, which requires unamortized debt issuance costs to be presented as a reduction of the carrying amount of the related debt liability, similar to a debt discount. This resulted in the reclassification of $3.3 million in unamortized debt issuance costs from other assets to 1.00% convertible senior notes on the Company's consolidated balance sheet as of December 31, 2015.

As of September 30, 2016 and December 31, 2015, the estimated fair value of the Notes was $332.9 million and $313.0 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 than active market. As of September 30, 2016, the Notes are not convertible. Based on the closing price of the Company's common stock on September 30, 2016 of $55.76, which is less than the Notes' initial conversion price of $58.05, the if-converted value of the Notes was less than their principal amount.

As of September 30, 2016, the remaining life of the Notes was approximately 22 months.

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The following table sets forth total interest expense recognized related to the Notes for the three and nine months ended September 30, 2016 and 2015 (in thousands except percentages):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Contractual interest expense	$718	$719	$2,156	$2,156
Amortization of debt issuance costs	320	319	959	958
Amortization of debt discount	3,181	2,997	9,405	8,859
Total	$4,219	$4,035	$12,520	$11,973
Effective interest rate	6.5 %	6.5 %	6.5 %	6.5 %

7. STOCK-BASED COMPENSATION

For the three and nine months ended September 30, 2016 and 2015, the components of stock-based compensation expense were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Stock options	$947	$1,070	$3,000	$3,906
Restricted stock awards and units	6,571	5,031	18,312	14,334
Performance-based restricted stock units	2,264	4,964	7,133	16,546
Employee stock purchase plan	676	1,037	2,710	3,122
Total stock-based compensation	$10,458	$12,102	$31,155	$37,908

Stock Options

The fair value of each stock option granted during the three and nine months ended September 30, 2016 and 2015 was estimated on the date of grant using a Black-Scholes pricing model with the following weighted-average assumptions:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Expected volatility	44 %	43 %	43 %	43 %
Expected life	6 years	6 years	6 years	6 years
Risk-free interest rate	1.20 %	1.69 %	1.42 %	1.69 %
Dividend yield	—	—	—	—

The following table summarizes the status of the Company's stock options as of September 30, 2016, and changes during the nine 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, 2016	1,940	$21.73		
Granted	134	41.33		
Exercised	(238)	17.89		
Forfeited	(6)	40.54		

Expired	(22)	58.09		
Outstanding at September 30, 2016	1,808	$23.18	5.37	$59,233
Exercisable at September 30, 2016	1,413	$17.13	4.48	$54,809
Vested and expected to vest at September 30, 2016	1,759	$22.59	5.27	$58,682

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The weighted-average grant-date fair value of stock options granted during the three months ended September 30, 2016 and 2015 was $23.15 and $19.99, respectively. The weighted-average grant-date fair value of stock options granted during the nine months ended September 30, 2016 and 2015 was $17.92 and $21.81, respectively. The total intrinsic value of stock options exercised during the three months ended September 30, 2016 and 2015 was $4.4 million and $1.7 million, respectively. The total intrinsic value of stock options exercised during the nine months ended September 30, 2016 and 2015 was $7.4 million and $14.1 million, respectively. The total fair value of stock options vested during the three months ended September 30, 2016 and 2015 was $1.7 million and $1.1 million, respectively. The total fair value of stock options vested during the nine months ended September 30, 2016 and 2015 was $3.8 million and $3.5 million, respectively. As of September 30, 2016, there was $6.8 million in unrecognized compensation cost related to all non-vested stock options granted. This cost is expected to be recognized over a weighted-average remaining period of 2.55 years.

Restricted Stock Awards and Units

The following table summarizes the status of the Company's nonvested time-based RSAs and RSUs as of September 30, 2016, and changes during the nine months then ended (in thousands, except per share data):

	Number of Shares	Weighted-Average Grant-Date Fair Value
Nonvested at January 1, 2016	1,355	$40.82
Granted	1,138	37.90
Vested	(481)	33.94
Forfeited	(138)	41.76
Nonvested at September 30, 2016	1,874	$40.75

The total fair value of RSAs and RSUs vested during the three months ended September 30, 2016 and 2015 was $1.5 million and $2.1 million, respectively. The total fair value of RSAs and RSUs vested during the nine months ended September 30, 2016 and 2015 was $18.4 million and $29.3 million, respectively. As of September 30, 2016, there was $60.4 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 2.72 years.

Performance-Based Restricted Stock Units

No PBRSUs were granted during the three months ended September 30, 2016 and 2015.

During the nine months ended September 30, 2016, the Company granted 223 thousand PBRSUs ("2016 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, 2018, vesting in full in three years with the number of PBRSUs ultimately earned ranging from zero to 200% of the target number of shares. The Company also granted an insignificant number of other PBRSUs with performance conditions based on achievement of certain individual performance objectives.

During the nine months ended September 30, 2015, the Company granted 242 thousand PBRSUs ("2015 TSR PBRSUs") with market conditions based on the Company's TSR relative to that of the Russell 2000 Index over the one-, two-, and three-year periods ending December 31, 2015, 2016, and 2017, respectively, vesting in equal parts over three years with the number of PBRSUs ultimately earned ranging from zero to 200% of the target number of shares.

The fair value of PBRSUs with market conditions granted during the nine months ended September 30, 2016 and 2015 was estimated as of the date of grant using a Monte Carlo valuation model with the following weighted average assumptions:

	2016 TSR PBRSUs	2015 TSR PBRSUs
Expected volatility - Medidata	48 %	46 %

Expected volatility - comparison index	43 %	41 %
Expected life	2.84 years	2.88 years
Risk-free interest rate	0.91 %	0.99 %
Dividend yield	—	—

The following table summarizes the status of the Company's PBRSUs based upon expected performance as of September 30, 2016, and changes during the nine months then ended (in thousands, except per share data):

	Revenue	TSR	Other	Total Number of Shares	Weighted-Average Grant Date Fair Value
Nonvested at January 1, 2016	136	347	7	490	$ 49.86
Granted (based on performance at 100% of targeted levels)	—	223	16	239	46.45
Adjustment related to expected performance	—	215	—	215	56.48
Vested	(136)	(164)	(2)	(302)	38.50
Forfeited	—	(6)	(1)	(7)	65.23
Nonvested at September 30, 2016	—	615	20	635	$ 56.05

The total fair value of PBRSUs vested during the three months ended September 30, 2016 and 2015 was $0.1 million and $0.1 million, respectively. The total fair value of PBRSUs vested during the nine months ended September 30, 2016 and 2015 was $10.1 million and $10.7 million, respectively. As of September 30, 2016, there was $12.6 million in unrecognized compensation cost related to all nonvested PBRSUs. This cost is expected to be recognized over a weighted-average remaining period of 1.60 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 September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Expected volatility	41 %	49 %	42 %	49 %
Expected life	1.35 years	1.45 years	1.46 years	1.49 years
Risk-free interest rate	0.54 %	0.35 %	0.53 %	0.34 %
Dividend yield	—	—	—	—

During the nine months ended September 30, 2016, 89 thousand shares were purchased under the ESPP at a weighted-average price of $38.35. During the nine months ended September 30, 2015, 86 thousand shares were purchased under the ESPP at a weighted-average price of $37.93. No shares were purchased under the ESPP during the three months ended September 30, 2016 and 2015. As of September 30, 2016, there was $5.4 million in unrecognized compensation cost related to ESPP shares. This cost is expected to be recognized over a weighted-average remaining period of 1.59 years.

During the second quarter of 2016, the Company increased the number of shares reserved under the ESPP from 0.3 million to 0.8 million.

Modifications

Net incremental expense associated with modifications to stock options, RSAs, RSUs, and PBRSUs during the three and nine months ended September 30, 2016 was $0.1 million and $0.5 million in the aggregate, respectively, and immaterial on an individual basis.

No equity awards were modified during the three months ended September 30, 2015. During the nine months ended September 30, 2015, net incremental expense associated with modifications was $1.3 million as a result of the Company's CFO transition in the second quarter of 2015.

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

8. ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)
The changes in the balances of each component of accumulated other comprehensive loss during the nine months ended September 30, 2016 are as follows (in thousands):

	Foreign currency translation adjustments	Unrealized gains (losses) on marketable securities	Total
Balance as of January 1, 2016	$ (2,405)	$ (999)	$(3,404)
Other comprehensive income, net of tax	(1,028)	717	(311)
Balance as of September 30, 2016	$ (3,433)	$ (282)	$(3,715)

For the nine months ended September 30, 2016 and 2015, reclassifications of items from accumulated other comprehensive loss to net income were insignificant.
9. 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 unvested 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 antidilutive. As the Company intends to settle the principal amount of the Notes (see Note 6, "Debt") in cash upon conversion, their dilutive effect, if any, will be reflected in diluted earnings per share using the treasury stock method, which considers the number of shares that would be required to settle any premium above principal at the average stock price for the period. During the three and nine months ended September 30, 2016 and 2015, the average price of the Company's stock was below the conversion price of the Notes; as a result the Notes were not dilutive for these periods.
A reconciliation of the numerator and denominator of basic earnings per share and diluted earnings per share for the three and nine months ended September 30, 2016 and 2015 is shown in the following table (in thousands, except per share data):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Numerator				
Net income	$7,358	$4,681	$18,143	$6,351
Denominator				
Denominator for basic earnings per share:				
Weighted average common shares outstanding	55,670	53,933	55,395	53,615
Denominator for diluted earnings per share:				
Dilutive potential common shares:				
Stock options	976	856	977	921
Restricted stock awards and units	681	361	570	496
Performance-based restricted stock units	386	1,532	330	951
Employee stock purchase plan	25	5	—	2
Weighted average common shares outstanding with assumed conversion	57,738	56,687	57,272	55,985
Basic earnings per share	0.13	$0.09	$0.33	$0.12
Diluted earnings per share	0.13	$0.08	$0.32	$0.11

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Antidilutive common stock equivalents excluded from the calculation of diluted earnings per share for the three and nine months ended September 30, 2016 and 2015 are shown in the following table (in thousands, except per share data):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
Stock options	458	411	627	355
Restricted stock awards and units	20	13	30	5
Performance-based restricted stock units	—	—	—	1
Employee stock purchase plan	—	243	262	243
Total	478	667	919	604

10. INCOME TAXES

The Company had approximately $3.7 million and $8.1 million of gross unrecognized tax benefits as of September 30, 2016 and December 31, 2015, respectively. The $4.4 million decrease in gross unrecognized tax benefits during the nine months ended September 30, 2016 was primarily the result of the Internal Revenue Service ("IRS") concluding its examination of the Company's 2012 federal income tax return. The Company redetermined its unrecognized tax benefits, including similar items in open tax years, based on the agreed adjustments with the IRS and other associated information and analysis, resulting in a discrete item in the period.

11. 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.

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

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

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

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MEDIDATA SOLUTIONS, INC.
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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 sta 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, 2015 filed with the Securities and Exchange Commission ("SEC") on February 29, 2016.
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, 2015.
Overview
We are the leading global provider of cloud-based solutions for life sciences, transforming clinical development through our applications and data analytics. We are committed to powering smarter treatments and healthier people while advancing the competitive and scientific goals of our life sciences customers worldwide. Our industry-leading technology platform, the Medidata Clinical Cloud®, is the primary technology solution powering clinical trials for 17 of the world's top 25 global pharmaceutical companies, bringing new levels of productivity and quality to the clinical testing of promising medical treatments, from study design and planning through execution, management and reporting.
Subscription revenues, which are comprised of fees from clients accessing our cloud-based solutions, represented 85% of our revenues for the first nine months of 2016. Professional services revenues, which are derived from the provision of services that help our clients realize higher value in their clinical development processes, represented 15% of total revenues.
Third Quarter and Year-to-Date 2016 Highlights
- Total revenues increased 16% and 15% compared with the third quarter and first nine months of 2015, respectively.
- Professional services revenues increased 30% and 20% compared with the third quarter and first nine months of 2015, respectively. For the third quarter of 2016, professional services revenues were a record $18.5 million.
- Operating income increased 34% and 67% compared with the third quarter and first nine months of 2015, respectively.
- Cash flow from operations for the trailing twelve months ended September 30, 2016 were $78.8 million compared with $77.6 million for the comparable period ending September 30, 2015.
-

We added 222 new customers during the first nine months of 2016— 56% more than the number added during the same period last year— to end the third quarter with 789 customers.

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Results of Operations

Revenues

Revenues for the three- and nine-month periods ended September 30, 2016 and 2015 were as follows:

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2016	2015	Change	2016	2015	Change
Revenues:	(amounts in thousands except percentages)					
Subscription	$101,560	$88,878	14.3 %	$288,288	$251,556	14.6 %
Percentage of total revenues	84.6 %	86.2 %		85.1 %	85.7 %	
Professional services	18,501	14,235	30.0 %	50,621	42,081	20.3 %
Percentage of total revenues	15.4 %	13.8 %		14.9 %	14.3 %	
Total revenues	$120,061	$103,113	16.4 %	$338,909	$293,637	15.4 %

Year-over-year growth in subscription revenues was driven by major platform customer wins and strong sales growth among both new and existing customers, with strong contributions from our electronic data capture and risk-based monitoring solutions. We added 90 and 222 clients in the three and nine months ended September 30, 2016, respectively, including those added via the acquisition of Intelemage, to end the quarter with 789 clients, up 38% compared with September 30, 2015. As of September 30, 2016, we had remaining subscription backlog of $101 million, representing the future contract value of outstanding arrangements, billed and unbilled, to be recognized during the fourth quarter of 2016, excluding renewals. This reflects an increase of 24% compared with remaining backlog of $82 million at September 30, 2015.

Year-over-year growth in professional services revenues was driven by increased demand from new and existing customers for implementation and other professional services. High utilization associated with large scale enterprise implementation projects during the quarter resulted in record professional services revenues for the three months ended September 30, 2016.

Cost of Revenues

Cost of revenues for the three- and nine-month periods ended September 30, 2016 and 2015 was as follows:

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2016	2015	Change	2016	2015	Change
Cost of revenues:	(amounts in thousands except percentages)					
Subscription	$16,095	$12,489	28.9 %	$46,024	$36,316	26.7 %
Percentage of total revenues	13.4 %	12.1 %		13.6 %	12.4 %	
Professional services	13,133	10,304	27.5 %	36,929	31,564	17.0 %
Percentage of total revenues	10.9 %	10.0 %		10.9 %	10.7 %	
Total cost of revenues	$29,228	$22,793	28.2 %	$82,953	$67,880	22.2 %
Percentage of total revenues	24.3 %	22.1 %		24.5 %	23.1 %	
Gross profit	$90,833	$80,320	13.1 %	$255,956	$225,757	13.4 %
Gross margin	75.7 %	77.9 %		75.5 %	76.9 %	
Subscription margin	84.2 %	85.9 %		84.0 %	85.6 %	
Professional services margin	29.0 %	27.6 %		27.0 %	25.0 %	

Year-over-year growth in cost of subscription revenues was driven by increases in vendor software and third-party cloud hosting costs of $1.8 million and $4.6 million for the three and nine months ended September 30, 2016, respectively, resulting from increased platform activity and platform enhancements, and from investment in hosting infrastructure at our data center in Europe. In addition, our business growth drove a year-over-year headcount increase of roughly 15%, resulting in increases to personnel costs of $1.2 million and $3.4 million for the three and nine months ended September 30, 2016, respectively. Subscription gross margin decreased to 84.2% and 84.0% for the three and nine months ended September 30, 2016, respectively, compared with 85.9% and 85.6% for the three and nine months ended September 30, 2015, respectively, as a result of these infrastructure and skill set investments.

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Year-over-year growth in cost of professional fees was partially driven by increases in consulting costs of $2.0 million and $4.3 million for the three and nine months ended September 30, 2016, respectively. Personnel costs were also a contributing factor, increasing $0.6 million and $1.1 million for the three and nine months ended September 30, 2016, respectively, in response to 13% year-over-year headcount growth. Professional services gross margin increased to 29.0% and 27.0% for the three and nine months ended September 30, 2016, compared with 27.6% and 25.0% for the three and nine months ended September 30, 2015, respectively, benefiting from effective project mix and more efficient use of resources during the current year.

Overall gross margin decreased to 75.7% and 75.5% for the three and nine months ended September 30, 2016, respectively, compared with 77.9% and 76.9% for the three and nine months ended September 30, 2015, respectively, driven by lower subscription margins and a greater mix of professional services in the third quarter and first nine months of 2016.

Operating Costs and Expenses

Operating costs and expenses for the three- and nine-month periods ended September 30, 2016 and 2015 were as follows:

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2016	2015	Change	2016	2015	Change
Operating costs and expenses:	(amounts in thousands except percentages)					
Research and development	$28,028	$24,192	15.9 %	$84,523	$68,622	23.2 %
Percentage of total revenues	23.4 %	23.5 %		24.9 %	23.4 %	
Sales and marketing	27,789	25,881	7.4 %	80,856	75,923	6.5 %
Percentage of total revenues	23.2 %	25.1 %		23.8 %	25.8 %	
General and administrative	20,089	19,143	4.9 %	57,866	61,655	(6.1)%
Percentage of total revenues	16.7 %	18.5 %		17.1 %	21.0 %	
Total operating costs and expenses	$75,906	$69,216	9.7 %	$223,245	$206,200	8.3 %
Percentage of total revenues	63.3 %	67.1 %		65.8 %	70.2 %	
Operating income	$14,927	$11,104	34.4 %	$32,711	$19,557	67.3 %
Operating margin	12.4 %	10.8 %		9.7 %	6.7 %	

The year-over-year growth in research and development expenses was primarily driven by net increases in personnel-related costs of $2.8 million and $11.0 million for the three and nine months ended September 30, 2016, respectively, resulting from a 19% year-over-year headcount increase due to our hiring of skilled engineering talent. Increased fees for specialized consultants and outside experts of $0.6 million and $3.0 million for the three and nine months ended September 30, 2016, respectively, associated with investments to enhance the value of our platform, were also a contributor. Stock-based compensation expense increased $0.2 million and $0.9 million for the three and nine months ended September 30, 2016, respectively.

The year-over-year growth in sales and marketing expenses was predominantly driven by net increases in personnel-related costs of $1.5 million and $6.4 million for the three and nine months ended September 30, 2016, respectively, resulting from a 7% year-over-year headcount increase to expand our global sales organization and partner team, as well as higher sales bonus achievement. These increases were partially offset by a decrease in stock-based compensation expense of $0.7 million and $1.8 million for the three and nine months ended September 30, 2016, respectively, due to certain material equity awards having fully vested during the fourth quarter of 2015 and first quarter of 2016.

The year-over-year increase in general and administrative expenses for three months ended September 30, 2016 was driven by a net increase in personnel-related costs of $1.8 million, partially offset by a decrease in stock-based compensation expense of $1.0 million. The year-over-year decrease in general and administrative expenses for the nine months ended September 30, 2016 resulted predominantly from a decrease in stock-based compensation expense of $5.6 million and $1.8 million lower legal fees due to the settlement of patent-related litigation in January 2016, partially offset by a $4.2 million increase in personnel-related costs. Year-over-year, general and administrative headcount increased 11%.

In the first quarter of 2016, the state of New Jersey enacted legislation that allows us to recognize grants associated with the New Jersey Business Employment Incentive Program ("NJ BEIP"), which incentivizes businesses to locate and expand jobs in New Jersey. The benefits of these grants were applied against the underlying salary expense relating to our employees in research and development, sales and marketing, and general and administrative functions in New Jersey in the first quarter, reducing total operating expenses by $2.3 million for the nine months ended September 30, 2016. The NJ BEIP did not have a material impact on operating expenses for the three months ended September 30, 2016, and is not expected to have a material impact on future periods.

In 2012, we signed an incentive proposal under New York State's Empire State Development ("ESD") Excelsior Jobs Program ("Excelsior"). Excelsior provides qualifying taxpayers with refundable tax credits related to new or expanding operations in New York State. The 2012 agreement provided for credits of $2.8 million over a ten-year period beginning in 2014, resulting in an

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immaterial quarterly benefit. In the third quarter of 2016, we received and signed a new, larger Excelsior incentive proposal that provides for an additional $17.0 million of credits over a ten-year period beginning in 2016. The benefits of all Excelsior credits are applied against underlying salary expense and reduced total operating expenses by $0.5 million and $1.0 million for the three and nine months ended September 30, 2016, respectively.

Income Taxes

Provision for income taxes for the three- and nine-month periods ended September 30, 2016 and 2015 was as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2016	2015	2016	2015
	(amounts in thousands)			
Provision for income taxes	$4,347	$3,127	$4,839	$3,033

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, non-deductible expenses, share-based compensation, change in tax reserves, and U.S. tax credits. The benefit from U.S. credits will likely continue to have a favorable impact on our overall effective tax rate in the future. In the first quarter of 2016, the Internal Revenue Service concluded its examination of our 2012 federal income tax return. As a result, we redetermined our unrecognized tax benefits for previously recorded reserves, resulting in a material discrete item in the period.

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. We expect our annual effective tax rate for 2016 to be closer to the U.S. statutory rate.

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. Our critical accounting estimates as of September 30, 2016 are the same as those at December 31, 2015, which are included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2015. 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.

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.

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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 September 30, 2016 and December 31, 2015, and the nine-month periods ended September 30, 2016 and 2015 (in thousands):

	September 30, 2016	December 31, 2015
Cash, cash equivalents, and marketable securities	$484,229	$ 478,729
Furniture, fixtures and equipment, net	54,296	51,043
1.00% convertible senior notes, net	259,851	249,487

	Nine months ended September 30,		
	2016	2015	
Cash provided by operating activities	$48,366	$ 58,153	(1)
Cash provided by investing activities	(27,984)	(27,951)	
Cash used in financing activities	(5,078)	(6,528)	(1)

(1) As a result of our early adoption of Accounting Standards Update No. 2016-09, which requires excess tax benefit on equity awards to be presented as an operating activity, the consolidated statement of cash flows for the nine months ended September 30, 2015 has been adjusted to reflect an offsetting increase of $1,706 thousand to net cash provided by operating activities and net cash used in financing activities. Refer to 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 for further information.

Cash, Cash Equivalents, and Marketable Securities
For the nine months ended September 30, 2016, cash provided by operating activities of $48.4 million was driven by strong customer collections, partially offset by operating expenditures and cash interest expense on our 1.00% convertible senior notes. Cash used in investing activities of $28.0 million consisted of a net payment of $17.2 million to acquire Intelemage, LLC ("Intelemage"), cash payments for capital expenditures of $15.9 million, and $4.0 million cost method investment, partially offset by net sales of marketable securities of $9.0 million. Cash used in financing activities of $5.1 million resulted primarily from the acquisition of $14.4 million of treasury stock in connection with equity plan participant tax withholdings upon vesting, partially offset by equity plan proceeds of $9.5 million.
For the nine months ended September 30, 2015, cash provided by operating activities of $58.2 million was driven by strong customer collections, partially offset by operating expenditures and cash interest expense on our 1.00% convertible senior notes. Cash used in investing activities of $28.0 million consisted of net purchases of marketable securities of $16.5 million and cash payments for capital expenditures of $11.0 million. Cash used in financing activities of $6.5 million resulted primarily from the acquisition of $16.9 million of treasury stock in connection with equity plan participant tax withholdings upon vesting, partially offset by equity plan proceeds of $10.4 million.

Capital Assets
We acquired $13.0 million in capital assets during the nine months ended September 30, 2016, predominantly related to our new office spaces in Iselin, NJ and San Francisco, CA, as well as investments in our new European data center. On a cash basis, our capital expenditures during the nine months ended September 30, 2016 were $15.9 million and included payments for previously accrued assets. We expect to acquire approximately $4 to $5 million in additional capital assets during the remainder of 2016, primarily related to data center investments.

Debt

In August 2013, we issued $287.5 million of 1.00% convertible senior notes (the "Notes") that will mature on August 1, 2018 unless earlier repurchased or converted. Upon conversion, we will deliver to the holders of the Notes either cash, shares of our common stock, or a combination thereof, at our election. If converted, we intend to settle the principal amount of the Notes in cash and any excess conversion value beyond the principal amount in shares of our common stock, cash, or a combination thereof. As of September 30, 2016, the Notes are not convertible and therefore are classified as long term liabilities in our condensed consolidated balance sheet. For further information, see Note 6, “Debt,” to the condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

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Contractual Obligations, Commitments and Contingencies
The table below summarizes the aggregate effect that our material contractual obligations as of September 30, 2016 are expected to have on our cash flows in the periods indicated (in thousands):

	Payments Due by Period				
	Total	Remainder of 2016	2017 - 2018	2019 - 2020	2021 and later
Contractual Obligations:					
1.00% convertible senior notes	$287,500	$ —	$287,500	$—	$—
Interest payments on convertible senior notes	5,750	—	5,750	—	—
Operating lease obligations	111,244	3,757	28,749	28,865	49,873
Total	$404,494	$ 3,757	$321,999	$28,865	$49,873

Legal Matters
For a discussion of legal matters, refer to Note 11, "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 $65.2 million at September 30, 2016. Our cash equivalents are invested principally in commercial paper and money market funds. We also had investments in marketable securities, which we classify as available-for-sale securities, totaling $419.1 million at September 30, 2016. 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.
Exchange Rate Sensitivity
Our non-U.S. operating subsidiaries are located in the United Kingdom, Japan, South Korea, Singapore, and China. The functional currencies for these subsidiaries are the respective local currencies. We have exposure to exchange rate movements that are captured in translation adjustments for these subsidiaries. Such cumulative adjustments are recorded in accumulated other comprehensive income (loss). The estimated potential translation loss for the nine months ended September 30, 2016 resulting from a hypothetical 10% adverse change in quoted foreign currency exchange rates amounted to $1.5 million.
We bill our customers primarily in U.S. dollars. Any billings in foreign currency are billed from Medidata Solutions, Inc., a U.S. entity, and are mainly denominated in Euros, British pounds sterling, Australian dollars, 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 nine months ended September 30, 2016, 4.7% of our revenues and 17.0% of our expenses were denominated in foreign currencies. Gains and losses arising from transactions denominated in foreign currencies are recorded as foreign currency transaction gains (losses) in general and administrative expenses on our condensed consolidated statements of operations and amounted to $0.3 million for the nine months ended September 30, 2016.
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 September 30, 2016, an evaluation was performed with the participation of our Disclosure Committee and our management, including the Chief Executive Officer ("CEO") and the Chief Financial Officer ("CFO") of the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act). Disclosure controls and procedures are controls and procedures that are designed to ensure that information required to be disclosed in our reports filed or submitted under the Exchange Act is recorded, processed,

summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures are also designed to ensure that such information is accumulated and communicated to our management, including our CEO and CFO, as appropriate to allow timely decisions regarding required disclosure. Based upon such evaluation, our CEO and CFO have concluded that our disclosure controls and procedures were effective as of September 30, 2016.

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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.

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PART II - OTHER INFORMATION

Item 1. Legal Proceedings

See Note 11, "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, 2015 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, 2015, except that the following language shall be added to the end of the first bullet point in the list of risks identified in the in the risk factor titled Our revenues derived from international operations are subject to risks that could have an adverse effect on our results of operations: "and the United Kingdom referendum to withdraw from the European Union ('Brexit')." 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 Second Amended and Restated 2009 Long-Term Incentive Plan ("2009 Plan"). Under the provisions of the 2009 Plan, unless otherwise elected, participants fulfill their related income tax withholding obligation by having shares withheld at the time of vesting. On the date of vesting, 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 September 30, 2016 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
July 1 – July 31, 2016	1,541	$ 47.35	—	—
August 1 – August 31, 2016	2,177	$ 54.18	—	—
September 1 – September 30, 2016	8,237	$ 54.43	—	—
Total	11,955	$ 53.47	—	—

(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 2009 Plan.

Item 3. Defaults upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

The information required by this Item 6 is set forth on the exhibit index that follows the signature page of this report.

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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: November 3, 2016

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EXHIBIT INDEX

Exhibit No.	Description	Form	Incorporated by Reference File No.	Date Filed
10.1	Amended and Restated Executive Change in Control Agreement for CEO and President	8-K	001-34387	08/15/2016
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.