UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2019

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: 001-38993

HEALTH CATALYST, INC.

(Exact name of registrant as specified in its charter)

Delaware	**45-3337483**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

3165 Millrock Drive #400
Salt Lake City, UT 84121
(Address of principal executive offices, including zip code)

(801) 708-6800
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of exchange on which registered
Common Stock, par value $0.001 per share	**HCAT**	**The Nasdaq Global Select Market**

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

Large accelerated filer	Accelerated Filer	Emerging growth company
Non-accelerated Filer	Smaller reporting company	

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

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

As of October 31, 2019, the Registrant had 36,565,033 shares of common stock outstanding.

HEALTH CATALYST, INC.

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Special Note Regarding Forward-looking Statements

As used in this Quarterly Report on Form 10-Q, unless expressly indicated or the context otherwise requires, references to "Health Catalyst," "we," "us," "our," "the Company," and similar references refer to Health Catalyst, Inc. and its consolidated subsidiaries. This Quarterly Report on Form 10-Q, including the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations," includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and the Securities Exchange Act of 1934, as amended, or the Exchange Act. These forward-looking statements, which are subject to a number of risks, uncertainties, and assumptions, generally relate to future events or our future financial or operating performance. In some cases, you can identify these statements by forward-looking words such as "believe," "may," "will," "estimate," "continue," "anticipate," "design," "intend," "expect," "could," "plan," "potential," "predict," "seek," "should," "would," "target," "project," "contemplate," or the negative version of these words and other comparable terminology that concern our expectations, strategy, plans, intentions, or projections. Forward-looking statements contained in this Quarterly Report on Form 10-Q include, but are not limited to, statements about:

- our ability to attract new customers and retain and expand our relationships with existing customers;
- our ability to expand our service offerings and develop new platform features;
- our future financial performance, including trends in revenue, costs of revenue, gross margin, and operating expenses;
- our ability to compete successfully in competitive markets;

- our ability to respond to rapid technological changes;
- our expectations and management of future growth;
- our ability to enter new markets and manage our expansion efforts, particularly internationally;
- our ability to attract and retain key employees, whom we refer to as team members;
- our ability to effectively and efficiently protect our brand;
- our ability to timely scale and adapt our infrastructure;
- our ability to maintain, protect, and enhance our intellectual property and not infringe upon others' intellectual property; and
- our ability to successfully identify, acquire, and integrate companies and assets.

These forward-looking statements are subject to a number of risks, uncertainties, and assumptions, including those described in the section titled "Risk Factors" in this Quarterly Report on Form 10-Q and as well as other documents that may be filed by us from time to time with the Securities and Exchange Commission (the SEC). Moreover, we operate in a very competitive and rapidly changing environment, and new risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties, and assumptions, the forward-looking events and circumstances discussed in this Quarterly Report on Form 10-Q may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements and you should not place undue reliance on our forward-looking statements.

The forward-looking statements made in this Quarterly Report on Form 10-Q relate only to events as of the date on which the statements are made. We undertake no obligation to update any forward-looking statements made in this Quarterly Report on Form 10-Q to reflect events or circumstances after the date of this Quarterly Report on Form 10-Q or to reflect new information or the occurrence of unanticipated events, except as required by law.

You should read this Quarterly Report on Form 10-Q in conjunction with the audited consolidated financial statements and the related notes thereto as of and for the year ended December 31, 2018, included in our prospectus dated July 24, 2019 (File No. 333-232400) as filed with the SEC pursuant to Rule 424(b)(4) under the Securities Act of 1933, or the Prospectus.

Part I. Financial Information

Item 1. Financial Statements

HEALTH CATALYST, INC.

Condensed Consolidated Balance Sheets
(in thousands, except share and per share data)

	As of September 30, 2019	As of December 31, 2018
	(unaudited)	
Assets		
Current assets:		
Cash and cash equivalents	$ 52,059	$ 28,431
Short-term investments	189,360	4,761
Accounts receivable, net[1]	31,019	27,696
Deferred costs	978	649
Prepaid expenses and other assets	6,403	5,321
Total current assets	279,819	66,858
Property and equipment, net	4,228	4,676
Intangible assets, net	26,684	28,304
Operating lease right-of-use assets	4,494	6,344
Other assets	1,050	1,099
Goodwill	3,694	3,694
Total assets	$ 319,969	$ 110,975
Liabilities, redeemable convertible preferred stock, and stockholders' equity (deficit)		
Current liabilities:		
Accounts payable	$ 5,179	$ 1,812
Accrued liabilities	9,544	9,203
Acquisition-related consideration payable[1]	3,403	2,172
Deferred revenue	32,131	24,755
Operating lease liabilities	2,790	2,577
Current portion of long-term debt	—	1,287
Total current liabilities	53,047	41,806
Long-term debt, net of current portion	47,916	18,814
Acquisition-related consideration payable, net of current portion[1]	1,826	3,770
Deferred revenue, net of current portion	7,505	7,280
Operating lease liabilities, net of current portion	2,435	4,228
Other liabilities	687	—
Total liabilities	113,416	75,898
Commitments and contingencies (Note 15)		

Redeemable convertible preferred stock, $0.001 par value; no shares and 45,427,441 shares authorized as of September 30, 2019 and December 31, 2018, respectively; no shares and 22,713,694 shares issued and outstanding as of September 30, 2019 and December 31, 2018, respectively; aggregated liquidation preference of $306,192 as of December 31, 2018	—	409,845
Stockholders' deficit:		
Preferred stock, $0.001 par value per share; 25,000,000 and no shares authorized as of September 30, 2019 and December 31, 2018, respectively; no shares issued and outstanding as of September 30, 2019 and December 31, 2018	—	—
Common stock, $0.001 par value; 500,000,000 and 72,565,312 shares authorized as of September 30, 2019 and December 31, 2018, respectively; 36,472,223 and 4,779,356 shares issued and outstanding as of September 30, 2019 and December 31, 2018, respectively	36	5
Additional paid-in capital	802,777	—
Accumulated deficit	(596,248)	(374,772)
Accumulated other comprehensive loss	(12)	(1)
Total stockholders' equity (deficit)	206,553	(374,768)
Total liabilities, redeemable convertible preferred stock, and stockholders' equity (deficit)	$ 319,969	$ 110,975

(1) Includes amounts attributable to related party transactions. See Note 17 for further details.

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

HEALTH CATALYST, INC.

Condensed Consolidated Statements of Operations

(in thousands, except per share data)

(unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Revenue[1]:				
Technology	$ 21,160	$ 18,283	$ 61,393	$ 38,459
Professional services	18,263	14,585	50,047	38,031
Total revenue	39,423	32,868	111,440	76,490
Cost of revenue, excluding depreciation and amortization[1]:				
Technology	6,740	6,132	20,536	12,782
Professional services	11,892	10,865	33,132	28,343
Total cost of revenue, excluding depreciation and amortization	18,632	16,997	53,668	41,125
Operating expenses[1]:				
Sales and marketing	14,721	13,771	35,579	32,496
Research and development	13,477	10,839	33,209	28,031
General and administrative	11,013	5,605	23,333	16,748
Depreciation and amortization	2,316	2,151	6,844	5,252
Total operating expenses	41,527	32,366	98,965	82,527
Loss from operations	(20,736)	(16,495)	(41,193)	(47,162)
Loss on extinguishment of debt	—	—	(1,670)	—
Interest and other expense, net	(659)	(374)	(2,924)	(1,389)
Loss before income taxes	(21,395)	(16,869)	(45,787)	(48,551)
Income tax provision (benefit)	21	7	43	(142)
Net loss	$ (21,416)	$ (16,876)	$ (45,830)	$ (48,409)
Less: accretion (reversal of accretion) of redeemable convertible preferred stock	18,170	514	180,826	(12,045)
Net loss attributable to common stockholders	$ (39,586)	$ (17,390)	$ (226,656)	$ (36,364)
Net loss per share attributable to common stockholders, basic and diluted	$ (1.40)	$ (3.71)	$ (17.78)	$ (7.56)
Weighted-average shares outstanding used in calculating net loss per share attributable to common stockholders, basic and diluted	28,223	4,686	12,750	4,813

(1) Includes amounts attributable to related party transactions. See Note 17 for further details.

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

HEALTH CATALYST, INC.

Condensed Consolidated Statements of Comprehensive Loss

(in thousands)

(unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Net Loss	$ (21,416)	$ (16,876)	$ (45,830)	$ (48,409)
Other comprehensive loss:				
Unrealized gain (loss) on investments	(21)	9	(11)	8
Comprehensive loss	$ (21,437)	$ (16,867)	$ (45,841)	$ (48,401)

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

HEALTH CATALYST, INC.

Condensed Consolidated Statements of Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit)

(in thousands, except share data)

(unaudited)

Three Months Ended September 30, 2019

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount				
Balance as of June 30, 2019	23,151,481	$ 584,574	5,002,426	$ 5	$ —	$ (557,163)	$ 9	$ (557,149)
Exercise of stock options	—	—	78,357	—	552	—	—	552
Stock-based compensation	—	—	—	—	9,974	—	—	9,974
Accretion of redeemable convertible preferred stock	—	18,170	—	—	(501)	(17,669)	—	(18,170)
Conversion of redeemable convertible preferred stock	(23,151,481)	(602,744)	23,151,481	23	602,721	—	—	602,744
Initial public offering, net of underwriters' discounts and commissions and offering costs	—	—	8,050,000	8	190,031	—	—	190,039
Exercise of common stock warrants	—	—	189,959	—	—	—	—	—
Net loss	—	—	—	—	—	(21,416)	—	(21,416)
Other comprehensive loss	—	—	—	—	—	—	(21)	(21)
Balance as of September 30, 2019	—	$ —	36,472,223	$ 36	$ 802,777	$ (596,248)	$ (12)	$ 206,553

Nine Months Ended September 30, 2019

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount				
Balance as of December 31, 2018	22,713,694	$ 409,845	4,779,356	$ 5	$ —	$ (374,772)	$ (1)	$ (374,768)
Issuance of Series F redeemable convertible preferred stock, net of issuance costs of $115	437,787	12,073	—	—	—	—	—	—
Exercise of stock options	—	—	301,427	—	2,177	—	—	2,177
Stock-based compensation	—	—	—	—	13,028	—	—	13,028
Accretion of redeemable convertible preferred stock	—	180,826	—	—	(5,180)	(175,646)	—	(180,826)
Conversion of redeemable convertible preferred stock	(23,151,481)	(602,744)	23,151,481	23	602,721	—	—	602,744
Initial public offering, net of underwriters' discounts and commissions and offering costs	—	—	8,050,000	8	190,031	—	—	190,039
Exercise of common stock warrants	—	—	189,959	—	—	—	—	—
Net loss	—	—	—	—	—	(45,830)	—	(45,830)
Other comprehensive loss	—	—	—	—	—	—	(11)	(11)
Balance as of September 30, 2019	—	$ —	36,472,223	$ 36	$ 802,777	$ (596,248)	$ (12)	$ 206,553

HEALTH CATALYST, INC.

Condensed Consolidated Statements of Redeemable Convertible Preferred Stock and Stockholders' Deficit

(in thousands, except share data)

(unaudited)

Three Months Ended September 30, 2018

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balance as of June 30, 2018	22,713,694	$ 345,249	4,671,405	$ 5	$ 8,395	$ (291,001)	$ (13)	$ (282,614)
Exercise of stock options	—	—	61,375	—	206	—	—	206
Stock-based compensation	—	—	—	—	933	—	—	933
Net loss	—	—	—	—	—	(16,876)	—	(16,876)
Other comprehensive gain	—	—	—	—	—	—	9	9
Accretion of redeemable convertible preferred stock	—	514	—	—	(514)	—	—	(514)
Balance as of September 30, 2018	22,713,694	$ 345,763	4,732,780	$ 5	$ 9,020	$ (307,877)	$ (4)	$ (298,856)

Nine Months Ended September 30, 2018

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balance as of December 31, 2017	21,109,771	$ 321,569	4,853,841	$ 5	$ —	$ (259,468)	$ (12)	$ (259,475)
Issuance of Series E redeemable convertible preferred stock, net of issuance costs of $13	1,603,923	36,239	—	—	—	—	—	—
Repurchase of common stock	—	—	(798,372)	(1)	(8,711)			(8,712)
Exercise of stock options	—	—	677,311	1	2,799	—	—	2,800
Stock-based compensation	—	—	—	—	2,887	—	—	2,887
Net loss	—	—	—	—	—	(48,409)	—	(48,409)
Other comprehensive gain	—	—	—	—	—	—	8	8
Reversal of accretion of redeemable convertible preferred stock	—	(12,045)	—	—	12,045	—	—	12,045
Balance as of September 30, 2018	22,713,694	$ 345,763	4,732,780	$ 5	$ 9,020	$ (307,877)	$ (4)	$ (298,856)

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

HEALTH CATALYST, INC.

Condensed Consolidated Statements of Cash Flows
(in thousands)
(unaudited)

	Nine Months Ended September 30,	
	2019	**2018**
Cash flows from operating activities		
Net loss	$ (45,830)	$ (48,409)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	6,844	5,252
Loss on extinguishment of debt	1,670	—
Amortization of debt discount and issuance costs	797	393
Investment discount and premium amortization	(443)	(120)
Change in fair value of warrant liability	—	(37)
Gain on sale of property and equipment	(36)	(21)
Stock-based compensation expense	13,028	2,887
Change in operating assets and liabilities:		
Accounts receivable, net	(3,323)	(1,206)
Deferred costs	(329)	191
Prepaid expenses and other assets	(1,033)	(650)
Operating lease right-of-use assets	1,850	(3,957)
Accounts payable, accrued liabilities, and other liabilities	1,661	7,518
Deferred revenue	7,601	7,415
Operating lease liabilities	(1,580)	3,434
Net cash used in operating activities	(19,123)	(27,310)
Cash flows from investing activities		
Purchases of property and equipment	(1,658)	(760)
Proceeds from the sale of property and equipment	40	21
Purchase of short-term investments	(221,444)	(9,234)
Proceeds from the sale and maturity of short-term investments	37,277	26,700
Purchase of intangible assets	(1,747)	(18)
Net cash (used in) provided by investing activities	(187,532)	16,709
Cash flows from financing activities		
Proceeds from initial public offering, net of underwriters' discounts and commissions	194,649	—
Proceeds from the issuance of redeemable convertible preferred stock, net of issuance costs	12,073	33,987
Proceeds from exercise of stock options	2,177	2,800
Proceeds from employee stock purchase plan	1,216	—
Repurchase of common stock	—	(8,712)
Payment of SVB line of credit and mezzanine loan	(21,821)	—

Proceeds from credit facilities, net of debt issuance costs	47,169	—
Payments of acquisition-related consideration	(773)	(12,348)
Payments of deferred offering costs	(4,407)	—
Net cash provided by financing activities	230,283	15,727
Net increase in cash and cash equivalents	23,628	5,126
Cash and cash equivalents at beginning of period	28,431	22,978
Cash and cash equivalents at end of period	$ 52,059	$ 28,104
Supplemental disclosures of non-cash investing and financing information		
Redeemable convertible preferred stock accretion (reversal of accretion)	$ 180,826	$ (12,045)
Deferred offering costs included in accounts payable and accrued liabilities	203	—
Series E redeemable convertible preferred stock allocated to business combination	—	2,252
Purchase of intangible assets included in accounts payable and accrued liabilities	1,304	—
Purchase of property and equipment included in accounts payable and accrued liabilities	155	44
Supplemental disclosures of cash flow information related to leases		
Cash paid for operating lease liabilities in operating cash flows	$ 2,426	$ 2,320
Operating lease right-of-use assets obtained in exchange for operating lease obligations	581	5,544

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

1. Description of Business and Summary of Significant Accounting Policies

Nature of operations

Health Catalyst, Inc. (Health Catalyst) was incorporated under the laws of Delaware in September 2011. We are a leading provider of data and analytics technology and services to healthcare organizations. Our Solution comprises a cloud-based data platform, analytics software, and professional services expertise. Our customers, which are primarily healthcare providers, use our Solution to manage their data, derive analytical insights to operate their organization, and produce measurable clinical, financial, and operational improvements.

Basis of presentation

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States (GAAP) and the applicable regulations of the U.S. Securities and Exchange Commission (SEC) regarding interim financial reporting. Certain information and note disclosures normally included in annual financial statements prepared in accordance with U.S. GAAP have been condensed or omitted. Therefore, these unaudited condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and the related notes thereto as of and for the year ended December 31, 2018 included in the Prospectus.

Interim Unaudited Condensed Consolidated Financial Statements

The accompanying interim condensed consolidated balance sheet as of September 30, 2019, the interim condensed consolidated statements of operations for the three and nine months ended September 30, 2019 and 2018, the interim condensed consolidated statements of redeemable convertible preferred stock and stockholders' equity (deficit) for the three and nine months ended September 30, 2019, and the interim condensed consolidated statements of cash flows for the nine months ended September 30, 2019 and 2018 are unaudited. The condensed consolidated balance sheet as of December 31, 2018 was derived from audited financial statements, but does not include all disclosures required by GAAP. The interim unaudited condensed consolidated financial statements have been prepared on a basis consistent with the annual consolidated financial statements and, in the opinion of management, reflect all adjustments, which include only normal recurring adjustments, necessary to state fairly the Company's financial position, its operations and cash flows for the periods presented. The historical results are not necessarily indicative of future results, and the results of operations for the three and nine months ended September 30, 2019 are not necessarily indicative of the results to be expected for the full year or any other period.

Initial Public Offering

On July 29, 2019, we closed our initial public offering of common stock (IPO) in which we issued and sold 8,050,000 shares (inclusive of the underwriters' over-allotment option to purchase 1,050,000 shares, which was exercised on July 25, 2019) of common stock at $26.00 per share. We received net proceeds of $194.6 million after deducting underwriting discounts and commissions and before deducting offering costs of $4.6 million. Upon the closing of our IPO, all shares of our outstanding redeemable convertible preferred stock converted into 23,151,481 shares of common stock on a one-for-one basis.

Stock Split

On July 10, 2019, we effected a 1-for-2 reverse stock split of our capital stock. We have adjusted all references to share and per share amounts in the accompanying condensed consolidated financial statements and notes to reflect the reverse stock split.

Principles of consolidation

The condensed consolidated financial statements include the accounts of Health Catalyst and its wholly-owned subsidiaries. Intercompany balances and transactions have been eliminated.

Use of estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, we evaluate our estimates, including those related to revenue recognition, provisions for doubtful accounts, useful lives of property and equipment, capitalization and estimated useful life of internal-use software and other intangible assets, fair value of financial instruments, deferred tax assets, common stock warrants, redeemable convertible preferred stock accretion, stock-based compensation, and tax uncertainties. Actual results could differ from those estimates.

Segment reporting

Operating segments are identified as components of an enterprise about which separate discrete financial information is evaluated by the chief operating decision maker (the CODM) in assessing performance and making decisions regarding resource allocation. We operate our business in two operating segments that also represent our reportable segments. Our segments are (1) technology and (2) professional services. The CODM uses Adjusted Gross Profit (defined as revenue less cost of revenue that excludes depreciation, amortization, stock-based compensation expense, and certain other operating expenses) as the measure of our profit.

Net loss per share

Basic net loss per share is calculated by dividing net loss attributable to common stockholders by the weighted average number of shares of common stock outstanding. Net loss attributable to common stockholders is computed as net loss less accretion (reversal of accretion) of redeemable convertible preferred stock. Diluted net loss per share attributable to common stockholders is calculated by giving effect to all potentially dilutive common stock equivalents outstanding for the period. For purposes of this calculation, stock options, restricted stock units (RSUs), purchase rights committed under the employee stock purchase plan, and warrants to purchase common stock are considered to be common stock equivalents but have been excluded from the calculation of diluted net loss per share attributable to common stockholders as the effect is antidilutive.

Prior to our IPO, we computed basic and diluted net loss per share in conformity with the two-class method required for participating securities. The two-class method is an earnings allocation formula that treats a participating security as having rights to earnings that otherwise would have been available to holders of common stock. Redeemable convertible preferred stock and common stock were considered participating securities for purposes of this calculation. However, the two-class method did not impact the net loss per common share attributable to common stockholders as we were in a loss position for each of the periods presented and the redeemable convertible preferred stockholders did not have a contractual obligation to participate in losses.

Revenue recognition

We recognize revenue in accordance with Accounting Standards Codification Topic 606, *Revenue from Contracts with Customers (Topic 606)*. We derive our revenues primarily from technology subscriptions and professional services. We determine revenue recognition by applying the following steps:

- Identification of the contract, or contracts, with a customer;
- Identification of the performance obligations in the contract;

- Determination of the transaction price;
- Allocation of the transaction price to the performance obligations in the contract; and
- Recognition of revenue when, or as, we satisfy the performance obligation.

We recognize revenue net of any taxes collected from customers and subsequently remitted to governmental authorities.

Technology revenue

Technology revenue primarily consists of subscription fees charged to customers for access to use our technology. We provide customers access to our technology through either an all-access or limited-access, modular subscription. The majority of our subscription arrangements are cloud-based and do not provide customers the right to take possession of the technology or contain a significant penalty if the customer were to take possession of the technology. Revenue from cloud-based subscriptions is recognized ratably over the contract term beginning on the date that the service is made available to the customer. Most of our subscription contracts have up to a three-year term, of which the vast majority are terminable after one year upon 90 days' notice.

Subscriptions that allow the customer to take software on-premise without significant penalty are treated as time-based licenses. These arrangements generally include access to technology, access to unspecified future products, and maintenance and support. Revenue for upfront access to our technology library is recognized at a point in time when the technology is made available to the customer. Revenue for access to unspecified future products included in time-based license subscriptions is recognized ratably over the contract term beginning on the date that the access is made available to the customer.

We also have certain perpetual license arrangements. Revenue from these arrangements is recognized at a point in time upon delivery of the software.

Technology revenue also includes maintenance and support revenue which generally includes bug fixes, updates, and support services. Revenue related to maintenance and support is recognized over the contract term beginning on the date that the service is made available to the customer.

Professional services revenue

Professional services revenue primarily includes data and analytics services, domain expertise services, outsourcing services, and implementation services. Professional services arrangements typically include a fee for making full-time equivalent (FTE) services available to our customers on a monthly basis. FTE services generally consist of a blend of analytic engineers, analysts, and data scientists based on the domain expertise needed to best serve our customer. Professional services are typically considered distinct from the technology offerings and revenue is generally recognized as the service is provided using the "right to invoice" practical expedient.

Contracts with multiple performance obligations

Many of our contracts include multiple performance obligations. We account for performance obligations separately if they are capable of being distinct within the context of the contract. In these circumstances, the transaction price is allocated to separate performance obligations on a relative standalone selling price basis.

We determine standalone selling prices based on the observable price a good or service is sold for separately when available. In cases where standalone selling prices are not directly observable, based on information available, we utilize the expected cost plus a margin, adjusted market assessment, or residual estimation method. We consider all information available including our overall pricing objectives, market conditions, and other factors, which may include customer demographics and the types of users.

Standalone selling prices are not directly observable for our all-access and limited-access technology arrangements, which are composed of cloud-based subscriptions, time-based licenses, and perpetual licenses. For these technology arrangements, we use the residual estimation method due to a limited number of standalone transactions and/or prices that are highly variable.

Variable consideration

We have also entered into at-risk and shared savings arrangements with certain customers whereby we receive variable consideration based on the achievement of measurable improvements which may include cost savings or performance against metrics. For these arrangements, we estimate revenue using the most likely amount that we will receive. Estimates are based on our historical experience and best judgment at the time to the extent it is probable that a significant reversal of revenue recognized will not occur. Due to the nature of our arrangements, certain estimates may be constrained until the uncertainty is further resolved.

Contract balances

Contract assets resulting from services performed prior to invoicing customers are recorded as unbilled accounts receivable and are presented on the condensed consolidated balance sheets in aggregate with accounts receivable. Unbilled accounts receivable generally become billable at contractually specified dates or upon the attainment of contractually defined milestones. As of September 30, 2019 and December 31, 2018, the unbilled accounts receivable included in accounts receivable on our condensed consolidated balance sheets was $3.5 million and $3.4 million, respectively.

We record contract liabilities as deferred revenue when cash payments are received or due in advance of performance. Deferred revenue primarily relates to the advance consideration received from the customer. As of September 30, 2019 and December 31, 2018, the total of current and non-current deferred revenue on our condensed consolidated balance sheets was $39.6 million and $32.0 million, respectively.

Cost of revenue, excluding depreciation and amortization

Cost of technology revenue primarily consists of costs associated with hosting and supporting our technology, including third-party cloud computing and hosting costs, contractor costs, and salary and related personnel costs for our cloud services and support teams. Cost of professional services revenue primarily consists of salary and related personnel costs, travel-related costs, and independent contractor costs. Cost of revenue excludes costs related to depreciation and amortization.

We defer certain costs to fulfill a contract when the costs are expected to be recovered, are directly related to in-process contracts and enhance resources that will be used in satisfying performance obligations in the future. These deferred fulfillment costs primarily consist of employee compensation incurred as part of the implementation of new contracts. As of September 30, 2019 and December 31, 2018, we had deferred contract fulfillment costs of $1.0 million and $0.6 million, respectively.

Cash and cash equivalents

We consider all highly liquid investments purchased with a remaining maturity of three months or less at the time of acquisition to be cash equivalents.

Short-term investments

Our investment policy limits investments to highly-rated instruments that mature in less than 12 months. We classify our short-term investments as available for sale.

Accounts receivable

Accounts receivable are non-interest bearing and are recorded at the original invoiced amount less an allowance for doubtful accounts based on the probability of future collections. When we become aware of circumstances that may decrease the likelihood of collections, we record a specific allowance against amounts due, which reduces the receivable amount to the amount reasonably believed to be collected. For all other customers, we determine and periodically adjust the allowance based on historical loss patterns and current receivables aging. As of September 30, 2019 and December 31, 2018, we had an allowance for doubtful accounts of $0.5 million and $0.5 million, respectively.

Property and equipment

Property and equipment are stated at historical cost less accumulated depreciation. Repairs and maintenance costs that do not extend the useful life or improve the related assets are expensed as incurred. Depreciation is computed using the straight-line method over the estimated useful lives of the assets. The estimated useful life of each asset category is as follows:

Computer equipment	2-3 years
Furniture and fixtures	3 years
Leasehold improvements	Lesser of lease term or estimated useful life
Computer software	2-3 years
Capitalized internal-use software costs	3 years

When there are indicators of potential impairment, we evaluate the recoverability of the carrying values by comparing the carrying amount of the applicable asset group to the estimated undiscounted future cash flows expected to be generated by the asset group over the remaining life of the primary long-lived asset in that group plus any residual value. If the carrying amount of the asset group exceeds its estimated undiscounted future net cash flows, an impairment charge is recognized based on the amount by which the carrying value of the long-lived assets exceeds the fair value of those assets. We did not incur any long-lived impairment charges for the three and nine months ended September 30, 2019 and 2018.

Intangible assets

Intangible assets include developed technologies, customer relationships, customer contracts, and trademarks that were acquired in business combinations and asset acquisitions. Intangible assets also include the purchase of third-party computer software. The intangible assets are amortized using the straight-line method over the assets' estimated useful lives. The estimated useful life of each asset category is as follows:

Developed technologies	2-10 years
Customer relationships and contracts	6 years
Computer software licenses	2-5 years
Trademarks	2 years

Goodwill

We record goodwill as the difference between the aggregate consideration paid for a business combination and the fair value of the identifiable net tangible and intangible assets acquired. Goodwill is assessed for impairment annually or more frequently if indicators of impairment are present or circumstances suggest that impairment may exist. The first step of the goodwill impairment test compares the fair value of the reporting unit with its carrying amount, including goodwill. If the fair value of the reporting unit exceeds its carrying amount, the goodwill of the reporting unit is not considered impaired. If the carrying amount of the reporting unit exceeds its fair value, the second step of the goodwill impairment test is performed to measure the amount of impairment loss, if any. The second step of the goodwill impairment test compares the implied fair value of the affected reporting unit's goodwill with the carrying value of that goodwill. There was no impairment of goodwill for the three and nine months ended September 30, 2019 and 2018.

Deferred offering costs

Deferred offering costs, which consist of legal, consulting, banking, and accounting fees directly attributable to the IPO, were capitalized and then offset against proceeds upon the consummation of the IPO. As of December 31, 2018, our capitalized deferred offering costs were $0.1 million and included in other assets within the consolidated balance sheets. During the three months ended September 30, 2019, we reclassified $4.6 million of offering costs into stockholders' equity as a reduction of the net proceeds received from the IPO.

Common stock warrants

We account for freestanding warrants to purchase shares of our common stock that are not considered indexed to our own stock as warrant liabilities on our condensed consolidated balance sheets until the point in time that they qualify for equity classification. We record liability-classified common stock warrants at their estimated fair value because they are free standing and the number of shares exercisable increases as we make advances on our credit facility.

At the end of each reporting period, we record the change in the estimated fair value of the warrants to purchase common stock as a change in fair value of warrant liability within interest and other expense, net in our condensed consolidated statements of operations. We reclassify the warrants from liability-classified to equity-classified as exercise contingencies related to the warrants become resolved.

Business combinations

We account for an acquisition as a business combination if we obtain control of a business. Assets and liabilities acquired in a business combination generally are recorded at fair value and any associated acquisition costs are expensed as incurred in general and administrative expenses.

Advertising costs

All advertising costs are expensed as incurred. We recorded advertising costs of $3.4 million and $3.5 million for the three months ended September 30, 2019 and 2018, respectively, and $4.5 million and $4.6 million for the nine months ended September 30, 2019 and 2018, respectively.

Development costs and internal-use software

For technology products that are developed to be sold externally, we determined that technological feasibility is reached shortly before the products are ready for general release. Any costs associated with software development between the time technological feasibility is reached and general release are inconsequential.

We capitalize certain development costs incurred in connection with our internal-use software. These capitalized costs are primarily related to the software platforms that are hosted by us and accessed by our customers on a subscription basis. Costs incurred in the preliminary stages of development are expensed as incurred as research and development costs. Once an application has reached the development stage, internal and external costs, if direct and incremental, are capitalized until the software is substantially complete and ready for its intended use.

We also capitalize costs related to specific upgrades and enhancements when it is probable the expenditures will result in additional functionality. Capitalized costs are recorded as part of property and equipment. Maintenance and training costs are expensed as incurred. Internal-use software is amortized on a straight-line basis over its estimated useful life.

Stock-based compensation

Stock-based awards, including stock options and RSUs, are measured and recognized in the condensed consolidated financial statements based on the fair value of the award on the grant date. For awards subject to performance conditions, we record expense when the performance condition becomes probable. We record forfeitures of stock-based awards as the actual forfeitures occur.

We estimate the fair value of stock option awards on the grant date using the Black-Scholes option pricing model. We have issued two types of employee stock-based awards, standard and two-tier. Our standard stock-based awards vest solely on a service-based condition. For these awards, we recognize stock-based compensation expense on a straight-line basis over the vesting period. Two-tier employee stock-based awards, contain both a service-based condition and performance condition, defined as the earlier of (i) an acquisition or change in control of the company or (ii) upon the occurrence of an initial public offering by the Company. A change in control event and effective registration event are not deemed probable until consummated; accordingly, no expense is recorded related to two-tier stock-based awards until the performance condition becomes probable of occurring. Awards which contain both service-based and performance conditions are recognized using the accelerated attribution method once the performance condition is probable of occurring. The service-based condition is generally a service period of four years. Upon closing our IPO, we recorded cumulative share-based compensation expense of approximately$6.0 million using the accumulated attribution method for two-tier employee stock-based awards for which the service condition had been satisfied at that date.

Stock-based compensation expense related to purchase rights issued under the 2019 Health Catalyst Employee Stock Purchase Plan (ESPP) is based on the Black-Scholes option-pricing model fair value of the estimated number of awards as of the beginning of the offering period. Stock-based compensation expense is recognized using the straight-line method over the offering period.

Prior to the adoption of ASU No. 2018-07, *Compensation — Stock Compensation* (ASU 2018-17), which simplifies the accounting for non-employee share-based payment transactions and is discussed below under "Accounting pronouncements adopted," the fair value measurement date for non-employee awards was the date the performance of services was completed. Upon adoption of ASU 2018-07 on January 1, 2019, the measurement date for non-employee awards is the date of grant. The compensation expense for non-employees is recognized, without changes in the fair value of the award, in the same period and in the same manner as though we had paid cash for the services, which is typically the vesting period of the respective award.

Income taxes

Deferred income tax balances are accounted for using the asset and liability method and reflect the effects of temporary differences between the financial reporting and tax bases of our assets and liabilities using enacted tax rates expected to apply when taxes are actually paid or recovered. In addition, deferred tax assets and liabilities are recorded for net operating loss (NOL) and credit carryforwards.

On December 22, 2017, the 2017 Tax Cuts and Jobs Act (Tax Act) was enacted into law and the new legislation contains several key tax provisions that affect us, including the reduction of the corporate income tax rate to 21%, effective January 1, 2018. We were required to recognize the effect of the tax law changes in the period of enactment. As such, we remeasured our consolidated deferred tax assets and liabilities as of December 31, 2017 to reflect the lower rate and also reassessed the net realizability of those deferred tax assets and liabilities.

A valuation allowance is provided against deferred tax assets unless it is more likely than not that they will be realized based on all available positive and negative evidence. Such evidence includes, but is not limited to, recent cumulative earnings or losses, expectations of future taxable income by taxing jurisdiction, and the carry-forward periods available for the utilization of deferred tax assets.

We use a two-step approach to recognize and measure uncertain income tax positions. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates it is more likely than not that the position will be sustained upon audit. The second step is to measure the tax benefit as the largest amount, which is more than 50% likely of being realized upon ultimate settlement. We do not accrue interest and penalties related to unrecognized tax benefits within the provision for income taxes because we have NOLs. Significant judgment is required to evaluate uncertain tax positions.

Although we believe that we have adequately reserved for our uncertain tax positions, we can provide no assurance that the final tax outcome of these matters will not be materially different. We evaluate our uncertain tax positions on a regular basis and evaluations are based on a number of factors, including changes in facts and circumstances, changes in tax law, such as the Tax Act, correspondence with tax authorities during the course of an audit, and effective settlement of audit issues.

To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will affect the provision for income taxes in the period in which such determination is made and could have a material impact on our financial condition and results of operations.

Fair value of financial instruments

The carrying amounts reported in the condensed consolidated balance sheets for cash, receivables, accounts payable, and current accrued expenses approximate fair values because of the immediate or short-term maturity of these financial instruments. The carrying value of acquisition-related consideration payable, operating lease liabilities, and long-term debt approximate fair value based on interest rates available for debt with similar terms at September 30, 2019 and December 31, 2018. Money market funds and short-term investments are measured at fair value on a recurring basis.

Fair value is estimated by applying the following hierarchy, which prioritizes the inputs used to measure fair value into three levels and bases the categorization within the hierarchy upon the lowest level of input that is available and significant to the fair value measurement:

- Level 1- Quoted prices in active markets for identical assets or liabilities.
- Level 2- Observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3- Inputs that are generally unobservable and typically reflect management’s estimate of assumptions that market participants would use in pricing the asset or liability.

Leases

We determine if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use (ROU) assets, operating lease liabilities, and operating lease liabilities, net of current portion in our condensed consolidated balance sheets. We have adopted the short-term lease recognition exemption policy. All of our leasing commitments are classified either as operating leases or otherwise qualify as short-term leases with lease terms of 12 months or less.

ROU assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As our lease contracts do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date to determine the present value of lease payments. The operating lease ROU asset also includes any lease payments made and excludes lease executory costs. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise the applicable option. Lease expense for lease payments is recognized on a straight-line basis over the lease term.

We do not have lease agreements that contain non-lease components, which generally would be accounted for separately.

Accounting pronouncement adopted

In June 2018, the FASB issued ASU 2018-07, *Improvements to Nonemployee Share-Based Payment Accounting (ASU 2018-07)*. ASU 2018-07 simplifies the accounting for share-based payments to nonemployees by aligning it with the accounting for share-based payments to employees, with certain exceptions. The new standard is effective for fiscal years beginning after December 15, 2018, and interim periods within those annual periods. We adopted ASU 2018-07 as of January 1, 2019 and applied the standard prospectively. The adoption of this standard did not have a material impact on the condensed consolidated financial statements.

Recent accounting pronouncements

In June 2016, FASB issued ASU 2016-13, *Financial Instruments - Credit Losses (Topic 326)*, that changes how companies will measure credit losses for most financial assets and certain other instruments that are not measured at fair value through net income. For available-for-sale debt securities, we will be required to record allowances rather than reduce the carrying amount. We are required to adopt ASU 2016-13 for annual and interim reporting periods beginning after December 15, 2019. Based on our preliminary assessment, we do not anticipate that the adoption of this ASU will have a material impact on our condensed consolidated financial statements.

In January 2017, FASB issued ASU 2017-04, *Intangibles-Goodwill and Other - Simplifying the Test for Goodwill Impairment (Topic 350)*, that simplifies how an entity is required to test goodwill for impairment by modifying the second step of the impairment test. The second step measures a goodwill impairment loss by comparing the fair value of a reporting unit to the carrying amount. If the carrying amount of the reporting unit exceeds its fair value, the carrying amount of goodwill is reduced by the excess reporting unit carrying amount up to the carrying amount of the goodwill. Public business entities must adopt ASU 2017-04 for annual or interim goodwill impairment tests in reporting periods beginning after December 15, 2019. The guidance will apply to our reporting requirements in performing goodwill impairment testing; however, we do not anticipate the adoption of this guidance will have a material impact on our condensed consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820), Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement*, which eliminates certain disclosure requirements for fair value measurements for all entities, requires public entities to disclose certain new information prospectively, including the ranges used to develop significant unobservable inputs for Level 3 fair value measurements, and modifies some disclosure requirements. The new guidance is effective for fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years. An entity is permitted to early adopt either the entire standard or only the provisions that eliminate or modify requirements. We do not anticipate that the disclosure changes that result from this ASU will be material to our condensed consolidated financial statements.

2. Business Combinations

On June 29, 2018, we completed the purchase of Medicity LLC (Medicity) for consideration in the form of shares of Series E redeemable convertible preferred stock with an estimated fair value of $2.3 million from Aetna, Inc. The purchase of Medicity was consummated as part of an integrated transaction that included two components: (1) a $15 million Series E redeemable convertible preferred stock capital raise by us and (2) a business combination where we acquired 100% of the membership interests in Medicity. The acquisition was accounted for as a business combination as specified under ASC 805,*Business Combinations.* In the integrated transaction, the consideration transferred was allocated between the business combination and the capital raise based on relative values as of June 29, 2018 of the $15 million cash received in the capital raise and the fair value of net identifiable assets received in the business combination.

The fair values of Medicity's assets and liabilities were determined based on estimates and assumptions that are judgmental in nature, including the timing and amount of projected future cash flows and market-participant discount rates reflecting risks inherent in the future cash flows.

The following table summarizes the acquisition-date fair value of consideration transferred and the assets received and liabilities assumed as part of our acquisition of Medicity (in thousands):

Assets acquired:		
Accounts receivable	$	7,016
Prepaid expenses		2,735
Property and equipment		1,613
Computer software licenses		2,358
Developed technologies		800
Customer relationships and contracts		600
Trademarks		100
Total assets acquired		15,222
Less liabilities assumed:		
Accounts payable and other current liabilities		1,970
Deferred revenue		11,000
Total liabilities assumed		12,970
Total assets acquired, net	$	2,252

The intangibles assets acquired were valued utilizing the income approach and include customer relationships, developed technology, and trademarks with estimated useful lives of six years, five years, and two years, respectively. The estimated useful life remaining on software licenses and property and equipment acquired is one to five years.

The following unaudited pro forma information presents our consolidated information as if the acquisition of Medicity had occurred on January 1, 2017 (in thousands, except per share amounts):

	Year Ended December 31,	
	2017	2018
Total pro forma revenues	$ 109,739	$ 128,992
Pro forma net loss	(63,986)	(72,931)
Pro forma net loss per share attributable to common stockholders, basic and diluted	(13.20)	(15.20)

The unaudited pro forma information is not intended to present actual results that would have been attained had the acquisition been completed as of January 1, 2017 or to project potential results as of any future date or for any future periods. The nature and amount of material, nonrecurring pro forma adjustments directly attributable to our acquisition of Medicity which are included in the pro forma revenues or net loss, as applicable, are attributable to fair value adjustments to deferred revenues, amortization of acquired intangible assets and acquisition-related income tax considerations totaling $11.0 million and $0.5 million in 2017 and 2018, respectively.

The amount of revenue attributable to the acquired business of Medicity that has been included in the condensed consolidated statement of operations subsequent to the June 29, 2018 acquisition date through December 31, 2018 is $12.5 million. Loss information for Medicity after the acquisition date through December 31, 2018 is not presented as the Medicity business was integrated into our operations subsequent to the acquisition and is impracticable to quantify. The acquisition provides us with the opportunity to cross-sell to several top health systems and the ability to leverage the Medicity acquired technology to drive change via analytics at the point of care.

3. Revenue

Disaggregation of revenue

The following table represents Health Catalyst's revenue disaggregated by type of arrangement (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Recurring technology	$ 21,160	$ 17,163	$ 61,393	$ 36,701
One-time technology (i.e., perpetual license)	—	1,120	—	1,758
Professional services	18,263	14,585	50,047	38,031
Total revenue	$ 39,423	$ 32,868	$ 111,440	$ 76,490

For the three months ended September 30, 2019 and 2018 and the nine months ended September 30, 2019 and 2018, 100%, 100%, 100%, and 99.9%, respectively, of revenue was related to contracts with customers located in the United States.

4. Goodwill and Intangible Assets

We operate our business in two operating segments that also represent our reporting units. Our reporting units are organized based on our technology and professional services. We have not incurred any goodwill impairment charges.

Goodwill by reporting unit is as follows (in thousands):

	As of September 30, 2019	As of December 31, 2018
Technology	$ 2,912	$ 2,912
Professional services	782	782
Total goodwill	$ 3,694	$ 3,694

As of September 30, 2019, intangible assets consisted of the following (in thousands):

	Gross	Accumulated Amortization	Net
Developed technologies	$ 36,129	$ (15,591)	$ 20,538
Customer relationships and contracts	4,164	(2,600)	1,564
Computer software licenses	6,606	(2,061)	4,545
Trademarks	100	(63)	37
Total intangible assets	$ 46,999	$ (20,315)	$ 26,684

As of December 31, 2018, intangible assets consisted of the following (in thousands):

	Gross	Accumulated Amortization	Net
Developed technologies	$ 36,129	$ (12,720)	$ 23,409
Customer relationships and contracts	4,164	(2,080)	2,084
Computer software licenses	3,554	(818)	2,736
Trademarks	100	(25)	75
Total intangible assets	$ 43,947	$ (15,643)	$ 28,304

Intangible assets are amortized using the straight-line method over the estimated useful lives. Amortization expense of acquired intangible assets was $1.6 million and $1.4 million for the three months ended September 30, 2019, and 2018, respectively, and $4.7 million and $3.7 million for the nine months ended September 30, 2019 and 2018, respectively. Amortization expense for intangible assets is included in depreciation and amortization in the condensed consolidated statements of operations.

5. Property and Equipment

Property and equipment consisted of the following (in thousands):

	As of September 30, 2019	As of December 31, 2018
Computer equipment	$ 7,454	$ 6,769
Leasehold improvements	2,234	1,704
Furniture and fixtures	1,553	1,406
Capitalized internal-use software costs	1,712	1,482
Computer software	972	972
Capital lease equipment	37	37
Total property and equipment	13,962	12,370
Less: accumulated depreciation	(9,734)	(7,694)
Property and equipment, net	$ 4,228	$ 4,676

Our long-lived assets are located in the United States. Depreciation expense totaled $0.7 million and $0.7 million for the three months ended September 30, 2019 and 2018, respectively, and $2.2 million and $1.5 million for the nine months ended September 30, 2019 and 2018, respectively. Depreciation expense includes amortization of assets recorded under a capital lease and the amortization of capitalized internal-use software costs.

6. Short-term Investments

Our investment policy limits investments to highly-rated instruments that mature in less than 12 months. We classify our short-term investments as available for sale. Available-for-sale securities are recorded on our condensed consolidated balance sheets at fair market value and any unrealized gains or losses are reported as part of other comprehensive loss on the condensed consolidated statements of comprehensive loss. We determine realized gains or losses on the sales of investments through the specific identification method and record such gains or losses as part of interest and other expense, net on the condensed consolidated statements of operations. We did not have realized gains or losses on investments during the three and nine months ended September 30, 2019 and 2018. We measure the fair value of investments on a recurring basis.

The following table summarizes, by major security type, our cash equivalents and short-term investments that are measured at fair value on a recurring basis (in thousands) as of September 30, 2019:

	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Cash equivalents	Short-term Investments
Money market funds	$ 50,975	$ —	$ —	$ 50,975	$ 50,975	$ —
U.S. Treasury notes	50,832	—	(9)	50,823	—	50,823
Commercial paper	51,364	—	—	51,364	—	51,364
Corporate bonds	53,617	—	(1)	53,616	—	53,616
Asset-backed securities	33,559	—	(2)	33,557	—	33,557
Total	$ 240,347	$ —	$ (12)	$ 240,335	$ 50,975	$ 189,360

The following table summarizes, by major security type, our cash equivalents and short-term investments that are measured at fair value on a recurring basis (in thousands) as of December 31, 2018:

	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Cash equivalents	Short-term Investments
Money market funds	$ 23,085	$ —	$ —	$ 23,085	$ 23,085	$ —
US treasury notes	4,175	—	(1)	4,174	1,396	2,778
Commercial paper	3,976	—	—	3,976	1,993	1,983
Corporate bonds	998	—	—	998	998	—
Total	$ 32,234	$ —	$ (1)	$ 32,233	$ 27,472	$ 4,761

As we do not intend to sell investments that are in an unrealized loss position and it is not likely that we will be required to sell any investments before recovery of their amortized cost basis, we do not consider the investments with an unrealized loss to be other-than-temporarily impaired as of September 30, 2019 and December 31, 2018.

7. Fair Value of Financial Instruments

Assets measured at fair value on a recurring basis as of September 30, 2019 were as follows (in thousands):

	September 30, 2019			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 50,975	$ —	$ —	$ 50,975
U.S. Treasury notes	50,823	—	—	50,823
Commercial paper	—	51,364	—	51,364
Corporate bonds	—	53,616	—	53,616
Asset-backed securities	—	33,557	—	33,557
Total	$ 101,798	$ 138,537	$ —	$ 240,335

Assets measured at fair value on a recurring basis as of December 31, 2018 were as follows (in thousands):

	December 31, 2018			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 23,085	$ —	$ —	$ 23,085
U.S. Treasury notes	4,174	—	—	4,174
Commercial paper	—	3,976	—	3,976
Corporate bonds	—	998	—	998
Total	$ 27,259	$ 4,974	$ —	$ 32,233

As of September 30, 2019 and December 31, 2018, there were no liabilities measured at fair value on a recurring basis. There were no transfers between Level 1 and Level 2 during the three and nine months ended September 30, 2019 and 2018.

8. Accrued liabilities

As of September 30, 2019 and December 31, 2018, accrued liabilities consisted of the following (in thousands):

	As of September 30, 2019	As of December 31, 2018
Accrued compensation and benefit expenses	$ 6,091	$ 5,888
Other accrued expenses	3,453	3,315
Total accrued liabilities	$ 9,544	$ 9,203

9. Credit Facilities

As of September 30, 2019, our term credit facilities consisted of the following, excluding debt discount and issue costs of$2.1 million (in thousands):

	Balance	Remaining Capacity	Interest Rate	Basis Rate
Term loan	$ 50,000	$ 25,000	10.00%	Higher of LIBOR plus 7.5% and 10.0%
Revolving line of credit	—	5,000	5.50%	Prime plus 0.50%
Total credit facilities	50,000	$ 30,000		
Less: Current portion of credit facilities	—			
Credit facilities, less current portion	$ 50,000			

As of December 31, 2018, our term credit facilities consisted of the following, excluding debt discount and issue costs of$1.2 million (in thousands):

	Balance	Remaining Capacity	Interest Rate	Basis Rate
Term loan	$ 20,000	$ —	11.75%	Prime plus 6.25%
Revolving line of credit	1,321	18,679	6.00%	Prime plus 0.50%
Total credit facilities	21,321	$ 18,679		
Less: Current portion of credit facilities	(1,321)			
Credit facilities, less current portion	$ 20,000			

In June 2016, we signed a Loan and Security Agreement with Silicon Valley Bank (SVB) which established a revolving line of credit based on a formula amount. The formula amount is calculated as 85% of eligible account balances, which includes certain accounts receivable amounts. The revolving line of credit's capacity is up to $20.0 million, subject to the limitation set by the formula amount. The line may be increased by$5.0 million upon request and approval by the bank. In October 2017, we entered into the Amended and Restated Loan and Security Agreement, which amends the Loan and Security Agreement. As of December 31, 2018, the amended revolving line of credit was scheduled to mature inDecember 2019. We paid $0.1 million in fees related to the establishment of the revolving line of credit and secured $1.3 million in advances from the revolving line of credit.

Amounts borrowed under the SVB Loan and Security Agreement are secured by a first priority security interest in substantially all of our assets other than intellectual property. In the event of default, SVB may accelerate amounts outstanding, terminate the credit facility, and foreclose on the collateral. The agreement also includes a financial covenant requiring the achievement of minimum annual recurring revenue amounts. Failure to meet this financial covenant may constitute an event of default. We were in compliance with this covenant under the terms of the credit facility as of December 31, 2018.

In October 2017, we signed a Mezzanine Loan and Security Agreement with SVB which allows access to borrowings of up to $20.0 million and drew $10.0 million at closing. As of December 31, 2018, the maturity date of any borrowings under the agreement was April 2021. We paid $0.2 million in fees related to the establishment of the term loan and are required to pay an additional commitment fee each time we draw funds based on a formula and the amount of funds borrowed. In October 2018, we drew an additional $10.0 million under the Mezzanine Loan and Security Agreement.

Amounts borrowed under the SVB Mezzanine Loan and Security Agreement are secured by a first priority security interest in substantially all of our assets other than intellectual property. In the event of default, SVB may accelerate amounts outstanding, terminate the credit facility, and foreclose on the collateral. The agreement also includes a financial covenant requiring the achievement of minimum annual recurring revenue amounts in order to draw upon the remaining available credit. We were in compliance with this covenant under the terms of the credit facility as of December 31, 2018.

OrbiMed debt financing transaction

On February 6, 2019, we entered into a debt financing agreement with OrbiMed Royalty Opportunities II, LP (OrbiMed) where we obtained an $80.0 million senior term loan commitment, with $50.0 million available and up to an additional $30.0 million contingently available on or prior to March 31, 2020 (the Delayed Draw Commitment). We paid $2.4 million in fees related to the establishment of the OrbiMed term loan and incurred $0.3 million in debt issuance costs. The Delayed Draw Commitment is contingent upon our achievement of minimum levels of technology revenues ranging from technology revenues for the latest 12 months of at least $60.0 million to borrow up to $10.0 million, to a minimum of $80.0 million in technology revenues to borrow between $25.0 million and $30.0 million.

The contractual interest rate of the OrbiMed term loan is the higher of LIBOR plus 7.5% and 10.0%. Interest payments are required at the end of each month and monthly installment payments on principal begin in February 2023 and will be based on the then outstanding principal balance divided by 12. The maturity date of the OrbiMed term loan is February 6, 2024. Upon the payment of all or any portion of the principal amount on the OrbiMed term loan, we are required to pay an exit fee of 5% of the principal amount paid. This exit fee is being accreted as interest expense over the contractual term of the loan. If we elect to prepay portions of the principal balance prior to the 48-month anniversary of the closing date we would be required to pay a repayment premium ranging from 1% to 12% of the principal balance prepaid depending on the period in which the prepayment is made.

Amounts borrowed under the OrbiMed term loan are secured by a first priority security interest in substantially all of our assets other than intellectual property. In the event of default, OrbiMed may accelerate amounts outstanding, terminate the credit facility, and foreclose on the collateral. The agreement also includes a financial covenant requiring the achievement of minimum trailing twelve-month revenue amounts as well as certain other financial and non-financial covenants. We were in compliance with these covenants under the terms of the OrbiMed term loan as of September 30, 2019.

The use of proceeds from the senior term loan included an immediate repayment of our $20.0 million term loan from SVB that required a prepayment premium of $0.5 million and the write-off of deferred debt issuance costs of $1.2 million, resulting in a $1.7 million loss on extinguishment of debt. In addition, we repaid in full the outstanding balance of $1.3 million under the SVB revolving line of credit.

On February 6, 2019, we amended the Loan and Security Agreement with SVB which reduced the revolving line of credit to a current maximum of $5.0 million with an obligation to maintain a minimum of $5.0 million cash or cash equivalents on deposit with SVB to maintain the assurance of future credit availability. The line may be increased to $10.0 million upon request and approval by SVB. The maturity date of the revolving line of credit was amended to be February 6, 2021.

10. Redeemable Convertible Preferred Stock

We had 45,427,441 shares of redeemable convertible preferred stock with a par value of $0.001 authorized, of which 22,713,694 shares were issued and outstanding, as of December 31, 2018. The issued and outstanding redeemable convertible preferred stock as of December 31, 2018 consisted of 3,587,499 shares designated as Series A redeemable convertible preferred stock, 4,986,827 shares designated as Series B redeemable convertible preferred stock, 4,794,007 shares designated as Series C redeemable convertible preferred stock, 3,314,612 shares designated as Series D redeemable convertible preferred stock, and 6,030,749 shares designated as Series E redeemable convertible preferred stock.

During the nine months ended September 30, 2019, we authorized 1,077,587 shares of Series F redeemable convertible preferred stock and issued 437,787 shares of Series F redeemable convertible preferred stock for total cash consideration of $12.1 million, net of offering costs of $0.1 million. Upon the closing of our IPO, the 23,151,481 shares of redeemable convertible preferred stock, then outstanding, were converted on a one-for-one basis into 23,151,481 shares of common stock.

Prior to the IPO, our shares of redeemable convertible preferred stock were redeemable at the option of the holder at an amount equal to the greater of the original issuance price or the redemption value. Accordingly, we recognized changes in the redemption value as they occurred and adjusted the carrying amount of the applicable class of redeemable convertible preferred stock as a deemed dividend (or a reversal of accretion to reflect a reduction in fair value of the redemption value) from additional paid-in-capital or an adjustment of the accumulated deficit to equal the redemption value at the end of each reporting period. This method viewed the end of the reporting period as if it were also the redemption date for the applicable class of redeemable convertible preferred stock. The shares of redeemable convertible preferred stock were accreted to the estimated fair value of $409.8 million as of December 31, 2018.

Upon the closing of our IPO, the shares of redeemable convertible preferred stock were accreted to the IPO price of $26.00 per share, or $602.7 million. As the shares of redeemable convertible preferred stock were converted into shares of common stock, and are no longer redeemable at the option of the holder, we reclassified the carrying value of the shares of redeemable convertible preferred stock to stockholders' equity (deficit) on the closing of our IPO.

11. Stockholders' Equity (Deficit)

Amendment and Restatement of Certificate of Incorporation

In connection with the IPO, the certificate of incorporation of Health Catalyst was amended and restated to, among other things, provide for the (i) authorization of 500,000,000 shares of common stock with a par value of $0.001 per share; (ii) authorization of 25,000,000 shares of undesignated preferred stock that may be issued from time to time; and (iii) establishment of a classified board of directors, divided into three classes, each of whose members will serve for staggered three-year terms.

Preferred Stock

Our board of directors has the authority, without further action by our stockholders, to issue up to 25,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, and privileges thereof, including voting rights. As of September 30, 2019 and December 31, 2018, no shares of this preferred stock were issued and outstanding.

Common stock

We had 500,000,000 and 72,565,312 shares of $0.001 par value common stock authorized, of which 36,525,001 and 4,832,134 shares were legally issued and outstanding as of September 30, 2019 and December 31, 2018, respectively. The shares legally issued and outstanding include 52,778 shares issued to former employees with notes determined to be substantively nonrecourse and, as such, for accounting purposes are not considered to be outstanding shares of common stock. Each share of common stock has the right to one vote on all matters submitted to a vote of stockholders. The holders of common stock are also entitled to receive dividends whenever funds are legally available and when declared by the board of directors, subject to prior rights of holders of all classes of stock outstanding having priority rights as to dividends. No dividends have been declared or paid on our common stock through September 30, 2019.

During the nine months ended September 30, 2018, as part of a tender offer we repurchased 798,372 shares of common stock from team members, which shares were received by the exercise of stock options or contractual arrangements, for cash consideration of $16.9 million. The estimated fair value of the repurchased common stock of $8.6 million and offering costs of $0.1 million were recorded as a reduction to common stock and additional paid-in capital. The excess of the repurchase price over the estimated fair value of the common stock redeemed from team members of $8.3 million was accounted for as compensation expense on the condensed consolidated statement of operations.

The effects of the excess of the tender offer repurchase price over the estimated fair value of the common stock redeemed from team members on the statement of operations for the nine months ended September 30, 2018 are summarized in the following table (in thousands):

	Nine Months Ended September 30, 2018
Cost of revenue	$ 312
Sales and marketing	3,967
Research and development	906
General and administrative	3,133
Total compensation expense from repurchase	$ 8,318

Common stock warrants

In October 2017, we issued warrants in connection with the Mezzanine Loan and Security Agreement for up to 255,336 shares of common stock with a ten-year term at an exercise price of $10.66 per share. The fair value of the warrants on the date of grant was $1.6 million and recorded as deferred financing costs. The deferred financing costs are reclassified to a discount on debt in proportion to the advances made on the credit facility. The deferred financing costs and the debt discount are recognized as interest expense over the term of the credit facility.

The common stock warrants that are exercisable without contingency are classified as part of stockholders' equity (deficit) on the condensed consolidated balance sheets. The common stock warrants subject to contingency were classified as a liability on the balance sheet with changes in fair value being recorded each reporting period through the changes in fair value of warrant liability account within interest and other expense, net on the condensed consolidated statements of operations. Once a contingency was resolved, the respective liability-classified warrants were marked to market and recorded in stockholders' equity (deficit) on the condensed consolidated balance sheets. In October 2018, all remaining contingencies were resolved and the remaining common stock warrant liability balance was marked to market and recorded in stockholders' equity (deficit).

During the three months ended September 30, 2019, all 255,336 outstanding warrants were exercised through a cashless exercise, resulting in the issuance of 189,959 shares of common stock.

12. Net Loss Per Share

The following table presents the calculation of basic and diluted net loss per share attributable to common stockholders (in thousands, except share and per share amounts):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Numerator:				
Net loss attributable to common stockholders	$ (39,586)	$ (17,390)	$ (226,656)	$ (36,364)
Denominator:				
Weighted-average number of shares used in calculating net loss per share attributable to common stockholders, basic and diluted	28,222,555	4,685,633	12,749,903	4,812,890
Net loss per share attributable to common stockholders, basic and diluted	$ (1.40)	$ (3.71)	$ (17.78)	$ (7.56)

During the three and nine months ended September 30, 2019 and 2018, we incurred net losses and, therefore, the effect of our stock options, restricted stock units, purchase rights committed or shares issued under our employee stock purchase plan, common stock warrants, and redeemable convertible preferred stock (as converted) were not included in the calculation of diluted net loss per share attributable to common stockholders as the effect would be anti-dilutive. The following table contains share totals with a potentially dilutive impact:

	As of September 30,	
	2019	2018
Redeemable convertible preferred stock	—	22,713,694
Common stock options	7,923,437	7,178,103
Restricted stock units	257,278	—
Employee stock purchase plan	138,470	—
Common stock warrants	—	255,336
Total potentially dilutive securities	8,319,185	30,147,133

13. Stock-Based Compensation

In 2011, our board of directors adopted the Health Catalyst, Inc. 2011 Stock Incentive Plan (2011 Plan), which provided for the direct award, sale of shares and granting of RSUs and options for our common stock to our directors, team members, or consultants. In connection with our IPO, our board of directors adopted the 2019 Stock Option and Incentive Plan (2019 Plan). The 2019 Plan provides flexibility to our compensation committee to use various equity-based incentive awards as compensation tools to motivate our workforce, including the grant of incentive and nonstatutory stock options, restricted and unrestricted stock, RSUs, and stock appreciation rights to our directors, team members, or consultants.

We have initially reserved 2,500,000 shares of our common stock plus approximately256,607 shares of our common stock (the number of shares that were available for issuance under the 2011 Plan immediately prior to the IPO registration date) for the issuance of awards under the 2019 Plan. The 2019 Plan provides that the number of shares reserved available for issuance under the plan will automatically increase each January 1, beginning on January 1, 2020, by 5% of the outstanding number of shares of our common stock on the immediately preceding December 31, or such lesser number of shares as determined by our compensation committee.

As of September 30, 2019 and December 31, 2018, there were 11,272,878 and 8,772,878 shares authorized for grant, respectively, and 2,552,097 and 1,296,793 shares available for grant, respectively, under the 2019 Plan and 2011 Plan (collectively the 'Stock Incentive Plan').

All options were granted with an exercise price determined by the board of directors that was equal to the estimated fair value of our common stock at the date of grant, based on the information known on the date of grant. Options generally expire on the tenth anniversary of the applicable grant date.

We have issued two types of employee stock-based awards, standard and two-tier. Our standard stock-based awards vest solely on a service-based condition. For these awards, we recognize stock-based compensation based on the grant date fair value of the awards and recognize that cost using the straight-line method over the requisite service period of the award. Two-tier employee stock-based awards contain both a service-based condition and performance condition, defined as the earlier of (i) an acquisition or change in control of the company or (ii) upon the occurrence of our initial public offering. A change in control event and effective registration event are not deemed probable until consummated; accordingly, no expense is recorded related to two-tier stock-based awards until the performance condition becomes probable of occurring. Awards which contain both service-based and performance conditions are recognized using the accelerated attribution method once the performance condition is probable of occurring. The service-based condition is generally a service period of four years. Upon closing our IPO, we recorded cumulative share-based compensation expense using the accumulated attribution method for two-tier employee stock-based awards for which the service condition had been satisfied at that date.

The fair value of options, which vest in accordance with service schedules, is estimated on the date of grant using the Black-Scholes option pricing model. Prior to our IPO, the absence of an active market for our common stock required us to estimate the fair value of our common stock for purposes of granting stock-based awards, including stock options and RSUs, and for determining stock-based compensation expense for the periods presented. We obtained contemporaneous third-party valuations to assist in determining the estimated fair value of our common stock. These contemporaneous third-party valuations used the methodologies, approaches, and assumptions consistent with the American Institute of Certified Public Accountants Practice Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. Expected volatilities are based on historical volatilities of comparable companies. The expected term of the options is based on the simplified method outlined in the SEC Staff accounting guidance, under which we estimate the term as the average of the option's contractual term and the option's weighted average vesting period. The risk-free rate represents the yield on U.S. Treasury bonds with maturity equal to the expected term of the granted option. We account for forfeitures as they occur. All standard stock-based awards outstanding at September 30, 2019 and December 31, 2018 are expected to vest according to their specific schedules.

Prior to the adoption of ASU 2018-17, the fair value measurement date for non-employee awards was the date the performance of services was completed. Upon adoption of ASU 2018-07 on January 1, 2019, the measurement date for non-employee awards is the date of grant. The compensation expense for non-employees is recognized, without changes in the fair value of the award, in the same period and in the same manner as though we had paid cash for the services, which is typically the vesting period of the respective award.

Total stock-based compensation expense recognized for service-based stock options and RSUs granted under our Stock Incentive Plan was $9.6 million and $0.9 million for the three months ended September 30, 2019 and 2018, respectively, and $12.3 million and $2.7 million for the nine months ended September 30, 2019 and 2018. These current year amounts include a $6.0 million cumulative catch-up of compensation expense related to the two-tier employee stock-based awards that was recorded upon satisfaction of the performance condition upon the closing date of our IPO.

The following table summarizes the condensed consolidated statements of operations effect of stock-based compensation expense (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Cost of revenue	$ 370	$ 138	$ 722	$ 374
Sales and marketing	1,358	298	2,639	1,023
Research and development	3,067	179	3,502	532
General and administrative	5,179	318	6,165	958
Total stock-based compensation	$ 9,974	$ 933	$ 13,028	$ 2,887

Stock Options

The fair value of our option grants is estimated at the grant date using the Black-Scholes option-pricing model based on the following weighted average assumptions:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Expected volatility	—	45.6%-45.8%	43.8%-44.5%	45.6%-47.6%
Expected term (in years)	—	6.3	6.3	6.3
Risk-free interest rate	—	2.9%-3.0%	2.4%-2.5%	2.5%-3.0%
Expected dividends	—	—	—	—

A summary of the share option activity under the 2019 Plan for the nine months ended September 30, 2019, is as follows:

	Time-Based Option Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
Outstanding at January 1, 2019	7,237,417	$ 9.60		
Options granted	1,198,121	16.00		
Options exercised	(301,427)	7.22		
Options cancelled/forfeited	(210,674)	10.51		
Outstanding at September 30, 2019	7,923,437	$ 10.64	7.6	$ 166,431,525
Vested and expected to vest as of September 30, 2019	7,923,437	$ 10.64	7.6	$ 166,431,525
Vested and exercisable as of September 30, 2019	3,999,812	$ 8.92	6.4	$ 90,892,289

The weighted-average grant-date fair value for stock options granted during the nine months ended September 30, 2019 was $9.31 per option. The aggregate intrinsic value of stock options exercised was $4.6 million for the nine months ended September 30, 2019. The total grant-date fair value of stock options vested during the nine months ended September 30, 2019 was $6.4 million. As of September 30, 2019, approximately $19.1 million of unrecognized compensation expense related to our stock options is expected to be recognized over a weighted average period of 2.4 years.

The options outstanding include 52,778 of shares issued to former employees with notes determined to be substantively nonrecourse and, as such, for accounting purposes are not considered to be exercised stock options.

Restricted Stock Units

The service-based condition for RSUs is satisfied over four years with a cliff vesting period of one year and quarterly vesting thereafter. The following table sets forth the outstanding RSUs and related activity for the nine months ended September 30, 2019:

	Restricted Stock Units	Weighted Average Grant Date Fair Value
Unvested and outstanding at January 1, 2019	—	$ —
RSUs granted	257,278	40.95
Unvested and outstanding at September 30, 2019	257,278	$ 40.95

As of September 30, 2019, we had $9.9 million of unrecognized stock-based compensation expense related to outstanding RSUs expected to be recognized over a weighted average period of 3.4 years.

Employee Stock Purchase Plan

In connection with our IPO in July 2019, our board of directors adopted the ESPP and a total of 750,000 shares of common stock were initially reserved for issuance under the ESPP. The number of shares of common stock available for issuance under the ESPP will be increased on the first day of each calendar year beginning January 1, 2020 and each year thereafter until the ESPP terminates. The number of shares of common stock reserved and available for issuance under the ESPP shall be cumulatively increased by the least of (i) 750,000 shares, (ii) one percent of the number of shares of common stock issued and outstanding on the immediately preceding December 31, and (iii) such lesser number of shares of common stock as determined by the ESPP Administrator.

The ESPP generally provides for six-month offering periods, the exception being the first offering period. The offering periods generally start on the first trading day after June 30 and December 31 of each year. The first offering period began on the IPO date and will end on December 31, 2019.

The ESPP permits participants to elect to purchase shares of common stock through fixed percentage contributions from eligible compensation during each offering period, not to exceed 15% of the eligible compensation a participant receives during an offering period or accrue at a rate which exceeds $25,000 of the fair value of the stock (determined on the option grant date(s)) for each calendar year. A participant may purchase the lowest of (a) a number of shares of common stock determined by dividing such participant's accumulated payroll deductions on the exercise date by the option price, (b) 2,500 shares; or (c) such other lesser maximum number of shares as shall have been established by the Administrator in advance of the offering period. Amounts deducted and accumulated by the participant will be used to purchase shares of common stock at the end of each offering period. The purchase price of the shares will be 85% of the lower of the fair value of common stock on the first trading day of each offering period or on the purchase date, except for the first offering period, for which the purchase price will be 85% of the lower of (i) the IPO price or (ii) the fair value of common stock on the purchase date.

Participants may end their participation at any time during an offering period and will be paid their accumulated contributions that have not been used to purchase shares of common stock. Participation ends automatically upon termination of employment.

As of September 30, 2019, a total of 138,470 shares were issuable to employees based on ESPP contribution elections and unrecognized ESPP compensation cost was $0.6 million, which is expected to be recognized over the remaining three months of 2019.

The fair value of the purchase right for the ESPP option is estimated on the date of grant using the Black-Scholes model with the following assumptions for the initial offering period:

Expected volatility	44%
Expected term (in months)	5
Risk-free interest rate	2%
Expected dividends	—

14. Income Taxes

The tax provision for interim periods is determined using an estimate of our annual effective tax rate, adjusted for discrete items, if any, that arise during the period. Each quarter, we update our estimate of the annual effective tax rate, and if the estimated annual effective tax rate changes, we make a cumulative adjustment in such period. The quarterly tax provision and the estimate of our annual effective tax rate are subject to variation due to several factors, including variability in our loss before income taxes, the mix of jurisdictions to which such income or loss relates, changes in how we conduct business, and tax law developments.

For the three months ended September 30, 2019 and 2018, our estimated effective tax rate was(0.10)% and (0.04)%, respectively. For the nine months ended September 30, 2019 and 2018, our estimated effective tax rate was(0.09)% and 0.29%, respectively. The variations between our estimated effective tax rate and the U.S. statutory rate are primarily due to the impact of the Tax Act and our full valuation allowance.

We consider all available evidence to evaluate the recovery of deferred tax assets, including historical levels of income, legislative developments, and risks associated with estimates of future taxable income. We have provided a full valuation allowance for our deferred tax assets as of September 30, 2019, and December 31, 2018, due to the uncertainty surrounding the future realization of such assets and the cumulative losses we have generated. Therefore,no benefit has been recognized in the financial statements for the NOLs and other deferred tax assets.

On December 22, 2017, the Tax Act was enacted into law and the new legislation contains several key tax provisions that affect our condensed consolidated financial statements, including the reduction of the corporate income tax rate to 21%, effective January 1, 2018. We are required to recognize the effect of the tax law changes in the period of enactment. As such, we have remeasured our consolidated deferred tax assets and liabilities to reflect the lower rate and have also reassessed the realizability of those deferred tax assets and liabilities.

In December 2017, the SEC staff issued Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act (SAB 118), which allows us to record provisional amounts during a measurement period not to extend beyond one year of the enactment date. As of December 31, 2018, we consider the accounting of the deferred tax remeasurements and state tax conformity to be complete.

We recognize tax benefits from uncertain tax positions when it is more likely than not, based on the technical merits, that the position will be sustained upon examination. We believe that we have provided adequate reserves for income tax uncertainties in all open tax years. We do not anticipate material changes in the total amount of our unrecognized tax benefits within 12 months of the reporting date.

15. Contingencies

Litigation

Liabilities for loss contingencies arising from claims, assessments, litigation, fines, penalties, and other sources are recorded when it is probable that a liability has been incurred and the amount can be reasonably estimated. Legal costs incurred in connection with loss contingencies are expensed as incurred.

We are involved in legal proceedings from time to time that arise in the normal course of business. As ofSeptember 30, 2019 and December 31, 2018, there were no significant outstanding claims against us.

16. Deferred Revenue and Performance Obligations

Deferred revenue includes advance customer payments and billings in excess of revenue recognized. For the three months ended September 30, 2019 and 2018, 48% and 36%, respectively, of the revenue recognized was included in deferred revenue at the beginning of the period. For the nine months ended September 30, 2019 and 2018, 18% and 13%, respectively, of the revenue recognized was included in deferred revenue at the beginning of the period.

Transaction price allocated to the remaining performance obligations

Most of our technology and professional services contracts have up to a three-year term, of which the vast majority are terminable after one year upon 90 days' notice. For arrangements that do not allow the customer to cancel within one year or less, we expect to recognize $64.0 million of revenue on unsatisfied performance obligations as of September 30, 2019. We expect to recognize approximately 80% of the remaining performance obligations over the next 24 months, with the balance recognized thereafter.

17. Related Parties

We have entered into arrangements with a customer where a member of the customer's management is currently a member of our board of directors. An executive of a Partners Healthcare affiliate has served on our board of directors since January 2018.

We recognized revenue from this related party of $0.8 million and $1.2 million for the three months ended September 30, 2019 and 2018, respectively, and $2.3 million and $3.1 million for the nine months ended September 30, 2019 and 2018, respectively.

As of September 30, 2019 and December 31, 2018, we had receivables from this related party of $1.1 million and $0.1 million, respectively. As of September 30, 2019 and December 31, 2018, we also had acquisition-related consideration payable to this related party for a prior year asset acquisition. This asset acquisition occurred prior to this entity becoming a related party. The acquisition-related consideration payable to this related party was $2.4 million and $3.3 million as of September 30, 2019 and December 31, 2018, respectively.

We have also entered into revenue arrangements with customers that are also our investors. None of these customers hold a significant amount of ownership in our equity interests.

18. Segments

We operate our business in two operating segments that also represent our reportable segments. Our business is organized based on our technology offerings and professional services. Accordingly, our segments are:

- Technology - Our technology segment (Technology) includes our data platform, analytics applications and support services. Technology generates revenues primarily from contracts that are cloud-based subscription arrangements, time-based license arrangements, and maintenance and support fees; and

- Professional Services - Our professional services segment (Professional Services) is generally the combination of data and analytics, domain expertise, outsourcing, and implementation services to deliver expertise to our customers to more fully configure and utilize the benefits of our Technology offerings.

Revenues and cost of revenues generally are directly attributed to our segments. All segment revenues are from our external customers. Asset and other balance sheet information at the segment level is not reported to our Chief Operating Decision Maker.

Segment revenue and Adjusted Gross Profit for the three and nine months ended September 30, 2019 and 2018 were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Revenue				
Technology	$ 21,160	$ 18,283	$ 61,393	$ 38,459
Professional Services	18,263	14,585	50,047	38,031
Total	$ 39,423	$ 32,868	$ 111,440	$ 76,490

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Adjusted Gross Profit				
Technology	$ 14,484	$ 12,169	$ 40,986	$ 25,754
Professional Services	6,677	4,172	17,616	10,629
Total reportable segments Adjusted Gross Profit	21,161	16,341	58,602	36,383
Less Adjusted Gross Profit reconciling items:				
Stock-based compensation	(370)	(138)	(722)	(374)
Tender offer payments deemed compensation[1]	—	—	—	(312)
Post-acquisition restructuring costs[2]	—	(332)	(108)	(332)
Less other reconciling items:				
Sales and marketing	(14,721)	(13,771)	(35,579)	(32,496)
Research and development	(13,477)	(10,839)	(33,209)	(28,031)
General and administrative	(11,013)	(5,605)	(23,333)	(16,748)
Depreciation and amortization	(2,316)	(2,151)	(6,844)	(5,252)
Debt extinguishment costs	—	—	(1,670)	—
Interest and other expense, net	(659)	(374)	(2,924)	(1,389)
Net loss before income taxes	$ (21,395)	$ (16,869)	$ (45,787)	$ (48,551)

(1) Tender offer payments deemed compensation included in the Adjusted Gross Profit reconciliation above relate to employee compensation from repurchases of common stock at a price in excess of its estimated fair value. For additional details refer to Note 11 in the condensed consolidated financial statements.

(2) Post-acquisition restructuring costs included in the Adjusted Gross Profit reconciliation above relate to severance charges following the acquisition of Medicity. For additional details refer to Note 2 in the condensed consolidated financial statements.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our condensed consolidated financial statements, the accompanying notes, and other financial information included elsewhere in this Quarterly Report on Form 10-Q. This discussion contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results could differ materially from those forward-looking statements below. Factors that could cause or contribute to those differences include, but are not limited to, those identified below and those discussed in "Risk Factors" and "Special Note Regarding Forward-looking Statements."

Overview

We are a leading provider of data and analytics technology and services to healthcare organizations and we currently employ more than 700 team members. Our Solution comprises a cloud-based data platform, analytics software, and professional services expertise. Our customers, which are primarily healthcare providers, use our Solution to manage their data, derive analytical insights to operate their organization, and produce measurable clinical, financial, and operational improvements. We envision a future where all healthcare decisions are data informed.

Highlights from the three and nine months ended September 30, 2019:

- We recognized total revenue of $39.4 million and $32.9 million for the three months ended September 30, 2019 and 2018, respectively, and $111.4 million and $76.5 million for the nine months ended September 30, 2019 and 2018, respectively. The increase in technology revenue was partially due to the nine months ended September 30, 2018 only including approximately three months of Medicity revenue as a result of the Medicity acquisition closing on June 29, 2018. There was $13.0 million of revenue from Medicity during the six months ended June 30, 2019, with no corresponding revenue in the comparative prior year period. The organic growth in revenue was primarily due to revenue from new customers and existing customers paying higher technology access fees from contractual, annual escalators.

- We incurred net losses of $(21.4) million and $(16.9) million for the three months ended September 30, 2019 and 2018, respectively, and $(45.8) million and $(48.4) million for the nine months ended September 30, 2019 and 2018, respectively.

- Our Adjusted EBITDA was $(8.4) million and $(11.3) million for the three months ended September 30, 2019 and 2018, respectively, and $(20.9) million and $(28.6) million for the nine months ended September 30, 2019 and 2018, respectively. See "Key Financial Metrics—Reconciliation of Non-GAAP Financial Measures" for more information about this financial measure, including the limitations of such measure and a reconciliation to the most directly comparable measure calculated in accordance with GAAP.

See "Key Factors Affecting Our Performance" for more information about important opportunities and challenges related to our business.

Key Financial Metrics

We regularly review a number of metrics, including the following key financial metrics, to manage our business and evaluate our operating performance compared to that of other companies in our industry:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(in thousands, except percentages)			
Total revenue	$ 39,423	$ 32,868	$ 111,440	$ 76,490
Adjusted Technology Gross Profit	$ 14,484	$ 12,169	$ 40,986	$ 25,754
Adjusted Technology Gross Margin	68%	67%	67%	67%
Adjusted Professional Services Gross Profit	$ 6,677	$ 4,172	$ 17,616	$ 10,629
Adjusted Professional Services Gross Margin	37%	29%	35%	28%
Total Adjusted Gross Profit	$ 21,161	$ 16,341	$ 58,602	$ 36,383
Total Adjusted Gross Margin	54%	50%	53%	48%
Adjusted EBITDA	$ (8,446)	$ (11,333)	$ (20,875)	$ (28,627)

We monitor the key metrics set forth in the preceding table to help us evaluate trends, establish budgets, measure the effectiveness and efficiency of our operations, and determine employee incentives. Adjusted Gross Profit, Adjusted Gross Margin, and Adjusted EBITDA are non-GAAP financial measures, which we discuss in more detail below.

Reconciliation of Non-GAAP Financial Measures

In addition to our results determined in accordance with GAAP, we believe certain non-GAAP measures, including Adjusted Gross Profit, Adjusted Gross Margin, and Adjusted EBITDA, are useful in evaluating our operating performance. We use this non-GAAP financial information to evaluate our ongoing operations, as a component in determining employee bonus compensation, and for internal planning and forecasting purposes. We believe that non-GAAP financial information, when taken collectively, may be helpful to investors because it provides consistency and comparability with past financial performance. However, non-GAAP financial information is presented for supplemental informational purposes only, has limitations as an analytical tool and should not be considered in isolation or as a substitute for financial information presented in accordance with GAAP. In addition, other companies, including companies in our industry, may calculate similarly-titled non-GAAP measures differently or may use other measures to evaluate their performance, all of which could reduce the usefulness of our non-GAAP financial measures as tools for comparison. A reconciliation is provided below for each non-GAAP financial measure to the most directly comparable financial measure stated in accordance with GAAP. Investors are encouraged to review the related GAAP financial measures and the reconciliation of these non-GAAP financial measures to their most directly comparable GAAP financial measures, and not to rely on any single financial measure to evaluate our business.

Adjusted Gross Profit and Adjusted Gross Margin

Adjusted Gross Profit is a non-GAAP financial measure that we define as revenue less cost of revenue, excluding depreciation and amortization and excluding stock-based compensation, tender offer payments deemed compensation, and post-acquisition restructuring costs, as applicable. We define Adjusted Gross Margin as our Adjusted Gross Profit divided by our revenue. We believe Adjusted Gross Profit and Adjusted Gross Margin are useful to investors as they eliminate the impact of certain non-cash expenses and allow a direct comparison of these measures between periods without the impact of non-cash expenses and certain other non-recurring operating expenses. We believe these non-GAAP measures are useful in evaluating our operating performance compared to that of other companies in our industry, as these metrics generally eliminate the effects of certain items that may vary from company to company for reasons unrelated to overall profitability.

See above for information regarding the limitations of using our Adjusted Gross Profit and Adjusted Gross Margin as financial measures. The following is a reconciliation of our Adjusted Gross Profit to revenue, the most directly comparable financial measure calculated in accordance with GAAP, for the three months ended September 30, 2019 and 2018.

	Three Months Ended September 30, 2019		
	(in thousands, except percentages)		
	Technology	Professional Services	Total
Revenue	$ 21,160	$ 18,263	$ 39,423
Cost of revenue, excluding depreciation and amortization	(6,740)	(11,892)	(18,632)
Gross profit, excluding depreciation and amortization	14,420	6,371	20,791
Add:			
Stock-based compensation	64	306	370
Adjusted Gross Profit	$ 14,484	$ 6,677	$ 21,161
Gross margin, excluding depreciation and amortization	68%	35%	53%
Adjusted Gross Margin	68%	37%	54%

	Three Months Ended September 30, 2018		
	(in thousands, except percentages)		
	Technology	Professional Services	Total
Revenue	$ 18,283	$ 14,585	$ 32,868
Cost of revenue, excluding depreciation and amortization	(6,132)	(10,865)	(16,997)
Gross profit, excluding depreciation and amortization	12,151	3,720	15,871
Add:			
Stock-based compensation	18	120	138
Post-acquisition restructuring costs[1]	—	332	332
Adjusted Gross Profit	$ 12,169	$ 4,172	$ 16,341
Gross margin, excluding depreciation and amortization	66%	26%	48%
Adjusted Gross Margin	67%	29%	50%

(1) Post-acquisition restructuring costs included in the Adjusted Gross Profit reconciliation above relate to severance charges following the acquisition of Medicity. For additional details refer to Note 2 in the condensed consolidated financial statements.

Adjusted Technology Gross Margin increased from 67% for the three months ended September 30, 2018 to 68% for the three months ended September 30, 2019. We expect Adjusted Technology Gross Margin to fluctuate and potentially decline in the near term, primarily due to additional costs associated with transitioning customers from on-premise and our managed data centers to third-party hosted data centers with Microsoft Azure.

Adjusted Professional Services Gross Margin increased from 29% for the three months ended September 30, 2018 to 37% for the three months ended September 30, 2019, due primarily to utilization efficiencies as well as a year-over-year increase in higher gross margin services. Our professional services are comprised of data and analytics services, domain expertise services, outsourcing services, and implementation services. While the majority of our professional services revenue is generated from data and analytic services and domain expertise services, the delivery mix between these services in a given quarter can lead to fluctuations in our Adjusted Professional Services Gross Margin. Adjusted Professional Services Gross Margin may fluctuate and potentially decline in the near term due to changes in the mix of services we provide and additional compensation costs related to an increase in headcount.

We anticipate Adjusted Gross Margin will generally increase over the long term though it may fluctuate period to period.

The following is a reconciliation of revenue to our Adjusted Gross Profit and Adjusted Gross Margin in total and for technology and professional services for the nine months ended September 30, 2019 and 2018:

	Nine Months Ended September 30, 2019 (in thousands, except percentages)		
	Technology	Professional Services	Total
Revenue	$ 61,393	$ 50,047	$ 111,440
Cost of revenue, excluding depreciation and amortization	(20,536)	(33,132)	(53,668)
Gross profit, excluding depreciation and amortization	40,857	16,915	57,772
Add:			
Stock-based compensation	129	593	722
Post-acquisition restructuring costs[1]	—	108	108
Adjusted Gross Profit	$ 40,986	$ 17,616	$ 58,602
Gross margin, excluding depreciation and amortization	67%	34%	52%
Adjusted Gross Margin	67%	35%	53%

	Nine Months Ended September 30, 2018 (in thousands, except percentages)		
	Technology	Professional Services	Total
Revenue	$ 38,459	$ 38,031	$ 76,490
Cost of revenue, excluding depreciation and amortization	(12,782)	(28,343)	(41,125)
Gross profit, excluding depreciation and amortization	25,677	9,688	35,365
Add:			
Stock-based compensation	49	325	374
Tender offer payments deemed compensation[2]	28	284	312
Post-acquisition restructuring costs[1]	—	332	332
Adjusted Gross Profit	$ 25,754	$ 10,629	$ 36,383
Gross margin, excluding depreciation and amortization	67%	25%	46%
Adjusted Gross Margin	67%	28%	48%

(1) Post-acquisition restructuring costs included in the Adjusted Gross Profit reconciliation above relate to severance charges following the acquisition of Medicity. For additional details refer to Note 2 in the condensed consolidated financial statements.

(2) Tender offer payments deemed compensation relate to employee compensation from repurchases of common stock at a price in excess of its estimated fair value. For additional details refer to Note 11 in the condensed consolidated financial statements.

Adjusted Technology Gross Margin remained consistent at approximately 67% for both the nine months ended September 30, 2019 and 2018. We expect Adjusted Technology Gross Margin to fluctuate and potentially decline in the near term, primarily due to additional costs associated with transitioning customers from on-premise and our managed data centers to third-party hosted data centers with Microsoft Azure.

Adjusted Professional Services Gross Margin increased from 28% for the nine months ended September 30, 2018 to 35% for the nine months ended September 30, 2019, due primarily to increased professional services revenue and increased utilization of professional services team members, partially from slower than anticipated hiring during the first half of 2019. Adjusted Professional Services Gross Margin may fluctuate due to the mix of services we provide and potentially decline in the near term due to additional compensation costs related to an anticipated increase in headcount.

We anticipate Adjusted Gross Margin will generally increase over the long term though it may fluctuate period to period.

Adjusted EBITDA

Adjusted EBITDA is a non-GAAP financial measure that we define as net loss adjusted for interest and other expense, net, loss on debt extinguishment, income tax provision (benefit), depreciation and amortization, stock-based compensation, tender offer payments deemed compensation, and post-acquisition restructuring costs, as applicable. We believe Adjusted EBITDA provides investors with useful information on period-to-period performance as evaluated by management and comparison with our past financial performance. We believe Adjusted EBITDA is useful in evaluating our operating performance compared to that of other companies in our industry, as this metric generally eliminates the effects of certain items that may vary from company to company for reasons unrelated to overall operating performance.

See above for information regarding the limitations of using our Adjusted EBITDA as a financial measure. The following is a reconciliation of our Adjusted EBITDA to net loss, the most directly comparable financial measure calculated in accordance with GAAP, for the three and nine months ended September 30, 2019 and 2018.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(in thousands)			
Net loss	$ (21,416)	$ (16,876)	$ (45,830)	$ (48,409)
Add:				
Interest and other expense, net	659	374	2,924	1,389
Loss on extinguishment of debt	—	—	1,670	—
Income tax provision (benefit)	21	7	43	(142)
Depreciation and amortization	2,316	2,151	6,844	5,252
Stock-based compensation	9,974	933	13,028	2,887
Tender offer payments deemed compensation[1]	—	—	—	8,318
Post-acquisition restructuring costs[2]	—	2,078	446	2,078
Adjusted EBITDA	$ (8,446)	$ (11,333)	$ (20,875)	$ (28,627)

(1) Tender offer payments deemed compensation relate to employee compensation from repurchases of common stock at a price in excess of its estimated fair value. For additional details refer to Note 11 in the condensed consolidated financial statements.

(2) Post-acquisition restructuring costs relate to severance charges following the acquisition of Medicity. For additional details refer to Note 2 in the condensed consolidated financial statements.

Key Factors Affecting Our Performance

We believe that our future growth, success, and performance are dependent on many factors, including those set forth below. While these factors present significant opportunities for us, they also represent the challenges that we must successfully address in order to grow our business and improve our results of operations.

- ***Add new customers.*** We believe that our ability to increase our customer base will enable us to drive growth. Our potential customer base is generally in the early stages of data and analytics adoption and maturity. As of December 31, 2018, our DOS Subscription Customers comprised approximately 4% of the potential buyers in our addressable market and we expect to further penetrate the market over time as potential customers invest in commercial data and analytics solutions. As one of the first data platform and analytics vendors focused specifically on healthcare organizations, we have an early-mover advantage and strong brand awareness. Our customers are large, complex organizations who typically have long procurement cycles which may lead to declines in the pace of our new customer additions.

- ***Leverage recent product and services offerings to drive expansion.*** We believe that our ability to expand within our customer base will enable us to drive growth. Over the last three years, we have developed and deployed several new analytics applications including CORUS, Touchstone, Patient Safety Monitor, Population Builder, and others. Because we are in the early stages of certain of our applications' lifecycles and maturity, we do not have enough information to know the impact on revenue growth by upselling these applications and associated services to current and new customers.

- ***Impact of Medicity acquisition on growth.*** Our customer base includes over 60 health systems and regional healthcare information exchanges added in the Medicity acquisition, representing a significant opportunity for us to cross-sell our Solution to Medicity customers. We are in the initial phases of that cross-selling initiative and do not have full visibility into the incremental growth opportunities from that effort. Historically, Medicity customers have generated a lower Dollar-based Retention Rate than DOS Subscription Customers and we expect flat to declining revenue from Medicity customers in the foreseeable future. If our cross-sell efforts and technology integration strategies are successful, this could offset revenue declines from Medicity customers. As the Medicity acquisition closed on June 29, 2018, our consolidated year-over-year revenue growth rates have slowed during the second half of 2019 compared to the year-over-year growth rates presented for the first half of 2019.

- ***Revenue mix***. Our technology and professional services offerings have materially different gross margin profiles. Our professional services offerings, while producing lower gross margins than our technology revenues, help our customers achieve measurable improvements, increasing the likelihood that our customers will renew and expand their relationships with us. For the nine months ended September 30, 2019, our technology revenue and professional services revenue represented 55% and 45% of total revenue, respectively. Changes in our revenue mix between the two offerings would impact future Total Adjusted Gross Margin. See "Results of Operations" for more information.

- ***Transitions to Microsoft Azure as DOS hosting provider.*** We incur hosting fees related to providing DOS through a cloud-based environment hosted by Microsoft Azure. We also operate a private data center where we host DOS for certain customers and we maintain a small number of customers that have deployed DOS on-premise. We are in the process of transitioning customers we host in our private data center and who deployed DOS on-premise to Azure-hosted environments. The Azure cloud provides customers with more advanced DOS product functionality and a more seamless customer experience; however, hosting customers in Azure is more costly than our private data center on a per customer basis. This transition will result in higher cost of technology revenue and provide a headwind against increases in Adjusted Technology Gross Margin.

Components of Our Results of Operations

Revenue

We derive our revenue from sales of technology and professional services. For the three months ended September 30, 2019 and 2018, technology represented 54% and 56% of total revenue, respectively, and professional services represented 46% and 44%, of total revenue, respectively. For the nine months ended September 30, 2019 and 2018, technology represented 55% and 50% of total revenue, respectively, and professional services represented 45% and 50% of total revenue, respectively.

Technology revenue. Technology revenue primarily consists of subscription fees charged to customers for access to use our data platform and analytics applications. We provide customers access to our technology through either an all-access or limited-access, modular subscription. Most of our subscription contracts are cloud-based and have up to a three-year term, of which the vast majority are terminable after one year upon 90 days' notice. A majority of our DOS Subscription Customers access our technology through all-access subscriptions, which in the vast majority of cases have built-in annual escalators for technology access fees. Also included in technology revenue is the maintenance and support we provide, which generally includes updates and support services.

Professional services revenue. Professional services revenue primarily includes analytics services, strategic advisory services, improvement services, and implementation services. Professional services arrangements typically include a fee for making full-time equivalent (FTE) services available to our customers on a monthly basis. FTE services generally consist of a blend of analytic engineers, analysts, data scientists, and domain experts based on the specific needs to best serve our customers.

Deferred revenue

Deferred revenue consists of customer billings in advance of revenue being recognized from our technology and professional services arrangements. We primarily invoice our customers for technology arrangements annually or quarterly in advance. Amounts anticipated to be recognized within one year of the balance sheet date are recorded as deferred revenue and the remaining portion is recorded as deferred revenue, net of current portion on the condensed consolidated balance sheets.

Cost of revenue, excluding depreciation and amortization

Cost of technology revenue. Cost of technology revenue primarily consists of costs associated with hosting and supporting our technology, including third-party cloud computing and hosting costs, contractor costs, and salary and related personnel costs for our cloud services and support teams.

Although we expect cost of technology revenue to increase in absolute dollars as we transition customers to third-party hosted data centers with Microsoft Azure and increase headcount to accommodate growth, we anticipate cost of technology revenue as a percentage of technology revenue will generally decrease over the long term. We expect cost of technology revenue as a percentage of technology revenue to fluctuate and potentially increase in the near term, primarily due to additional costs associated with transitioning customers from on-premise and our managed data centers to Microsoft Azure.

Cost of professional services revenue. Cost of professional services revenue consists primarily of costs related to delivering our team's expertise in analytics, strategic advisory, improvement, and implementation services. These costs primarily include salary and related personnel costs, travel-related costs, and outside contractor costs. We expect cost of professional services revenue to increase in absolute dollars as we increase headcount to accommodate growth.

Operating expense

Sales and marketing. Sales and marketing expenses primarily include salary and related personnel costs for our sales, marketing, and account management teams, lead generation, marketing events, including our Healthcare Analytics Summit (HAS), marketing programs, and outside contractor costs associated with the sale and marketing of our offerings.

We plan to continue to invest in sales and marketing to grow our customer base, expand in new markets, and increase our brand awareness. The trend and timing of sales and marketing expenses will depend in part on the timing of our expansion into new markets and marketing campaigns. We expect that sales and marketing expenses will increase in absolute dollars in future periods, but decrease as a percentage of our revenue over the long term. Our sales and marketing expenses may fluctuate as a percentage of our revenue from period to period due to the timing and extent of these expenses.

Research and development. Research and development expenses primarily include salary and related personnel costs for our data platform and analytics applications teams, subscriptions, and outside contractor costs associated with the development of products.

We have developed an open, flexible, and scalable data platform. We plan to continue to invest in research and development to develop new solutions and enhance our applications library. We expect that research and development expenses will increase in absolute dollars in future periods, but decrease as a percentage of our revenue over the long term. Our research and development expenses may fluctuate as a percentage of our revenue from period to period due to the timing and extent of these expenses.

General and administrative. General and administrative expenses primarily include salary and related personnel costs for our legal, finance, people operations, IT, and other administrative teams, including certain executives. General and administrative expenses also include facilities, subscriptions, corporate insurance, outside legal, accounting, and directors' fees.

Due to the closing of our IPO on July 29, 2019, we expect to incur additional costs as a result of operating as a public company, including costs related to compliance and reporting obligations of public companies, and increased costs for insurance, investor relations, and corporate governance. As a result, we expect our general and administrative expenses to increase in absolute dollars for the foreseeable future, but decrease as a percentage of our revenue over the long term. Our general and administrative expenses may fluctuate as a percentage of our revenue from period to period due to the timing and extent of these expenses.

Depreciation and amortization. Depreciation and amortization expenses are primarily attributable to our capital investment and consist of fixed asset depreciation, amortization of intangibles considered to have definite lives, and amortization of capitalized internal-use software costs.

Interest and other expense, net

Interest and other expense, net primarily consists of interest income from our investment holdings and interest expense. Interest expense is primarily attributable to our revolving line of credit, term loan, and imputed interest on acquisition-related consideration payable. It also includes the amortization of discounts on debt and amortization of deferred financing costs related to our various debt arrangements.

Income tax provision (benefit)

Income tax provision (benefit) consists of U.S. federal, state, and foreign income taxes. Because of the uncertainty of the realization of the deferred tax assets, we have a full valuation allowance for deferred tax assets, including net operating loss carryforwards (NOLs) and tax credits related primarily to research and development.

As of December 31, 2018, we had federal and state NOLs of $232.9 million and $186.2 million, respectively, which will begin to expire for federal and state tax purposes in 2032 and 2022, respectively. Our existing NOLs may be subject to limitations arising from ownership changes and, if we undergo an ownership change in the future, our ability to utilize our NOLs and tax credits could be further limited by Sections 382 and 383 of the Code. Future changes in our stock ownership, many of which are outside of our control, could result in an ownership change under Sections 382 and 383 of the Code. Our NOLs and tax credits may also be limited under similar provisions of state law.

Results of Operations

The following tables set forth our consolidated results of operations data and such data as a percentage of total revenue for each of the periods indicated:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(in thousands)			
Revenue:				
Technology	$ 21,160	$ 18,283	$ 61,393	$ 38,459
Professional services	18,263	14,585	50,047	38,031
Total revenue	39,423	32,868	111,440	76,490
Cost of revenue, excluding depreciation and amortization shown below:				
Technology[(1)]	6,740	6,132	20,536	12,782
Professional services[(1)]	11,892	10,865	33,132	28,343
Total cost of revenue, excluding depreciation and amortization	18,632	16,997	53,668	41,125
Operating expenses:				
Sales and marketing[(1)]	14,721	13,771	35,579	32,496
Research and development[(1)]	13,477	10,839	33,209	28,031
General and administrative[(1)]	11,013	5,605	23,333	16,748
Depreciation and amortization	2,316	2,151	6,844	5,252
Total operating expenses	41,527	32,366	98,965	82,527
Loss from operations	(20,736)	(16,495)	(41,193)	(47,162)
Loss on extinguishment of debt	—	—	(1,670)	—
Interest and other expense, net	(659)	(374)	(2,924)	(1,389)
Loss before income taxes	(21,395)	(16,869)	(45,787)	(48,551)
Income tax provision (benefit)	21	7	43	(142)
Net loss	$ (21,416)	$ (16,876)	$ (45,830)	$ (48,409)

(1) Includes stock-based compensation expense, tender offer payments deemed compensation expense, and post-acquisition restructuring costs.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Stock-Based Compensation Expense:		(in thousands)		
Cost of revenue, excluding depreciation and amortization:				
Technology	$ 64	$ 18	$ 129	$ 49
Professional services	306	120	593	325
Sales and marketing	1,358	298	2,639	1,023
Research and development	3,067	179	3,502	532
General and administrative	5,179	318	6,165	958
Total	$ 9,974	$ 933	$ 13,028	$ 2,887

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Tender Offer Payments Deemed Compensation Expense:		(in thousands)		
Cost of revenue, excluding depreciation and amortization:				
Technology	$ —	$ —	$ —	$ 28
Professional services	—	—	—	284
Sales and marketing	—	—	—	3,967
Research and development	—	—	—	906
General and administrative	—	—	—	3,133
Total	$ —	$ —	$ —	$ 8,318

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Post-Acquisition Restructuring Costs:		(in thousands)		
Cost of revenue, excluding depreciation and amortization:				
Technology	$ —	$ —	$ —	$ —
Professional services	—	332	108	332
Sales and marketing	—	749	306	749
Research and development	—	484	32	484
General and administrative	—	513	—	513
Total	$ —	$ 2,078	$ 446	$ 2,078

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Revenue:				
Technology	54 %	56 %	55 %	50 %
Professional services	46	44	45	50
Total revenue	100	100	100	100
Cost of revenue, excluding depreciation and amortization shown below:				
Technology	17	19	18	17
Professional service	30	33	30	37
Total cost of revenue, excluding depreciation and amortization	47	52	48	54
Operating expenses				
Sales and marketing	37	41	32	42
Research and development	34	33	30	36
General and administrative	28	17	21	22
Depreciation and amortization	6	7	6	7
Total operating expenses	105	98	89	107
Loss from operations	(52)	(50)	(37)	(61)
Loss on extinguishment of debt	—	—	(1)	—
Interest and other expense, net	(2)	(1)	(3)	(2)
Loss before income taxes	(54)	(51)	(41)	(63)
Income tax provision (benefit)	—	—	—	—
Net loss	(54)%	(51)%	(41)%	(63)%

Discussion of the Three Months Ended September 30, 2019 and 2018

Revenue

	Three Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Revenue:				
Technology	$ 21,160	$ 18,283	$ 2,877	16%
Professional services	18,263	14,585	3,678	25%
Total revenue	$ 39,423	$ 32,868	$ 6,555	20%
Percentage of revenue:				
Technology	54%	56%		
Professional services	46	44		
Total	100%	100%		

Total revenue was $39.4 million for the three months ended September 30, 2019, compared to $32.9 million for the three months ended September 30, 2018, an increase of $6.6 million, or 20%.

Technology revenue was $21.2 million, or 54% of total revenue, for the three months ended September 30, 2019, compared to $18.3 million, or 56% of total revenue, for the three months ended September 30, 2018. The revenue growth was primarily from new DOS Subscription Customers and additional revenue from existing customers paying higher technology access fees from contractual, annual escalators, and new offerings of expanded support services. The revenue growth amounts presented are net of a $1.1 million decrease in one-time technology revenue.

Professional services revenue was $18.3 million, or 46% of total revenue, for the three months ended September 30, 2019, compared to $14.6 million, or 44% of total revenue, for the three months ended September 30, 2018. The professional services revenue growth is primarily due to implementation, analytics, and improvement services being provided to new DOS Subscription Customers and expanded deployment of services with existing customers.

Cost of revenue, excluding depreciation and amortization

	Three Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Cost of revenue, excluding depreciation and amortization:				
Technology	$ 6,740	$ 6,132	$ 608	10%
Professional services	11,892	10,865	1,027	9%
Total cost of revenue, excluding depreciation and amortization	$ 18,632	$ 16,997	$ 1,635	10%
Percentage of total revenue	47%	52%		

Cost of technology revenue, excluding depreciation and amortization, was $6.7 million for the three months ended September 30, 2019, compared to $6.1 million for the three months ended September 30, 2018, an increase of $0.6 million, or 10%. The increase in cost of technology revenue was primarily due to $1.7 million in increased cloud computing and hosting costs largely from the expanded use of Microsoft Azure to serve existing and new customers and an increase of $0.7 million in salary and related personnel costs from an increase in cloud services and support headcount. These increases in cost of technology revenue were partially offset by a $1.7 million decrease in outside contractor fees.

Cost of professional services revenue was $11.9 million for the three months ended September 30, 2019, compared to $10.9 million for the three months ended September 30, 2018, an increase of $1.0 million, or 9%. This increase was primarily due to an increase in salary and related personnel costs from additional professional services headcount.

Operating Expenses

Sales and marketing

	Three Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Sales and marketing	$ 14,721	$ 13,771	$ 950	7%
Percentage of total revenue	37%	41%		

Sales and marketing expenses were $14.7 million for the three months ended September 30, 2019, compared to $13.8 million for the three months ended September 30, 2018, an increase of $1.0 million, or 7%. The increase was primarily due to a $1.1 million increase in stock-based compensation, including a cumulative catch-up of $0.4 million related to two-tier stock options upon the closing of the IPO.

Sales and marketing expense as a percentage of total revenue decreased from 41% in the three months ended September 30, 2018 to 37% in the three months ended September 30, 2019.

Research and development

	Three Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Research and development	$ 13,477	$ 10,839	$ 2,638	24%
Percentage of total revenue	34%	33%		

Research and development expenses were $13.5 million for the three months ended September 30, 2019, compared to $10.8 million for the three months ended September 30, 2018, an increase of $2.6 million, or 24%. The increase was primarily due to an increase of $2.9 million in stock-based compensation, including a cumulative catch-up of $2.1 million related to two-tier stock options upon the closing of the IPO.

Research and development expense as a percentage of revenue increased from 33% in the three months ended September 30, 2018 to 34% in the three months ended September 30, 2019.

General and administrative

	Three Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
General and administrative	$ 11,013	$ 5,605	$ 5,408	96%
Percentage of total revenue	28%	17%		

General and administrative expenses were $11.0 million for the three months ended September 30, 2019, compared to $5.6 million for the three months ended September 30, 2018, an increase of $5.4 million, or 96%. The increase was primarily due to an increase of $4.9 million in stock-based compensation, including a cumulative catch-up of $3.5 million related to two-tier stock options upon the closing of the IPO and an increase of $0.8 million in ongoing salary and related personnel costs from additional general and administrative headcount.

General and administrative expense as a percentage of revenue increased from 17% in the three months ended September 30, 2018 to 28% in the three months ended September 30, 2019.

Depreciation and amortization

	Three Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Depreciation and amortization	$ 2,316	$ 2,151	$ 165	8%
Percentage of total revenue	6%	7%		

Depreciation and amortization expenses were $2.3 million for the three months ended September 30, 2019, compared to $2.2 million for the three months ended September 30, 2018, an increase of $0.2 million, or 8%. This increase was primarily due to the amortization of capitalized internal-use software costs and additional depreciation on property and equipment.

Depreciation and amortization expense as a percentage of revenue decreased from 7% in the three months ended September 30, 2018 to 6% in the three months ended September 30, 2019.

Interest and other expense, net

	Three Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Interest income	$ 988	161	$ 827	514 %
Interest expense	(1,645)	(539)	(1,106)	205 %
Other income (expense)	(2)	4	(6)	(150)%
Total interest and other expense, net	$ (659)	$ (374)	$ (285)	76 %

Interest and other expense, net increased $0.3 million, or 76%, for the three months ended September 30, 2019, compared to the three months ended September 30, 2018. This increase is primarily due to an increase in interest expense of $1.1 million from an increase in net borrowings under the OrbiMed Credit Facility, which was partially offset by an increase in interest income of $0.8 million due to the increase in cash equivalents and short-term investments from the IPO proceeds received in July 2019.

Income tax provision

	Three Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Income tax provision	$ 21	$ 7	$ 14	200%

Income tax provision consists of current and deferred taxes for U.S. federal, state, and foreign income taxes. As we have a full valuation allowance on deferred tax assets, our income tax provision for the three months ended September 30, 2019 and 2018 consists primarily of minimal state income taxes.

Discussion of the Nine Months Ended September 30, 2019 and 2018

Revenue

	Nine Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Revenue:				
Technology	$ 61,393	$ 38,459	$ 22,934	60%
Professional services	50,047	38,031	12,016	32%
Total revenue	$ 111,440	$ 76,490	$ 34,950	46%
Percentage of revenue:				
Technology	55%	50%		
Professional services	45%	50%		
Total	100%	100%		

Total revenue was $111.4 million for the nine months ended September 30, 2019, compared to $76.5 million for the nine months ended September 30, 2018, an increase of $35.0 million, or 46%.

Technology revenue was $61.4 million, or 55% of total revenue, for the nine months ended September 30, 2019, compared to $38.5 million, or 50% of total revenue, for the nine months ended September 30, 2018. The increase in technology revenue was partially due to the nine months ended September 30, 2018 only including approximately three months of Medicity revenue as a result of the Medicity acquisition closing on June 29, 2018. There was $12.2 million of technology revenue from Medicity during the six months ended June 30, 2019, with no corresponding revenue in the comparative prior year period. The remaining technology revenue growth was from new DOS Subscription Customers and an increase from existing customers due to existing customers paying higher technology access fees from contractual, annual escalators, and new offerings of expanded support services. The revenue growth amounts presented are net of a $1.8 million decrease in one-time technology revenue.

The increase in technology revenue as a percentage of total revenue from 50% for the nine months ended September 30, 2018 to 55% for the nine months ended September 30, 2019 was primarily due to the Medicity acquisition. Our overall revenue mix has significantly changed post-acquisition as a result of the Medicity revenue being predominantly technology revenue.

Professional services revenue was $50.0 million, or 45% of total revenue, for the nine months ended September 30, 2019, compared to $38.0 million, or 50% of total revenue, for the nine months ended September 30, 2018. The professional services revenue growth is primarily due to implementation, analytics, and improvement services being provided to new DOS Subscription Customers and expanded services with existing customers.

Cost of revenue, excluding depreciation and amortization

	Nine Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Cost of revenue, excluding depreciation and amortization:				
Technology	$ 20,536	$ 12,782	$ 7,754	61%
Professional services	33,132	28,343	4,789	17%
Total cost of revenue, excluding depreciation and amortization	$ 53,668	$ 41,125	$ 12,543	30%
Percentage of total revenue	48%	54%		

Cost of technology revenue, excluding depreciation and amortization, was $20.5 million for the nine months ended September 30, 2019, compared to $12.8 million for the nine months ended September 30, 2018, an increase of $7.8 million, or 61%. The increase in cost of technology revenue was primarily due to $5.4 million in increased cloud computing and hosting costs largely from the expanded use of Microsoft Azure, an increase of $3.1 million in salary and related personnel costs from an increase in cloud services and support headcount, and an increase of $1.8 million in subscription costs to serve existing and new customers. These increases in cost of technology revenue were partially offset by a $2.4 million decrease in outside contractor fees.

Cost of professional services revenue was $33.1 million for the nine months ended September 30, 2019, compared to $28.3 million for the nine months ended September 30, 2018, an increase of $4.8 million, or 17%. This increase is primarily due to an increase in salary and related personnel costs from an increase in our professional services headcount.

Operating Expenses

Sales and marketing

	Nine Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Sales and marketing	$ 35,579	$ 32,496	$ 3,083	9%
Percentage of total revenue	32%	42%		

Sales and marketing expenses were $35.6 million for the nine months ended September 30, 2019, compared to $32.5 million for the nine months ended September 30, 2018, an increase of $3.1 million, or 9%. This increase was primarily due to an increase of $4.8 million in ongoing salary and related personnel costs from additional sales, marketing, and account management headcount, of which $2.4 million related to new team members as a result of the Medicity acquisition. There was a $1.6 million increase in stock-based compensation, including a cumulative catch-up of $0.4 million related to two-tier stock options upon the closing of the IPO, and a $0.9 million increase in travel-related costs. These increases were partially offset by $4.0 million of tender offer payments deemed compensation expense during the nine months ended September 30, 2019.

Sales and marketing expense as a percentage of total revenue decreased from 42% in the nine months ended September 30, 2018 to 32% in the nine months ended September 30, 2019.

Research and development

	Nine Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Research and development	$ 33,209	$ 28,031	$ 5,178	18%
Percentage of total revenue	30%	36%		

Research and development expenses were $33.2 million for the nine months ended September 30, 2019, compared to $28.0 million for the nine months ended September 30, 2018, an increase of $5.2 million, or 18%. The increase was primarily due to an increase of $3.0 million in stock-based compensation, including a cumulative catch-up of $2.1 million related to two-tier stock options upon the closing of the IPO. There was also an increase of $2.3 million in ongoing salary and related personnel costs from additional development team headcount largely as a result of the Medicity acquisition and an increase of $1.1 million in third-party hosting costs. These increases were partially offset by $0.9 million of tender offer payments deemed compensation during the nine months ended September 30, 2018.

Research and development expense as a percentage of revenue decreased from 36% in the nine months ended September 30, 2018 to 30% in the nine months ended September 30, 2019.

General and administrative

	Nine Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
General and administrative	$ 23,333	$ 16,748	$ 6,585	39%
Percentage of total revenue	21%	22%		

General and administrative expenses were $23.3 million for the nine months ended September 30, 2019, compared to $16.7 million for the nine months ended September 30, 2018, an increase of $6.6 million, or 39%. The increase was primarily due to an increase of $5.2 million in stock-based compensation, including a cumulative catch-up of $3.5 million related to two-tier stock options upon the closing of the IPO and an increase of $2.3 million in ongoing salary and related personnel costs from additional general and administrative headcount. Other increases included an increase in facility costs of $0.5 million, contractor costs of $0.6 million, subscription costs of $0.6 million, and legal fees of $0.3 million. These increases were partially offset by $3.1 million of tender offer payments deemed compensation expense during the nine months ended September 30, 2018.

General and administrative expense as a percentage of revenue decreased from 22% in the nine months ended September 30, 2018 to 21% in the nine months ended September 30, 2019.

Depreciation and amortization

	Nine Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Depreciation and amortization	$ 6,844	$ 5,252	$ 1,592	30%
Percentage of total revenue	6%	7%		

Depreciation and amortization expenses were $6.8 million for the nine months ended September 30, 2019, compared to $5.3 million for the nine months ended September 30, 2018, an increase of $1.6 million, or 30%. This increase was primarily due to the amortization of capitalized internal-use software costs and additional depreciation and amortization on property, equipment, and intangibles from the Medicity acquisition.

Depreciation and amortization expense as a percentage of revenue decreased from 7% in the nine months ended September 30, 2018 to 6% in the nine months ended September 30, 2019.

Loss on extinguishment of debt

	Nine Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Loss on extinguishment of debt	$ (1,670)	$ —	$ (1,670)	n/m[1]

(1) Not meaningful.

On February 6, 2019, we entered into the OrbiMed Credit Facility that established a senior term loan facility of up to $80.0 million under certain conditions and we simultaneously borrowed $50.0 million. The use of proceeds from the OrbiMed senior term loan included an immediate repayment of our $20.0 million term loan from SVB that required a prepayment premium of $0.5 million and the write-off of deferred debt issuance costs of $1.2 million, resulting in a $1.7 million loss on extinguishment of debt.

Interest and other expense, net

	Nine Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Interest income	$ 1,676	$ 430	$ 1,246	290 %
Interest expense	(4,627)	(1,774)	(2,853)	161 %
Other expense	27	(45)	72	(160)%
Total interest and other expense, net	$ (2,924)	$ (1,389)	$ (1,535)	111 %

Interest and other expense, net increased $1.5 million, or 111%, for the nine months ended September 30, 2019, compared to the nine months ended September 30, 2018. This increase is primarily due to an increase in interest expense of $2.9 million from an increase in net borrowings under the OrbiMed Credit Facility, which was partially offset by an increase in interest income of $1.2 million due to the increase in cash equivalents and short-term investments from the IPO proceeds received in July 2019.

Income tax provision (benefit)

	Nine Months Ended September 30,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Income tax provision (benefit)	$ 43	$ (142)	$ 185	n/m[1]

(1) Not meaningful.

Income tax provision (benefit) consists of current and deferred taxes for U.S. federal, state, and foreign income taxes. On December 22, 2017, federal tax legislation was enacted that included lowering the U.S. corporate income tax rate to 21% effective in 2018. We remeasured certain deferred tax assets and liabilities based on the tax rates at which they are expected to reverse in the future, which is generally 21%. As we have a full valuation allowance on deferred tax assets, the allowance was adjusted accordingly based on the remeasured deferred tax asset and liability position. As a result, the federal tax legislation had a limited impact on our income tax expense. As we have a full valuation allowance on deferred tax assets, our income tax provision for the nine months ended September 30, 2019 consists primarily of minimal state income taxes.

Liquidity and Capital Resources

As of September 30, 2019, we had cash, cash equivalents, and short-term investments of $241.4 million, which were held for working capital purposes. Our cash equivalents and short-term investments are comprised primarily of money market funds, U.S. treasury notes, commercial paper, corporate bonds, and asset-backed securities.

Since inception, we have financed our operations primarily from the proceeds we received through private sales of equity securities, payments received from customers under technology and professional services arrangements, borrowings under our loan and security agreements, and our recent IPO. Our future capital requirements will depend on many factors, including our pace of new customer growth and expanded customer relationships, technology and professional services renewal activity, and the timing and extent of spend to support the expansion of sales, marketing, and development activities. In the event that additional financing is required from outside sources, we may not be able to raise it on terms acceptable to us, or at all. If we are unable to raise additional capital when desired, our business, results of operations, and financial condition would be adversely affected.

SVB Debt Agreements and OrbiMed Financings

In October 2017, we entered into the Amended Loan and Security Agreement and the Mezzanine Loan and Security Agreement (the SVB Debt Agreements) with SVB. The SVB Debt Agreements established a revolving line of credit and a term loan facility of up to $20.0 million under certain conditions and $20.0 million, respectively.

Revolving Line of Credit

As of December 31, 2018, the Amended Loan and Security Agreement allowed us to borrow up to $20.0 million in advances on the revolving line of credit with a contractual interest rate of prime plus 0.5% and a maturity date of December 2019. As of December 31, 2018, the interest rate was 6.0% and we had drawn $1.3 million under this revolving line of credit.

The Amended Loan and Security Agreement was further amended on February 6, 2019 to reduce the revolving line of credit from up to $20.0 million to $5.0 million with an obligation to maintain a minimum of $5.0 million cash or cash equivalents on deposit with SVB to maintain the assurance of future credit availability. The line may be increased by $5.0 million upon request and approval by SVB. The maturity date of the revolving line of credit was amended to be February 6, 2021.

Term Loan

As of December 31, 2018, the SVB Debt Agreements allowed us to borrow up to $20.0 million in term loans with a contractual interest rate of prime plus 6.25%. The interest rate was 11.75% as of December 31, 2018. We were contractually allowed to prepay all outstanding principal and accrued interest at any time together with a prepayment penalty of $0.5 million. As of December 31, 2018, we had borrowed the full $20.0 million under this term loan.

Both the revolving line of credit and the term loan were subject to certain covenants and, as of December 31, 2018, we were in compliance with the covenants under the SVB Debt Agreements.

OrbiMed Financings

On February 6, 2019, we entered into the OrbiMed Credit Facility that established a senior term loan facility of up to $80.0 million under certain conditions. The contractual interest rate is the higher of LIBOR plus 7.5% and 10.0%. On February 6, 2019, we borrowed $50.0 million under the OrbiMed Debt Agreement with principal payments due beginning in 2023, and we simultaneously repaid our $20.0 million term loan from SVB in full. In addition, we repaid in full the outstanding balance of $1.3 million under the SVB revolving line of credit.

Additionally, on February 6, 2019, we sold 437,787 shares of our Series F redeemable convertible preferred stock for a purchase price of $12.2 million. The effect of the OrbiMed debt proceeds, the Series F stock issuance, and the repayment of the SVB term loan resulted in a net increase in cash, cash equivalents, and short-term investments of $38.7 million, net of fees and debt prepayment premiums.

Initial Public Offering

On July 29, 2019, we closed our initial public offering ("IPO") in which we issued and sold 8,050,000 shares (inclusive of the underwriters' over-allotment option to purchase 1,050,000 shares, which was exercised on July 25, 2019) of common stock at $26.00 per share. We received net proceeds of $194.6 million after deducting underwriting discounts and commissions and before deducting offering costs of $4.6 million.

We believe our existing cash, cash equivalents and marketable securities and amounts available under our revolving credit facility will be sufficient to meet our working capital and capital expenditure needs over at least the next 12 months, though we may require additional capital resources in the future.

Cash Flows

The following table summarizes our cash flows for the nine months ended September 30, 2019 and 2018:

	Nine Months Ended September 30,	
	2019	2018
	(in thousands)	
Net cash used in operating activities	$ (19,123)	$ (27,310)
Net cash (used in) provided by investing activities	(187,532)	16,709
Net cash provided by financing activities	230,283	15,727
Net increase in cash and cash equivalents	$ 23,628	$ 5,126

Operating Activities

Our largest source of operating cash flows is cash collections from our customers for technology and professional services arrangements. Our primary uses of cash from operating activities are for employee-related expenses, marketing expenses, and technology costs.

For the nine months ended September 30, 2019, net cash used in operating activities was $19.1 million, which included a net loss of $45.8 million. Non-cash charges primarily consisted of $6.8 million in depreciation and amortization of property, equipment, and intangible assets, $13.0 million in stock-based compensation, and $1.7 million of loss from the extinguishment of debt.

For the nine months ended September 30, 2018, net cash used in operating activities was $27.3 million, which included a net loss of $48.4 million. Non-cash charges primarily consisted of $5.3 million in depreciation and amortization of property, equipment, and intangible assets and $2.9 million in stock-based compensation. The net loss for the nine months ended September 30, 2018 also included an $8.3 million charge that was paid in association with the repurchase of common stock at a price in excess of its estimated fair value as part of the 2018 tender offer that is further described in Note 11 to the condensed consolidated financial statements. The tender offer cash payments are not expected to be recurring in future periods.

Investing Activities

Net cash used in investing activities for the nine months ended September 30, 2019 of $187.5 million was primarily due to $221.4 million used to purchase short-term investments and $3.4 million in purchases of property, equipment, and intangible assets, reduced by $37.3 million provided from the sale and maturity of short-term investments.

Net cash provided by investing activities for the nine months ended September 30, 2018 of $16.7 million primarily was due to $26.7 million provided from the sale and maturity of short-term investments, reduced by $9.2 million used to purchase short-term investments and $0.8 million in purchases of property, equipment, and intangible assets.

Financing Activities

Net cash provided by financing activities for the nine months ended September 30, 2019 of $230.3 million was primarily the result of $194.6 million in IPO proceeds, net of underwriters' discounts and commissions, $47.2 million in net proceeds drawn under the OrbiMed Credit Facility, $12.1 million in net proceeds from the sale and issuance of Series F redeemable convertible preferred stock, $2.2 million in stock option exercise proceeds, and $1.2 million in proceeds from our ESPP, reduced by the $21.8 million payoff of the SVB debt, $4.4 million in payments of deferred offering costs, and $0.8 million in payments of acquisition-related obligations.

Net cash provided by financing activities for the nine months ended September 30, 2018 of $15.7 million was primarily the result of $34.0 million in proceeds from the sale and issuance of Series E redeemable convertible preferred stock and $2.8 million and stock option exercise proceeds, reduced by $12.3 million in payments of acquisition-related obligations and $8.7 million used in a repurchase of our common stock.

Contractual Obligations and Commitments

On February 6, 2019, we entered into the OrbiMed Credit Facility that established a senior term loan facility of up to $80.0 million under certain conditions, and we borrowed $50.0 million under the OrbiMed Credit Facility. The contractual interest rate is the higher of LIBOR plus 7.5% and 10.0%. Interest payments are required at the end of each month and monthly installment payments on principal begin in February 2023 and will be based on the then outstanding principal balance divided by 12. The maturity date of the OrbiMed term loan is February 6, 2024. Upon the payment of all or any portion of the principal amount on the OrbiMed term loan, we are required to pay an exit fee of 5% of the principal amount paid. This exit fee is being accreted as interest expense over the contractual term of the loan. If we elect to prepay portions of the principal balance prior to the 48-month anniversary of the closing date we would be required to pay a repayment premium ranging from 1% to 12% of the principal balance prepaid depending on the period in which the prepayment is made.

On February 6, 2019, we simultaneously repaid our $20.0 million term loan from SVB in full and we repaid in full the outstanding balance of $1.3 million under the SVB revolving line of credit.

There have been no other material changes to our contractual obligations since December 31, 2018.

Off-Balance Sheet Arrangements

As of September 30, 2019, we did not have any relationships with unconsolidated organizations or financial partnerships, such as structured finance or special purpose entities that would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Critical Accounting Policies and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with GAAP. The preparation of these condensed consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, costs and expenses, and related disclosures. To the extent that there are material differences between these estimates and actual results, our financial condition or results of operations would be affected. We base our estimates on past experience and other assumptions that we believe are reasonable under the circumstances, and we evaluate these estimates on an ongoing basis. Critical accounting policies and estimates are those that we consider critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates.

There have been no material changes to our critical accounting policies and estimates as previously disclosed in the Prospectus, dated July 24, 2019, relating to our initial public offering. See "Note 1—Description of Business and Summary of Significant Accounting Policies" of our condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q for more information regarding the Company's significant accounting policies.

JOBS Act Accounting Election

We are an emerging growth company, as defined in the Jumpstart Our Business Startups Act (JOBS Act). Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards, and therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

Recent Accounting Pronouncements

See "Note 1—Description of Business and Summary of Significant Accounting Policies" to our condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q for more information regarding recently issued accounting pronouncements.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

We are exposed to certain market risks in the ordinary course of our business. Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily a result of fluctuations in interest rates but may include foreign currency exchange risk and inflation in the future.

Interest Rate Risk

We had cash, cash equivalents, and short-term investments of $241.4 million as of September 30, 2019, which are held for working capital purposes. We do not make investments for trading or speculative purposes.

Our cash equivalents and short-term investments are subject to market risk due to changes in interest rates. Fixed rate securities may have their market value adversely affected due to a rise in interest rates, while floating rate securities may produce less income than expected if interest rates fall. Due in part to these factors, our future investment income may fluctuate due to changes in interest rates or we may suffer losses in principal if we are forced to sell securities that decline in market value due to changes in interest rates. However, because we classify our investments as "available for sale," no gains or losses are recognized due to changes in interest rates unless such securities are sold prior to maturity or declines in fair value are determined to be other-than-temporary.

Under our debt agreements, we pay interest on any outstanding balances based on variable market rates. A significant increase in these market rates may adversely affect our results of operations.

As of September 30, 2019, a hypothetical 100 basis point change in interest rates would not have had a material impact on the value of our cash equivalents or investment portfolio. Fluctuations in the value of our cash equivalents and investment portfolio caused by a change in interest rates (gains or losses on the carrying value) are recorded in other comprehensive income and are realized only if we sell the underlying securities prior to maturity.

Inflation Risk

We do not believe that inflation has had a material effect on our business, results of operations or financial condition. Nonetheless, if our costs were to become subject to significant inflationary pressures, we may not be able to fully offset such higher costs. Our inability or failure to do so could harm our business, results of operations, or financial condition.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain "disclosure controls and procedures," as defined in Rule 13a–15(e) and Rule 15d–15(e) under the Exchange Act that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits 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 include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of September 30, 2019. Based on the evaluation of our disclosure controls and procedures as ofSeptember 30, 2019, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control Over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the period covered by this Quarterly Report on Form 10-Q that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our Chief Executive Officer and Chief Financial Officer, believes that our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives and are effective at the reasonable assurance level. However, our management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Part II. Other Information

Item 1. Legal Proceedings

We are, from time to time, subject to legal proceedings and claims arising from the normal course of business activities, and an unfavorable resolution of any of these matters could materially affect our future business, results of operations, financial condition, and cash flows.

Future litigation may be necessary, among other things, to defend ourselves or our users by determining the scope, enforceability, and validity of third-party proprietary rights or to establish our proprietary rights. The results of any current or future litigation cannot be predicted with certainty, and regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources, and other factors.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. In addition to the other information set forth in this Quarterly Report, you should carefully consider the risks and uncertainties described below, together with all of the other information herein. The risks and uncertainties described below may not be the only ones we face. If any of the risks actually occur, our business, results of operations, financial condition and prospects could be harmed. In that event, the trading price of our common stock could decline, and you could lose part or all of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations.

Risks Related to Our Business

We operate in a highly competitive industry, and if we are not able to compete effectively, our business and results of operations will be harmed.

The market for healthcare solutions is intensely competitive. We compete across various segments within the healthcare market, including with respect to data analytics and technology platforms, healthcare consulting, care management and coordination, population health management, and health information exchange. Competition in our market involves rapidly changing technologies, evolving regulatory requirements and industry expectations, frequent new product introductions, and changes in customer requirements. If we are unable to keep pace with the evolving needs of our customers and continue to develop and introduce new applications and services in a timely and efficient manner, demand for our Solution may be reduced and our business and results of operations will be adversely affected.

We face competition from industry-agnostic analytics companies and EHR companies, such as Epic Systems and Cerner. We also compete with other large, well-financed, and technologically sophisticated entities. Some of our current large competitors, such as Optum Analytics and IBM, have greater name recognition, longer operating histories, significantly greater resources than we do, and/or more established distribution networks and relationships with healthcare providers. As a result, our current and potential competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards, or customer requirements. In addition, current and potential competitors have established, and may in the future establish, cooperative relationships with vendors of complementary products, or services to increase the availability of their products or services to the marketplace. Current or future competitors may consolidate to improve the breadth of their products, directly competing with our Solution. Accordingly, new competitors may emerge that have greater market share, larger customer bases, greater breadth and volume of data, more widely adopted proprietary technologies, broader offerings, greater marketing expertise, greater financial resources, and larger sales forces than we have, which could put us at a competitive disadvantage. Further, in light of these advantages, even if our Solution is more effective than the product or service offerings of our competitors, current or potential customers might select competitive products and services in lieu of purchasing our Solution. We face competition from niche vendors, who offer stand-alone products and services, and from existing enterprise vendors, including those currently focused on software products, which have information systems in place with customers in our target markets. These existing enterprise vendors may now, or in the future, offer or promise products or services with less functionality than our Solution, but offer ease of integration with existing systems and that leverage existing vendor relationships. Increased competition is likely to result in pricing pressures, which could negatively impact our sales, profitability, or market share.

Our patient engagement, population health, and care coordination services face competition from a wide variety of market participants. For example, certain health systems have developed their own population health and care coordination systems. If we fail to distinguish our offerings from the other options available to healthcare providers, the demand for and market share of those offerings may decrease.

We may be unable to successfully execute on our growth initiatives, business strategies, or operating plans.

We are continually executing a number of growth initiatives, strategies, and operating plans designed to enhance our business. For example, we recently expanded our data analytics services into the payor and life sciences markets. We may not be able to successfully complete these growth initiatives, strategies, and operating plans and realize all of the benefits, including growth targets and cost savings, that we expect to achieve or it may be more costly to do so than we anticipate. A variety of factors could cause us not to realize some or all of the expected benefits. These factors include, among others, delays in the anticipated timing of activities related to such growth initiatives, strategies, and operating plans, increased difficulty and cost in implementing these efforts, including difficulties in complying with new regulatory requirements and the incurrence of other unexpected costs associated with operating the business. Moreover, our continued implementation of these programs may disrupt our operations and performance. As a result, we cannot assure you that we will realize these benefits. If, for any reason, the benefits we realize are less than our estimates or the implementation of these growth initiatives, strategies, and operating plans adversely affect our operations or cost more or take longer to effectuate than we expect, or if our assumptions prove inaccurate, our business, financial condition, and results of operations may be materially adversely affected.

If we fail to effectively manage our growth and organizational change, our business and results of operations could be harmed.

We have experienced, and may continue to experience, rapid growth and organizational change, which has placed, and may continue to place, significant demands on our management, operational, and financial resources. In addition, if we fail to successfully integrate new team members, it could harm our culture. We must continue to maintain, and may need to enhance, our information technology infrastructure and financial and accounting systems and controls, as well as manage expanded operations in geographically distributed locations, which will place additional demands on our resources and operations. We also must attract, train, and retain a significant number of qualified sales and marketing personnel, professional services personnel, software engineers, technical personnel, service offering personnel, and management personnel. This will require us to invest in and commit significant financial, operational, and management resources to grow and change in these areas without undermining the corporate culture that has been critical to our growth so far. If we do not achieve the benefits anticipated from these investments, or if the realization of these benefits is delayed, our results of operations may be adversely affected. If we fail to provide effective customer training on our Solution and high-quality customer support, our business, and reputation could suffer. Failure to manage our growth effectively could lead us to over-invest or under-invest in technology and operations; result in weaknesses in our infrastructure, systems, or controls; give rise to operational mistakes, losses, or loss of productivity or business opportunities; reduce customer or user satisfaction; limit our ability to respond to competitive pressures; and result in loss of team members and reduced productivity of remaining team members. Our growth could require significant capital expenditures and may divert financial resources and management attention from other projects, such as the development of new or enhanced services or the acquisition of suitable businesses or technologies. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our revenue could decline or may grow more slowly than expected, and we may be unable to implement our business strategy.

If we do not continue to innovate and provide services that are useful to customers and users, we may not remain competitive, and our revenue and results of operations could suffer.

The market for healthcare in the United States is in the early stages of structural change and is rapidly evolving toward a more value-based care model. Our success depends on our ability to keep pace with technological developments, satisfy increasingly sophisticated customer and user requirements, and sustain market acceptance. Our future financial performance will depend in part on growth in this market and on our ability to adapt to emerging demands of this market, including adapting to the ways our customers or users access and use our Solution. Although we have built eight new software analytics applications in the last three years, we may not be able to sustain this rate of innovation. Our competitors are constantly developing products and services that may become more efficient or appealing to our customers or users. As a result, we must continue to invest significant resources in research and development in order to enhance our existing services and introduce new high-quality services and applications that customers will want, while offering our Solution at competitive prices. If we are unable to predict user preferences or industry changes, or if we are unable to modify our Solution on a timely or cost-effective basis, we may lose customers and users. Our results of operations would also suffer if our innovations are not responsive to the needs of our customers, are not appropriately timed with market opportunity, or are not effectively brought to market, including as the result of delayed releases or releases that are ineffective or have errors or defects. As technology continues to develop, our competitors may be able to offer results that are, or that are perceived to be, substantially similar to, or better than, those generated by our Solution. This may force us to compete on additional service attributes and to expend significant resources in order to remain competitive.

Our business could be adversely affected if our customers are not satisfied with our Solution.

We depend on customer satisfaction to succeed with respect to our cloud-based solutions. Our sales organization is dependent on the quality of our offerings, our business reputation, and the strong recommendations from existing customers. If our cloud-based software does not function reliably or fails to meet customer expectations in terms of performance and availability, customers could assert claims against us or terminate their contracts with us or publish negative feedback. This could damage our reputation and impair our ability to attract or retain customers. Furthermore, we provide professional services to customers to support their use of our applications and to achieve measurable clinical, financial, and operational improvements.

Any failure to maintain high-quality professional services, or a market perception that we do not maintain high-quality professional services, could harm our reputation, adversely affect our ability to sell our Solution to existing and prospective customers, and harm our business, results of operations and financial condition.

If our existing customers do not continue or renew their contracts with us, renew at lower fee levels or decline to purchase additional technology and services from us, it could have a material adverse effect on our business, financial condition, and results of operations.

We expect to derive a significant portion of our revenue from the renewal of existing customer contracts and sales of additional technology and services to existing customers. As part of our growth strategy, for instance, we have recently focused on expanding our Solution among current customers. As a result, selling additional technology and services are critical to our future business, revenue growth, and results of operations.

Factors that may affect our ability to sell additional technology and services include, but are not limited to, the following:

- the price, performance, and functionality of our Solution;
- the availability, price, performance, and functionality of competing solutions;
- our ability to develop and sell complementary technology and services;
- the stability, performance, and security of our hosting infrastructure and hosting services;
- our ability to continuously deliver measurable improvements;
- health systems' demand for professional services to augment their internal data analytics function;
- changes in healthcare laws, regulations, or trends; and
- the business environment of our customers and, in particular, headcount reductions by our customers.

We enter into subscription contracts with our customers for access to our Solution. Many of these contracts have initial terms of one to three years. Most of our customers have no obligation to renew their subscriptions for our Solution after the initial term expires. Although we have long-term contracts with many customers, these contracts may be terminated by the customer before their term expires for various reasons, such as changes in the regulatory landscape and poor performance by us, subject to certain conditions. For example, after a specified period, certain of these contracts are terminable for convenience by our customers, subject to providing us with prior notice. Certain of our contracts may be terminated by the customer immediately following repeated failures by us to provide specified levels of service over periods ranging from six months to more than a year. Certain of our contracts may be terminated immediately by the customer if we lose applicable third-party licenses, go bankrupt, or lose our liability insurance. If any of our contracts with our customers is terminated, we may not be able to recover all fees due under the terminated contract and we will lose future revenue from that customer, which may adversely affect our results of operations. We expect that future contracts will contain similar provisions.

In addition, our customers may negotiate terms less advantageous to us upon renewal, which may reduce our revenue from these customers. Our future results of operations also depend, in part, on our ability to upgrade and enhance our Solution. If our customers fail to renew their contracts, renew their contracts upon less favorable terms, or at lower fee levels or fail to purchase new technology and services from us, our revenue may decline or our future revenue growth may be constrained.

Our Solution is dependent on our ability to source data from third parties, and such third parties could take steps to block our access to data, which could impair our ability to provide our Solution or limit the effectiveness of our Solution.

Our data platform requires us to source data from multiple clinical, financial, and operational data sources, which sources are also typically third-party vendors of our customers. The functioning of our analytics applications and our ability to perform analytics services is predicated on our ability to establish interfaces that download the relevant data from these source systems on a repeated basis and in a reliable manner. We may encounter vendors who engage in information blocking practices that may inhibit our ability to access the relevant data on behalf of customers. A proposed rulemaking issued on March 3, 2019 (the Proposed Rule) pursuant to the 21st Century Cures Act anti-information blocking provisions prohibits practices that are meant to prevent, materially discourage, or otherwise inhibit access, exchange, or use of electronic health information. The Proposed Rule allows for certain exceptions such as allowing vendors to charge a reasonable cost for access to interoperability elements of its technology to enable data access. However, the Proposed Rule may not be finalized for some time, and the final rule may be modified in ways that are less discouraging of information blocking practices than is the Proposed Rule. Further, healthcare organizations and vendors may decide in the interim not to observe the provisions of the Proposed Rule or may adapt interpretations of the Proposed Rule and/or the final rule that justify the continuation of various information blocking practices. If we face limitations on the development of data interfaces and other information blocking practices, our data access and ability to download relevant data may be limited, which could adversely affect our ability to provide our Solution as effectively as possible. Any steps we take to enforce the anti-information blocking provisions of the 21st Century Cures Act could be costly, could distract management attention from the business, and could have uncertain results.

Failure by our customers to obtain proper permissions and waivers may result in claims against us or may limit or prevent our use of data, which could harm our business.

We require our customers to provide necessary notices and to obtain necessary permissions and waivers for use and disclosure of the information that we receive, and we require contractual assurances from them that they have done so and will do so. If they do not obtain necessary permissions and waivers, then our use and disclosure of information that we receive from them or on their behalf may be restricted or prohibited by state, federal or international privacy or data protection laws, or other related privacy and data protection laws. This could impair our functions, processes, and databases that reflect, contain, or are based upon such data and may prevent the use of such data, including our ability to provide such data to third parties that are incorporated into our service offerings. Furthermore, this may cause us to breach obligations to third parties to whom we may provide such data, such as third-party service or technology providers that are incorporated into our service offerings. In addition, this could interfere with or prevent data sourcing, data analyses, or limit other data-driven activities that benefit us. Moreover, we may be subject to claims, civil and/or criminal liability or government or state attorneys general investigations for use or disclosure of information by reason of lack of valid notice, permission, or waiver. These claims, liabilities or government or state attorneys general investigations could subject us to unexpected costs and adversely affect our financial condition and results of operations.

If our security measures are breached or unauthorized access to customer data is otherwise obtained, our Solution may be perceived as not being secure, customers may reduce the use of or stop using our Solution, and we may incur significant liabilities.

Our Solution involves the storage and transmission of our customers' proprietary information, including personal or identifying information regarding patients and their protected health information (PHI). As a result, unauthorized access or security breaches as a result of third-party action, employee error, malfeasance, or otherwise could result in the loss or inappropriate use of information, litigation, indemnity obligations, damage to our reputation, and other liability such as government or state Attorney General investigations. Because the techniques used to obtain unauthorized access or sabotage systems change frequently and generally are not identified until they are launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. Moreover, the detection, prevention, and remediation of known or unknown security vulnerabilities, including those arising from third-party hardware or software, may result in additional direct or indirect costs and management time.

Any or all of these issues could adversely affect our ability to attract new customers, cause existing customers to elect to not renew their subscriptions, result in reputational damage, or subject us to third-party lawsuits, regulatory fines, mandatory disclosures, or other action or liability, which could adversely affect our results of operations. Our general liability insurance may not be adequate to cover all potential claims to which we are exposed and may not be adequate to indemnify us for liability that may be imposed or the losses associated with such events, and in any case, such insurance may not cover all of the specific costs, expenses, and losses we could incur in responding to and remediating a security breach. A security breach of another significant provider of cloud-based solutions may also negatively impact the demand for our Solution.

Our results of operations have in the past fluctuated and may continue to fluctuate significantly, and if we fail to meet the expectations of analysts or investors, our stock price and the value of an investment in our common stock could decline substantially.

Our results of operations are likely to fluctuate, and if we fail to meet or exceed the expectations of securities analysts or investors, the trading price of our common stock could decline. Moreover, our stock price may be based on expectations of our future performance that may be unrealistic or that may not be met. Some of the factors that could cause our revenue and results of operations to fluctuate from quarter to quarter include:

- the extent to which our Solution achieves or maintains market acceptance;
- our ability to introduce new applications, updates, and enhancements to our existing applications on a timely basis;
- new competitors and the introduction of enhanced products and services from new or existing competitors;
- the length of our contracting and implementation cycles and our fulfillment periods for our Solution;
- the mix of revenue generated from professional services as compared to technology subscriptions;
- the financial condition of our current and future customers;
- changes in customer budgets and procurement policies;
- changes in regulations or marketing strategies;
- the amount and timing of our investment in research and development activities;
- the amount and timing of our investment in sales and marketing activities;
- technical difficulties or interruptions to our DOS platform or analytics applications;
- our ability to hire and retain qualified personnel;
- changes in the regulatory environment related to healthcare;
- regulatory compliance costs;
- the timing, size, and integration success of potential future acquisitions;
- unforeseen legal expenses, including litigation and settlement costs; and
- buying patterns of our customers and the related seasonality impacts on our business.

Many of these factors are not within our control, and the occurrence of one or more of them might cause our results of operations to vary widely. As such, we believe that quarter-to-quarter comparisons of our revenue and results of operations may not be meaningful and should not be relied upon as an indication of future performance.

A significant portion of our operating expense is relatively fixed in nature in the short term, and planned expenditures are based in part on expectations regarding future revenue and profitability. Accordingly, unexpected revenue shortfalls, lower-than-expected revenue increases as a result of planned expenditures, and longer-than-expected impact on profitability and margins as a result of planned expenditures may decrease our gross margins and profitability and could cause significant changes in our results of operations from quarter to quarter. In addition, our future quarterly results of operations may fluctuate and may not meet the expectations of securities analysts or investors. If this occurs, the trading price of our common stock could fall substantially, either suddenly or over time.

Our pricing may change over time and our ability to efficiently price our Solution will affect our results of operations and our ability to attract or retain customers.

In the past, we have adjusted our prices as a result of offering new applications and services and customer demand. In the fourth quarter of 2018, we began to introduce new pricing for our Solution to new customers, the full effect of which we expect would be realized in future years.While we determined these prices based on prior experience and feedback from customers, our assessments may not be accurate and we could be underpricing or overpricing our Solution, which may require us to continue to adjust our pricing model. Furthermore, as our applications and services change, then we may need to, or choose to, revise our pricing as our prior experience in those areas will be limited. For example, we introduced our subscription model in 2015, and we may need to continually refine our pricing model. Such changes to our pricing model or our inability to efficiently price our Solution could harm our business, results of operations, and financial condition and impact our ability to predict our future performance.

If our Solution fails to provide accurate and timely information, or if our content or any other element of our Solution is associated with faulty clinical decisions or treatment, we could have liability to customers, members, clinicians, or patients, which could adversely affect our results of operations.

Our applications, content, and services may be used by customers to support clinical decision-making by providers and interpret information about patient medical histories, treatment plans, medical conditions, and the use of particular medications. If our applications, content, or services are associated with faulty clinical decisions or treatment, then customers or their patients could assert claims against us that could result in substantial costs to us, harm our reputation in the industry, and cause demand for our Solution to decline.

Our analytics services may be used by our customers to inform clinical decision-making, provide access to patient medical histories, and assist in creating patient treatment plans. Therefore, if data analyses are presented incorrectly in our applications or they are incomplete, or if we make mistakes in the capture or input of these data, adverse consequences, including death, may occur and give rise to product liability, medical malpractice liability, and other claims against us by customers, clinicians, patients, or others. We often have little control over data accuracy, yet a court or government agency may take the position that our storage and display of health information exposes us to personal injury liability or other liability for wrongful delivery or handling of healthcare services or erroneous health information.

Our clinical guidelines, algorithms, and protocols may be viewed as providing healthcare professionals with guidance on care management, care coordination, or treatment decisions. If our content, or content we obtain from third parties, contains inaccuracies, or we introduce inaccuracies in the process of implementing third-party content, it is possible that patients, physicians, consumers, the providers of the third-party content, or others may sue us if they are harmed as a result of such inaccuracies. We cannot assure you that our software development, editorial, and other quality control procedures will be sufficient to ensure that there are no errors or omissions in any particular content or our software or algorithms.

The assertion of such claims and ensuing litigation, regardless of its outcome, could result in substantial cost to us, divert management's attention from operations, damage our reputation, and decrease market acceptance of our Solution. We attempt to limit by contract our liability for damages, have our customers assume responsibility for clinical treatment, diagnoses, medical oversight, and dosing decisions, and require that our customers assume responsibility for medical care and approve key algorithms, clinical guidelines, clinical protocols, and data. Despite these precautions, the allocations of responsibility and limitations of liability set forth in our contracts may not be enforceable, be binding upon patients, or otherwise protect us from liability for damages. Furthermore, general liability and errors and omissions insurance coverage and medical malpractice liability coverage may not continue to be available on acceptable terms or may not be available in sufficient amounts to cover one or more large claims against us. In addition, the insurer might disclaim coverage as to any future claim. One or more large claims could exceed our available insurance coverage.

If any of these events occur, they could materially adversely affect our business, financial condition, or results of operations.

Although we carry insurance covering medical malpractice claims in amounts that we believe are appropriate in light of the risks attendant to our business, successful medical liability claims could result in substantial damage awards that exceed the limits of our insurance coverage. In addition, professional liability insurance is expensive and insurance premiums may increase significantly in the future, particularly as we expand our Solution. As a result, adequate professional liability insurance may not be available to our providers or to us in the future at acceptable costs or at all.

Any claims made against us that are not fully covered by insurance could be costly to defend against, result in substantial damage awards against us and divert the attention of our management and our providers from our operations, which could have a material adverse effect on our business, financial condition, and results of operations. In addition, any claims may adversely affect our business or reputation.

We rely on third-party providers, including Microsoft Azure, for computing infrastructure, network connectivity, and other technology-related services needed to deliver our Solution. Any disruption in the services provided by such third-party providers could adversely affect our business and subject us to liability.

Our DOS platform and analytics applications are hosted from and use computing infrastructure provided by third parties, including Microsoft Azure and Flexential, and other computing infrastructure service providers. We have migrated and expect to continue to migrate a significant portion of our computing infrastructure needs to Microsoft Azure. We have made and expect to continue to make substantial investments in transitioning customers from our own managed data center to Microsoft Azure. We anticipate that this transition will increase the cost of hosting our technology and negatively impact our technology gross margin. We currently expect our planned transitions to be substantially complete by the end of 2020. Such migrations are risky and may cause disruptions to our Solution, service outages, downtime, or other problems and may increase our costs. Despite precautions taken during such transitions, any unsuccessful transition of technology may impair customers' use of our technology which may cause greater costs or downtime and which may lead to, among other things, customer dissatisfaction and non-renewals.

Our computing infrastructure service providers have no obligation to renew their agreements with us on commercially reasonable terms or at all. If we are unable to renew these agreements on commercially reasonable terms, or if one of our computing infrastructure service providers is acquired, we may be required to transition to a new provider and we may incur significant costs and possible service interruption in connection with doing so.

Problems faced by our computing infrastructure service providers, including those operated by Microsoft, could adversely affect the experience of our customers. Microsoft Azure has also had and may in the future experience significant service outages. Additionally, if our computing infrastructure service providers are unable to keep up with our growing needs for capacity, this could have an adverse effect on our business. For example, a rapid expansion of our business could affect our service levels or cause our third-party hosted systems to fail. Our agreements with third-party computing infrastructure service providers may not entitle us to service level credits that correspond with those we offer to our customers.

Any changes in third-party service levels at our computing infrastructure service providers, or any related disruptions or performance problems with our Solution, could adversely affect our reputation and may damage our customers' stored files, result in lengthy interruptions in our services, or result in potential losses of customer data. Interruptions in our services might reduce our revenue, cause us to issue refunds to customers for prepaid and unused subscriptions, subject us to service level credit claims and potential liability, allow our customers to terminate their contracts with us, or adversely affect our renewal rates.

We rely on Internet infrastructure, bandwidth providers, data center providers, other third parties, and our own systems for providing services to our users, and any failure or interruption in the services provided by these third parties or our own systems could expose us to litigation, potentially require us to issue credits to our customers, and negatively impact our relationships with users or customers, adversely affecting our brand and our business.

In addition to the services we provide from our offices, we serve our customers primarily from third-party data-hosting facilities. These facilities are vulnerable to damage or interruption from earthquakes, floods, fires, power loss, telecommunications failures, and similar events. They are also subject to break-ins, sabotage, intentional acts of vandalism, and similar misconduct. Their systems and servers could also be subject to hacking, spamming, ransomware, computer viruses or other malicious software, denial of service attacks, service disruptions, including the inability to process certain transactions, phishing attacks and unauthorized access attempts, including third parties gaining access to users' accounts using stolen or inferred credentials or other means, and may use such access to prevent use of users' accounts. Despite precautions taken at these facilities, the occurrence of a natural disaster or an act of terrorism, a decision to close the facilities without adequate notice, or other unanticipated problems at two or more of the facilities could result in lengthy interruptions in our services. Even with our disaster recovery arrangements, our services could be interrupted.

Our ability to deliver our Internet- and telecommunications-based services is dependent on the development and maintenance of the infrastructure of the Internet and other telecommunications services by third parties. This includes maintenance of a reliable network backbone with the necessary speed, data capacity, and security for providing reliable Internet access and services and reliable mobile device, telephone, facsimile, and pager systems, all at a predictable and reasonable cost. We have experienced and expect that we will experience interruptions and delays in services and availability from time to time. We rely on internal systems as well as third-party vendors, including data center, bandwidth, and telecommunications equipment or service providers, to provide our services. We do not maintain redundant systems or facilities for some of these services. In the event of a catastrophic event with respect to one or more of these systems or facilities, we may experience an extended period of system unavailability, which could negatively impact our relationship with users or customers. To operate without interruption, both we and our service providers must guard against:

- damage from fire, power loss, and other natural disasters;
- communications failures;
- software and hardware errors, failures, and crashes;
- security breaches, computer viruses, ransomware, and similar disruptive problems; and
- other potential interruptions.

Any disruption in the network access, telecommunications, or co-location services provided by these third-party providers or any failure of or by these third-party providers or our own systems to handle the current or higher volume of use could significantly harm our business. We exercise limited control over these third-party vendors, which increases our vulnerability to problems with the services they provide.

Any errors, failures, interruptions, or delays experienced in connection with these third-party technologies and information services or our own systems could negatively impact our relationships with users and customers, adversely affect our brands and business, and expose us to third-party liabilities. The insurance coverage under our policies may not be adequate to compensate us for all losses that may occur. In addition, we cannot provide assurance that we will continue to be able to obtain adequate insurance coverage at an acceptable cost.

The reliability and performance of the Internet may be harmed by increased usage or by denial-of-service attacks. The Internet has experienced a variety of outages and other delays as a result of damages to portions of its infrastructure, and it could face outages and delays in the future. These outages and delays could reduce the level of Internet usage as well as the availability of the Internet to us for delivery of our Internet-based services.

We typically provide service level commitments under our customer contracts. If we fail to meet these contractual commitments, we could be obligated to provide credits or refunds for prepaid amounts related to unused subscription services or face contract terminations, which could adversely affect our results of operations.

Finally, recent changes in law could impact the cost and availability of necessary Internet infrastructure. Increased costs and/or decreased availability would negatively affect our results of operations.

If we fail to provide effective professional services and high-quality customer support, our business and reputation would suffer.

Our professional services and high-quality, ongoing customer support are important to the successful marketing and sale of our products and services and for the renewal of existing customer agreements. Providing these services and support requires that our professional services and support personnel have healthcare, technical, and other knowledge and expertise, making it difficult for us to hire qualified personnel and scale our professional services and support operations. The demand on our customer support organization will increase as we expand our business and pursue new customers, and such increased support could require us to devote significant development services and support personnel, which could strain our team and infrastructure and reduce our profit margins. If we do not help our customers quickly resolve any post-implementation issues and provide effective ongoing customer support, our ability to sell additional products and services to existing and future customers could suffer and our reputation would be harmed.

Our sales cycles can be long and unpredictable, and our sales efforts require a considerable investment of time and expense. If our sales cycle lengthens or we invest substantial resources pursuing unsuccessful sales opportunities, our results of operations and growth would be harmed.

Our sales process entails planning discussions with prospective customers, analyzing their existing solutions and identifying how these potential customers can use and benefit from our Solution. The sales cycle for a new customer, from the time of prospect qualification to the completion of the first sale, has averaged 11 months and in some cases has exceeded 24 months. We spend substantial time, effort and money in our sales efforts without any assurance that our efforts will result in the sale of our Solution. In addition, our sales cycle and timing of sales can vary substantially from customer to customer because of various factors, including the discretionary nature of potential customers' purchasing and budget decisions, the announcement or planned introduction of new analytics applications or services by us or our competitors, and the purchasing approval processes of potential customers. If our sales cycle lengthens or we invest substantial resources pursuing unsuccessful sales opportunities, our results of operations and growth would be harmed.

Our DOS platform or our analytics applications may not operate properly, which could damage our reputation, give rise to claims against us, or divert application of our resources from other purposes, any of which could harm our business and results of operations.

Proprietary software development is time-consuming, expensive, and complex. Unforeseen difficulties can arise. We may encounter technical obstacles, and it is possible that we will discover additional problems that prevent our applications from operating properly.

If our systems do not function reliably or fail to meet user or customer expectations in terms of performance, customers could assert liability claims against us or attempt to cancel their contracts with us, and members could choose to terminate their use of our Solution. This could damage our reputation and impair our ability to attract or retain customers and members.

Information services as complex as those we offer have, in the past, contained, and may in the future develop or contain, undetected defects, vulnerabilities, or errors. We cannot be assured that material performance problems or defects in our software will not arise in the future. Errors may result from sources beyond our control, including the receipt, entry, or interpretation of patient information; the interface of our software with legacy systems that we did not develop; or errors in data provided by third parties. Despite testing, defects or errors may arise in our existing or new software or service processes following introduction to the market.

Customers rely on our Solution to collect, manage, and report clinical, financial, and operational data, and to provide timely and accurate information regarding medical treatment and care delivery patterns. They may have a greater sensitivity to service errors and security vulnerabilities than customers of software products in general. Clinicians may also rely on our predictive models for care delivery prioritization, and to inform treatment protocols. Limitations of liability and disclaimers that purport to limit our liability for damages related to defects in our software or content which we may include in our subscription and services agreements may not be enforced by a court or other tribunal or otherwise effectively protect us from related claims. In most cases, we maintain liability insurance coverage, including coverage for errors and omissions. However, it is possible that claims could exceed the amount of our applicable insurance coverage or that this coverage may not continue to be available on acceptable terms or in sufficient amounts.

In light of this, defects, vulnerabilities, and errors and any failure by us to identify and address them could result in loss of revenue or market share; liability to customers, members, their patients, or others; failure to achieve market acceptance or expansion; diversion of development and management resources; delays in the introduction of new services; injury to our reputation; and increased service and maintenance costs. Defects, vulnerabilities, or errors in our software and service processes might discourage existing or potential customers or members from purchasing services from us. Correction of defects, vulnerabilities, or errors could prove to be impossible or impracticable. The costs incurred in correcting any defects, vulnerabilities, or errors or in responding to resulting claims or liability may be substantial and could adversely affect our results of operations.

If we are not able to maintain and enhance our reputation and brand recognition, our business and results of operations will be harmed.

We believe that maintaining and enhancing our reputation and brand recognition is critical to our relationships with existing customers and to our ability to attract new customers. The promotion of our brands may require us to make substantial investments and we anticipate that, as our market becomes increasingly competitive, these marketing initiatives may become increasingly difficult and expensive. Our marketing activities may not be successful or yield increased revenue, and to the extent that these activities yield increased revenue, the increased revenue may not offset the expenses we incur and our results of operations could be harmed. In addition, any factor that diminishes our reputation or that of our management, including failing to meet the expectations of our customers, or any adverse publicity surrounding one of our investors or customers, could make it substantially more difficult for us to attract new customers. If we do not successfully maintain and enhance our reputation and brand recognition, our business may not grow and we could lose our relationships with customers, which would harm our business, results of operations, and financial condition.

We employ third-party licensed software and software components for use in or with our Solution, and the inability to maintain these licenses or the presence of errors in the software we license could limit the functionality of our Solution and result in increased costs or reduced service levels, which would adversely affect our business.

Our software applications might incorporate or interact with certain third-party software and software components (other than open source software), such as data visualization software, obtained under licenses from other companies. We pay these third parties a license fee or royalty payment. We anticipate that we will continue to use such third-party software in the future.

Although we believe that there are commercially reasonable alternatives to the third-party software we currently make available, this may not always be the case, or it may be difficult or costly to replace. Furthermore, these third parties may increase the price for licensing their software, which could negatively impact our results of operations. Our use of additional or alternative third-party software could require customers to enter into license agreements with third parties. In addition, if the third-party software we make available has errors or otherwise malfunctions, or if the third-party terminates its agreement with us, the functionality of our Solution may be negatively impacted and our business may suffer.

We derive a significant portion of our revenue from our largest customers. The loss, termination, or renegotiation of any contract could negatively impact our results.

Historically, we have relied on a limited number of customers for a significant portion of our total revenue and accounts receivable. Our three largest customers during the nine months ended September 30, 2019 comprised 4.8%, 3.7%, and 3.7% of our revenue, or 12.2% in the aggregate. Our three largest customers during the nine months ended September 30, 2018 comprised 6.6%, 6.0%, and 4.7% of our revenue, or 17.3% in the aggregate. The sudden loss of any of our largest customers or the renegotiation of any of our largest customer contracts could adversely affect our results of operations. In the ordinary course of business, we engage in active discussions and renegotiations with our customers in respect of the solutions we provide and the terms of our customer agreements, including our fees. As our customers' businesses respond to market dynamics and financial pressures, and as our customers make strategic business decisions in respect of the lines of business they pursue and programs in which they participate, we expect that certain of our customers will, from time to time, seek to restructure their agreements with us. In the ordinary course, we renegotiate the terms of our agreements with our customers in connection with renewals or extensions of these agreements. These discussions and future discussions could result in reductions to the fees and changes to the scope of services contemplated by our original customer contracts and consequently could negatively impact our revenue, business, and prospects.

Because we rely on a limited number of customers for a significant portion of our revenue, we depend on the creditworthiness of these customers. Our customers are subject to a number of risks including reductions in payment rates from governmental payors, higher than expected health care costs, and lack of predictability of financial results when entering new lines of business. If the financial condition of our customers declines, our credit risk could increase. Should one or more of our significant customers declare bankruptcy, be declared insolvent, or otherwise be restricted by state or federal laws or regulation from continuing in some or all of their operations, this could adversely affect our ongoing revenue, the collectability of our accounts receivable, and affect our bad debt reserves and net income.

We may not grow at the rates we historically have achieved or at all, even if our key metrics may indicate growth.

We have experienced significant growth in the last five years. Future revenue may not grow at these same rates or may decline. Our future growth will depend, in part, on our ability to grow our revenue from existing customers, to complete sales to potential future customers, to expand our customer and member bases, to develop new solutions, and to expand internationally. We can provide no assurances that we will be successful in executing on these growth strategies or that we will continue to grow our revenue or to generate net income. Our historical results may not be indicative of future performance. Our ability to execute on our existing sales pipeline, create additional sales pipelines, and expand our customer base depends on, among other things, the attractiveness of our Solution relative to those offered by our competitors, our ability to demonstrate the value of our existing and future services, and our ability to attract and retain a sufficient number of qualified sales and marketing leadership and support personnel. In addition, our existing customers may be slower to adopt our Solution than we currently anticipate, which could adversely affect our results of operations and growth prospects.

Changes in the healthcare industry could affect the demand for our Solution, cause our existing contracts to be terminated, and negatively impact the process of negotiating future contracts.

As the healthcare industry evolves, changes in our customer and vendor bases may reduce the demand for our Solution, result in the termination of existing contracts or certain services provided under existing contracts, and make it more difficult to negotiate new contracts on terms that are acceptable to us.

For example, the increasing market share of EHR companies in data analytic services at hospital systems may cause our existing customers to terminate contracts with us in order to engage EHR companies to provide these services. Similarly, customer and vendor consolidation results in fewer, larger entities with increased bargaining power and the ability to demand terms that are unfavorable to us. If these trends continue, we cannot assure you that we will be able to continue to maintain or expand our customer base, negotiate contracts with acceptable terms, or maintain our current pricing structure, and our revenue may decrease.

General reductions in expenditures by healthcare organizations, or reductions in such expenditures within market segments that we serve, could have similar impacts with regard to our Solution. Such reductions may result from, among other things, reduced governmental funding for healthcare; a decrease in the number of, or the market exclusivity available to, new drugs coming to market; or adverse changes in business or economic conditions affecting healthcare payors or providers, the pharmaceutical industry, or other healthcare companies that purchase our services (e.g., changes in the design of health plans). In addition, changes in government regulation of the healthcare industry could potentially negatively impact our existing and future contracts. Any of these changes could reduce the purchase of our Solution by such customers, reducing our revenue and possibly requiring us to materially revise our offerings. In addition, our customers' expectations regarding pending or potential industry developments may also affect their budgeting processes and spending plans with respect to our Solution.

Because we generally recognize technology and professional services revenue ratably over the term of the contract for our services, a significant downturn in our business may not be reflected immediately in our results of operations, which increases the difficulty of evaluating our future financial performance.

We generally recognize technology and professional services revenue ratably over the term of a contract. As a result, a substantial portion of our revenue is generated from contracts entered into during prior periods. Consequently, a decline in new contracts in any quarter may not affect our results of operations in that quarter but could reduce our revenue in future quarters. Additionally, the timing of renewals or non-renewals of a contract during any quarter may only affect our financial performance in future quarters. For example, the non-renewal of a subscription agreement late in a quarter will have minimal impact on revenue for that quarter but will reduce our revenue in future quarters. Accordingly, the effect of significant declines in sales may not be reflected in our short-term results of operations, which would make these reported results less indicative of our future financial results. By contrast, a non-renewal occurring early in a quarter may have a significant negative impact on revenue for that quarter and we may not be able to offset a decline in revenue due to non-renewal with revenue from new contracts entered into in the same quarter. In addition, we may be unable to quickly adjust our costs in response to reduced revenue.

The estimates of market opportunity and forecasts of market growth included herein may prove to be inaccurate, and even if the markets in which we compete achieve the forecasted growth, our business may not grow at similar rates, or at all.

Market opportunity estimates and growth forecasts included herein are subject to significant uncertainty and are based on assumptions and estimates which may not prove to be accurate. The estimates and forecasts included herein relating to size and expected growth of our target market may prove to be inaccurate. Even if the markets in which we compete meet the size estimates and growth forecasts included herein, our business may not grow at similar rates, or at all. Our growth is subject to many factors, including our success in implementing our business strategy, which is subject to many risks and uncertainties.

We have experienced significant net losses since inception, we expect to incur losses in the future, and we may not be able to generate sufficient revenue to achieve and maintain profitability.

We have incurred significant net losses in the past, including net losses of $45.8 million and $62.0 million in the nine months ended September 30, 2019 and the year ended December 31, 2018, respectively. We had an accumulated deficit of $596.2 million as of September 30, 2019. We expect our costs will increase over time as we continue to invest to grow our business and build relationships with customers, develop our platform, develop new solutions, and operate as a public company. These efforts may prove to be more expensive than we currently anticipate, and we may not succeed in increasing our revenue sufficiently to offset these higher expenses.

As a result, we may need to raise additional capital through equity and debt financings in order to fund our operations. To date, we have financed our operations principally from the sale of redeemable convertible preferred stock, revenue from sales of our Solution and the incurrence of indebtedness. We may also fail to improve the gross margins of our business. If we are unable to effectively manage these risks and difficulties as we encounter them, our business, financial condition, and results of operations would be adversely affected. Our failure to achieve or maintain profitability could negatively impact the value of our common stock.

Because competition for our target employees is intense, we may not be able to attract and retain the highly skilled employees we need to support our continued growth.

To continue to execute on our growth plan, we must attract and retain highly qualified personnel. Competition for such personnel is intense, especially for senior sales executives and software engineers with high levels of experience in designing and developing applications and consulting and analytics services. We may not be successful in attracting and retaining qualified personnel. We have from time to time in the past experienced, and we expect to continue to experience in the future, difficulty in hiring and retaining highly skilled employees with appropriate qualifications. In addition, our search for replacements for departed employees may cause uncertainty regarding the future of our business, impact employee hiring and retention, and adversely impact our revenue, results of operations, and financial condition.

Many of the companies with which we compete for experienced personnel have greater resources than we have. In addition, in making employment decisions, particularly in the Internet and high-technology industries, job candidates often consider the value of the equity awards they may receive in connection with their employment. Volatility in the price of our stock or failure to obtain stockholder approval for increases in the number of shares available for grant under our equity plans may, therefore, adversely affect our ability to attract or retain key employees. If we fail to attract new personnel or fail to retain and motivate our current personnel, our business and future growth prospects could be severely harmed.

We depend on our senior management team, and the loss of one or more of our executive officers or key employees or an inability to attract and retain highly skilled employees could adversely affect our business.

Our success depends largely upon the continued services of our key executive officers and recruitment of additional highly skilled employees. From time to time, there may be changes in our senior management team resulting from the hiring or departure of executives, which could disrupt our business. Several of our senior leaders are active members of the Church of Jesus Christ of Latter-Day Saints. There is a risk that in the future, one or more of these individuals could receive a call to serve in a full-time capacity for the church. This has already occurred with one of the two co-founders of our company, Steven Barlow, who in November 2016 was called to serve from June 2017 to June 2020 in a full-time capacity. At the time of his call, he was serving as the President of our professional services organization and was one of the most senior leaders of our company. In connection with this call to serve, Mr. Barlow took a leave-of-absence from his company responsibilities starting in March 2017, and his leave of absence will likely extend until August 2020. Hiring executives with needed skills or the replacement of one or more of our executive officers or other key employees would likely involve significant time and costs and may significantly delay or prevent the achievement of our business objectives.

In addition, competition for qualified management in our industry is intense. Many of the companies with which we compete for management personnel have greater financial and other resources than we do. We have not entered into term-based employment agreements with our executive officers. All of our employees are “at-will” employees, and their employment can be terminated by us or them at any time, for any reason. The departure of key personnel could adversely affect the conduct of our business. In such event, we would be required to hire other personnel to manage and operate our business, and there can be no assurance that we would be able to employ a suitable replacement for the departing individual, or that a replacement could be hired on terms that are favorable to us. In addition, volatility or lack of performance in our stock price may affect our ability to attract replacements should key personnel depart. If we are not able to retain any of our key management personnel, our business could be harmed.

Our corporate culture has contributed to our success, and if we cannot maintain this culture as we grow, we could lose the innovation, creativity, and teamwork fostered by our culture, which could harm our business.

We believe that our corporate culture has been an important contributor to our success, which we believe fosters innovation, teamwork, and passion for providing high levels of customer satisfaction. Most of our employees have been with us for fewer than three years as a result of our rapid growth. As we continue to grow, we must effectively integrate, develop, and motivate a growing number of new employees. As a result, we may find it difficult to maintain our corporate culture, which could limit our ability to innovate and operate effectively. Any failure to preserve our culture could also negatively affect our ability to retain and recruit personnel, maintain our performance, or execute on our business strategy.

The terms of our credit facility require us to meet certain operating and financial covenants and place restrictions on our operating and financial flexibility. If we raise additional capital through debt financing, the terms of any new debt could further restrict our ability to operate our business.

On February 6, 2019, we entered into a term loan facility with OrbiMed Royalty Opportunities II, LP (OrbiMed) in the amount of $80.0 million (the OrbiMed Credit Facility) as further described in detail in Note 9 in the condensed consolidated financial statements. The OrbiMed Credit Facility is secured by a lien covering substantially all of our assets, including our intellectual property. Subject to the terms of the Credit Agreement entered into in connection with the OrbiMed Credit Facility (the Credit Agreement), amounts borrowed under the facility are repaid in twelve monthly installments beginning on the amortization commencement date, as defined in the Credit Agreement, prior to the February 6, 2024 maturity date, at which time all amounts borrowed will be due and payable. In addition, our revolving line of credit with Silicon Valley Bank (SVB) includes certain restrictive covenants.

The Credit Agreement contains customary affirmative and negative covenants, indemnification provisions, and events of default. The affirmative covenants include, among others, covenants requiring us to maintain our legal existence and regulatory authorizations, deliver certain financial reports, and maintain certain intellectual property rights. The negative covenants include, among others, restrictions on transferring or licensing our assets, changing our business, incurring additional indebtedness, engaging in mergers or acquisitions, paying dividends or making other distributions, and creating other liens on our assets, in each case subject to customary exceptions. If we default under the Credit Agreement, the lender will be able to declare all obligations immediately due and payable and take control of our pledged assets, potentially requiring us to renegotiate our agreement on terms less favorable to us or to immediately cease operations. Further, if we are liquidated, the lender's rights to repayment would be senior to the rights of the holders of our common stock to receive any proceeds from the liquidation. The lender could declare a default under the Credit Agreement upon the occurrence of any event that has had or could reasonably be expected to have a material adverse effect as defined under the Credit Agreement, thereby requiring us to repay the loan immediately or to attempt to reverse the declaration of default through negotiation or litigation. Any declaration by the lender of an event of default could significantly harm our business and prospects and could cause the price of our common shares to decline. If we raise any additional debt financing, the terms of such additional debt could further restrict our operating and financial flexibility.

We may acquire other companies or technologies, which could divert our management's attention, result in dilution to our stockholders, and otherwise disrupt our operations and we may have difficulty integrating any such acquisitions successfully or realizing the anticipated benefits therefrom, any of which could have an adverse effect on our business, financial condition, and results of operations.

We may seek to acquire or invest in businesses, applications, and services, or technologies that we believe could complement or expand our Solution, enhance our technical capabilities, or otherwise offer growth opportunities. The pursuit of potential acquisitions may divert the attention of management and cause us to incur various expenses in identifying, investigating, and pursuing suitable acquisitions, whether or not they are consummated. We have in the past and may in the future have difficulty integrating acquired businesses. For example, in June 2018 we acquired the interoperability services of the Medicity business, which we are in the process of integrating with our other services. We may have difficulty cross-selling our Solution to acquired customers, and we may have difficulty integrating newly acquired team members.

We have limited experience in acquiring other businesses. If we acquire additional businesses, we may not be able to integrate the acquired personnel, operations, and technologies successfully, or effectively manage the combined business following the acquisition. We also may not achieve the anticipated benefits from the acquired business due to a number of factors, including, but not limited to:

- inability to integrate or benefit from acquired technologies or services in a profitable manner;
- unanticipated costs or liabilities associated with the acquisition;
- difficulty integrating the accounting systems, operations, and personnel of the acquired business;
- difficulties and additional expenses associated with supporting legacy products and hosting infrastructure of the acquired business;
- difficulty converting the customers of the acquired business onto our platform and contract terms, including disparities in the revenue, licensing, support, or professional services model of the acquired company;
- diversion of management's attention from other business concerns;
- adverse effects on our existing business relationships with business partners and customers as a result of the acquisition;
- the potential loss of key employees;
- use of resources that are needed in other parts of our business; and
- use of substantial portions of our available cash to consummate the acquisition.

In addition, a significant portion of the purchase price of companies we acquire may be allocated to acquired goodwill and other intangible assets, which must be assessed for impairment at least annually. In the future, if our acquisitions do not yield expected returns, we may be required to take charges to our results of operations based on this impairment assessment process, which could adversely affect our results of operations.

Acquisitions could also result in dilutive issuances of equity securities or the incurrence of debt, which could adversely affect our results of operations. In addition, if an acquired business fails to meet our expectations, our business, financial condition, and results of operations may suffer.

Also, the anticipated benefit of any acquisition may not materialize or may be prohibited. In February 2019, we entered into the OrbiMed Credit Facility. The Credit Agreement restricts our ability to pursue certain mergers, acquisitions, or consolidations that we may believe to be in our best interest. Additionally, future acquisitions or dispositions could result in potentially dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities, or amortization expenses or write-offs of goodwill, any of which could harm our financial condition. We cannot predict the number, timing or size of future acquisitions, or the effect that any such transactions might have on our results of operations.

We may not be able to generate sufficient cash to service our indebtedness.

It is possible that we will in the future draw down on our credit facilities with OrbiMed or SVB or enter into new debt obligations. Our ability to make scheduled payments or to refinance such debt obligations depends on numerous factors, including the amount of our cash balances and our actual and projected financial and operating performance. We may be unable to maintain a level of cash balances or cash flows sufficient to permit us to pay the principal, premium, if any, and interest on our existing or future indebtedness. If our cash flows and capital resources are insufficient to fund our debt service obligations, we may be forced to reduce or delay capital expenditures, sell assets or operations, seek additional capital, or restructure or refinance our indebtedness. We may not be able to take any of these actions,

and even if we are, these actions may be insufficient to permit us to meet our scheduled debt service obligations. In addition, in the event of our breach of the Credit Agreement, we may be required to repay any outstanding amounts earlier than anticipated. If for any reason we become unable to service our debt obligations under the Credit Agreement, or any new debt obligations that we may enter into from time to time, holders of our common stock would be exposed to the risk that their holdings could be lost in an event of a default under such debt obligations and a foreclosure and sale of our assets for an amount that is less than the outstanding debt.

Any failure to protect our intellectual property rights could impair our ability to protect our proprietary technology and our brand.

Our success and ability to compete depend in part upon our intellectual property. As ofSeptember 30, 2019, we had filed applications for a number of patents, and we have eight issued U.S. and three issued Canadian patents. We also have twenty-five registered trademarks in the United States, Canada, China, and the European Union, and five trademark applications in the United States. We also rely on copyright and trademark laws, trade secret protection, and confidentiality or license agreements with our employees, customers, partners, and others to protect our intellectual property rights. However, the steps we take to protect our intellectual property rights may be inadequate. For example, other parties, including our competitors, may independently develop similar technology, duplicate our services, or design around our intellectual property and, in such cases, we may not be able to assert our intellectual property rights against such parties. Further, our contractual arrangements may not effectively prevent disclosure of our confidential information or provide an adequate remedy in the event of unauthorized disclosure of our confidential information, and we may be unable to detect the unauthorized use of, or take appropriate steps to enforce, our intellectual property rights.

We make business decisions about when to seek patent protection for a particular technology and when to rely upon trade secret protection, and the approach we select may ultimately prove to be inadequate. Even in cases where we seek patent protection, there is no assurance that the resulting patents will effectively protect every significant feature of our Solution, technology, or proprietary information, or provide us with any competitive advantages. Moreover, we cannot guarantee that any of our pending patent applications will issue or be approved. The United States Patent and Trademark Office and various foreign governmental patent agencies also require compliance with a number of procedural, documentary, fee payment, and other similar provisions during the patent application process and after a patent has issued. There are situations in which noncompliance can result in abandonment or lapse of the patent, or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. If this occurs, our competitors might be able to enter the market, which would have a material adverse effect on our business. Effective trademark, copyright, patent, and trade secret protection may not be available in every country in which we conduct business. Further, intellectual property law, including statutory and case law, particularly in the United States, is constantly developing, and any changes in the law could make it harder for us to enforce our rights.

In order to protect our intellectual property rights, we may be required to spend significant resources to monitor and protect these rights. Litigation brought to protect and enforce our intellectual property rights could be costly, time-consuming, and distracting to management and could result in the impairment or loss of portions of our intellectual property. Furthermore, our efforts to enforce our intellectual property rights may be met with defenses, counterclaims, and countersuits attacking the validity and enforceability of our intellectual property rights. An adverse determination of any litigation proceedings could put our intellectual property at risk of being invalidated or interpreted narrowly and could put our related pending patent applications at risk of not issuing. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential or sensitive information could be compromised by disclosure in the event of litigation. In addition, during the course of litigation, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Negative publicity related to a decision by us to initiate such enforcement actions against a customer or former customer, regardless of its accuracy, may adversely impact our other customer relationships or prospective customer relationships, harm our brand and business, and could cause the market price of our common stock to decline. Our failure to secure, protect, and enforce our intellectual property rights could adversely affect our brand and our business.

We may be sued by third parties for alleged infringement of their proprietary rights or misappropriation of intellectual property.

There is considerable patent and other intellectual property development activity in our industry. Our future success depends in part on not infringing upon the intellectual property rights of others. Our competitors, as well as a number of other entities and individuals, including so-called non-practicing entities (NPEs), may own or claim to own intellectual property relating to our Solution. From time to time, third parties may claim that we are infringing upon their intellectual property rights or that we have misappropriated their intellectual property. For example, in some cases, very broad patents are granted that may be interpreted as covering a wide field of healthcare data storage and analytics solutions or machine learning and predictive modeling methods in healthcare. As competition in our market grows, the possibility of patent infringement, trademark infringement, and other intellectual property claims against us increases. In the future, we expect others to claim that our Solution and underlying technology infringe or violate their intellectual property rights. In a patent infringement claim against us, we may assert, as a defense, that we do not infringe the relevant patent claims, that the patent is invalid or both. The strength of our defenses will depend on the patents asserted, the interpretation of these patents, and our ability to invalidate the asserted patents. However, we could be unsuccessful in advancing non-infringement and/or invalidity arguments in our defense. In the United States, issued patents enjoy a presumption of validity, and the party challenging the validity of a patent claim must present clear and convincing evidence of invalidity, which is a high burden of proof. Conversely, the patent owner need only prove infringement by a preponderance of the evidence, which is a lower burden of proof. We may be unaware of the intellectual property rights that others may claim cover some or all of our technology or services. Because patent applications can take years to issue and are often afforded confidentiality for some period of time there may currently be pending applications, unknown to us, that later result in issued patents that could cover one or more aspects of our technology and services. Any claims or litigation could cause us to incur significant expenses and, whether or not successfully asserted against us, could require that we pay substantial damages, ongoing royalty or license payments, or settlement fees, prevent us from offering our Solution or using certain technologies, require us to re-engineer all or a portion of our platform, or require that we comply with other unfavorable terms. We may also be obligated to indemnify our customers or business partners or pay substantial settlement costs, including royalty payments, in connection with any such claim or litigation and to obtain licenses, modify applications, or refund fees, which could be costly. Even if we were to prevail in such a dispute, any litigation regarding our intellectual property could be costly and time-consuming and divert the attention of our management and key personnel from our business operations.

Economic uncertainties or downturns in the general economy or the industries in which our customers operate could disproportionately affect the demand for our Solution and negatively impact our results of operations.

General worldwide economic conditions have experienced significant downturns during the last ten years, and market volatility and uncertainty remain widespread, making it potentially very difficult for our customers and us to accurately forecast and plan future business activities. During challenging economic times, our customers may have difficulty gaining timely access to sufficient credit or obtaining credit on reasonable terms, which could impair their ability to make timely payments to us and adversely affect our revenue. If that were to occur, our financial results could be harmed. Further, challenging economic conditions may impair the ability of our customers to pay for the applications and services they already have purchased from us and, as a result, our write-offs of accounts receivable could increase. We cannot predict the timing, strength, or duration of any economic slowdown or recovery. If the condition of the general economy or markets in which we operate worsens, our business could be harmed.

Our Solution utilizes open source software, and any failure to comply with the terms of one or more of these open source licenses could adversely affect our business.

We use software modules licensed to us by third-party authors under “open source” licenses in our Solution. Some open source licenses require that users of the applicable software make available source code for modifications or derivative works created using that open source software. If we were to combine our proprietary software with open source software in a certain manner, we could, under certain open source licenses, be required to release or otherwise make available the source code to our proprietary software to the public. This would allow our competitors to create similar products with lower development effort and time and ultimately could result in a loss of product sales for us.

Although we employ practices designed to manage our compliance with open source licenses and protect our proprietary source code, we may inadvertently use open source software in a manner we do not intend and that could expose us to claims for breach of contract and intellectual property infringement. If we are held to have breached the terms of an open source software license, we could be required to seek licenses from third parties to continue offering our products on terms that are not economically feasible, to re-engineer our products, to discontinue the sale of our products if re-engineering cannot be accomplished on a timely basis, or to make generally available, in source code form, a portion of our proprietary code, any of which could adversely affect our business, results of operations, and financial condition. The terms of many open source licenses have not been interpreted by U.S. courts, and, as a result, there is a risk that such licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to commercialize our Solution.

Taxing authorities may successfully assert that we should have collected or in the future should collect sales and use, value added or similar transactional taxes, and we could be subject to liability with respect to past or future sales, which could adversely affect our results of operations.

We do not collect sales and use, value added, and similar transactional taxes in all jurisdictions in which we have sales, based on our belief that such taxes are not applicable or that we are not required to collect such taxes with respect to the jurisdiction. Sales and use, value added, and similar tax laws and rates vary greatly by jurisdiction. Certain jurisdictions in which we do not collect such taxes may assert that such taxes are applicable, which could result in tax assessments, penalties, and interest, and we may be required to collect such taxes in the future. Such tax assessments, penalties, interest or future requirements, increase in tax rates, or a combination of the foregoing may result in an increase in our sales and similar transactional taxes, increase administrative burdens or costs, or otherwise adversely affect our business, results of operations, or financial condition.

Unanticipated changes in our effective tax rate and additional tax liabilities, including as a result of our international operations or implementation of new tax rules, could harm our future results.

We are subject to income taxes in the United States and are expanding into various foreign jurisdictions that are subject to income tax. Our domestic and international tax liabilities are subject to the allocation of expenses in differing jurisdictions and complex transfer pricing regulations administered by taxing authorities in various jurisdictions. Tax rates in the jurisdictions in which we operate may change as a result of factors outside of our control or relevant taxing authorities may disagree with our determinations as to the income and expenses attributable to specific jurisdictions. In addition, changes in tax and trade laws, treaties or regulations, or their interpretation or enforcement, have become more unpredictable and may become more stringent, which could materially adversely affect our tax position. Forecasting our estimated annual effective tax rate is complex and subject to uncertainty, and there may be material differences between our forecasted and actual effective tax rate. Our effective tax rate could be adversely affected by changes in the mix of earnings and losses in countries with differing statutory tax rates, certain non-deductible expenses, the valuation of deferred tax assets and liabilities, adjustments to income taxes upon finalization of tax returns, changes in available tax attributes, decision to repatriate non-U.S. earnings for which we have not previously provided for U.S. taxes, and changes in federal, state, or international tax laws and accounting principles.

Finally, we may be subject to income tax audits throughout the world. An adverse resolution of one or more uncertain tax positions in any period could have a material impact on our results of operations or financial condition for that period.

If we are unable to implement and maintain effective internal controls over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports and the market price of our common stock could be adversely affected.

As a public company, we are required to maintain internal controls over financial reporting and to report any material weaknesses in such internal controls. Section 404 of the Sarbanes-Oxley Act requires that we evaluate and determine the effectiveness of our internal controls over financial reporting. However, we are not currently required to comply with the SEC rules that implement Section 404 of the Sarbanes-Oxley Act and are therefore not required to make a formal assessment of the effectiveness of our internal control over financial reporting for that purpose.

As a public company, we are required to provide an annual management report on the effectiveness of our internal control over financial reporting commencing with our second annual report on Form 10-K. Many of the internal controls we have implemented pursuant to the Sarbanes-Oxley Act are process controls with respect to which a material weakness may be found whether or not any error has been identified in our reported financial statements. This may be confusing to investors and result in damage to our reputation, which may harm our business. Additionally, the proper design and assessment of internal controls over financial reporting are subject to varying interpretations, and, as a result, application in practice may evolve over time as new guidance is provided by regulatory and governing bodies and as common practices evolve. This could result in continuing uncertainty regarding the proper design and assessment of internal controls over financial reporting and higher costs necessitated by ongoing revisions to internal controls.

We must continue to monitor and assess our internal control over financial reporting. If in the future we have any material weaknesses, we may not detect errors on a timely basis and our financial statements may be materially misstated. Additionally, if in the future we are unable to comply with the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner, are unable to assert that our internal controls over financial reporting are effective, identify material weaknesses in our internal controls over financial reporting, or if our independent registered public accounting firm is unable to express an opinion as to the effectiveness of our internal controls over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, and the market price of our common stock could be adversely affected, and we could become subject to investigations by the stock exchange on which our securities are listed, the SEC, or other regulatory authorities, which could require additional financial and management resources.

Our ability to use our net operating losses to offset future taxable income may be subject to certain limitations.

As of December 31, 2018, we had net operating loss (NOL) carryforwards for federal and state income tax purposes of approximately $232.9 million and $186.2 million, respectively, which may be available to offset taxable income in the future, and which expire in various years beginning in 2032 for federal purposes if not utilized. The state NOLs will expire depending upon the various rules in the states in which we operate. A lack of future taxable income would adversely affect our ability to utilize these NOLs before they expire. In general, under Section 382 of the Internal Revenue Code of 1986, as amended (the Code) a corporation that undergoes an "ownership change" (as defined under Section 382 of the Code and applicable Treasury Regulations) is subject to limitations on its ability to utilize its pre-change NOLs to offset its future taxable income. We may experience a future ownership change (including, potentially, in connection with our IPO) under Section 382 of the Code that could affect our ability to utilize the NOLs to offset our income. Furthermore, our ability to utilize NOLs of companies that we have acquired or may acquire in the future may be subject to limitations. There is also a risk that due to regulatory changes, such as suspensions on the use of NOLs or other unforeseen reasons, our existing NOLs could expire or otherwise be unavailable to reduce future income tax liabilities, including for state income tax purposes. For these reasons, we may not be able to utilize a material portion of our NOLs, even if we attain profitability, which could potentially result in increased future tax liability to us and could adversely affect our results of operations and financial condition.

Comprehensive tax reform legislation could adversely affect our business and financial condition.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the Tax Act) was signed into law. The Tax Act contains, among other things, significant changes to corporate taxation, including (i) a reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, (ii) a limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), (iii) a limitation of the deduction for NOLs to 80% of current year taxable income in respect of NOLs generated during or after 2018 and elimination of net operating loss carrybacks, (iv) a one-time tax on offshore earnings at reduced rates regardless of whether they are repatriated, (v) immediate deductions for certain new investments instead of deductions for depreciation expense over time, and (vi) a modification or repeal of many business deductions and credits. For federal NOLs arising in tax years beginning after December 31, 2017, the Tax Act limits a taxpayer's ability to utilize federal NOL carryforwards to 80% of taxable income. In addition, federal NOLs arising in tax years ending after December 31, 2017 can be carried forward indefinitely, but carryback is generally prohibited. It is uncertain if and to what extent various states will conform to the newly enacted federal tax law. We will continue to examine the impact the Tax Act may have on our results of operations and financial condition.

Future litigation against us could be costly and time-consuming to defend and could result in additional liabilities.

We may from time to time be subject to legal proceedings and claims that arise in the ordinary course of business, such as claims brought by our customers in connection with commercial disputes and employment claims made by our current or former employees. Claims may also be asserted by or on behalf of a variety of other parties, including government agencies, patients or vendors of our customers, or stockholders. Any litigation involving us may result in substantial costs, operationally restrict our business, and may divert management's attention and resources, which may seriously harm our business, overall financial condition, and results of operations. Insurance may not cover existing or future claims, be sufficient to fully compensate us for one or more of such claims, or continue to be available on terms acceptable to us. A claim brought against us that is uninsured or underinsured could result in unanticipated costs, thereby reducing our results of operations and resulting in a reduction in the trading price of our stock.

Changes in accounting principles may cause previously unanticipated fluctuations in our financial results, and the implementation of such changes may impact our ability to meet our financial reporting obligations.

We prepare our financial statements in accordance with U.S. GAAP which are subject to interpretation or changes by the Financial Accounting Standards Board (FASB), the SEC, and other various bodies formed to promulgate and interpret appropriate accounting principles. New accounting pronouncements and changes in accounting principles have occurred in the past and are expected to occur in the future which may have a significant effect on our financial results. Furthermore, any difficulties in implementation of changes in accounting principles, including the ability to modify our accounting systems, could cause us to fail to meet our financial reporting obligations, which could result in regulatory discipline and harm investors' confidence in us.

Risks Related to Governmental Regulation

Government regulation of healthcare creates risks and challenges with respect to our compliance efforts and our business strategies.

The healthcare industry is highly regulated and is subject to changing political, legislative, regulatory, and other influences. Existing and new laws and regulations affecting the healthcare industry, or changes to existing laws and regulations, including the potential amendment or repeal of all or parts of the Affordable Care Act (ACA), could create unexpected liabilities for us, cause us to incur additional costs, and restrict our operations. Reforming the healthcare industry has been a priority for U.S. politicians, and key members of the legislative and executive branches have proposed a wide variety of potential changes and policy goals. Certain changes to laws impacting our industry, or perceived intentions to do so, could affect our business and results of operations.

Many healthcare laws are complex, and their application to specific services and relationships may not be clear. In particular, many existing healthcare laws and regulations, when enacted, did not anticipate the data analytics and improvement services that we provide, and these laws and regulations may be applied to our Solution in ways that we do not anticipate, particularly as we develop and release new and more sophisticated solutions. Our failure to accurately anticipate the application of these laws and regulations, or our other failure to comply with them, could create significant liability for us, result in adverse publicity, and negatively affect our business. Some of the risks we face from healthcare regulation are described below:

- *False Claims Laws.* There are numerous federal and state laws that prohibit submission of false information, or the failure to disclose information, in connection with submission and payment of physician claims for reimbursement. For example, the federal civil False Claims Act prohibits, among other things, individuals or entities from knowingly presenting, or causing to be presented, to the U.S. federal government, claims for payment or approval that are false or fraudulent, or knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim. In addition, the government may assert that a claim including items and services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act. If our advisory services to customers are associated with action by customers that is determined or alleged to be in violation of these laws and regulations, it is possible that an enforcement agency would also try to hold us accountable. Any

determination by a court or regulatory agency that we have violated these laws could subject us to significant civil or criminal penalties, invalidate all or portions of some of our customer contracts, require us to change or terminate some portions of our business, require us to refund portions of our services fees, subject us to additional reporting requirements and oversight under a corporate integrity agreement or similar agreement to resolve allegations of noncompliance with these laws, cause us to be disqualified from serving customers doing business with government payors, and have an adverse effect on our business. Our customers' failure to comply with these laws and regulations in connection with our services could result in substantial liability (including, but not limited to, criminal liability), adversely affect demand for our Solution, and force us to expend significant capital, research and development, and other resources to address the failure.

- *Health Data Privacy Laws.* There are numerous federal and state laws related to health information privacy. In particular, the federal Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act (HITECH) and their implementing regulations, which we collectively refer to as HIPAA, include privacy standards that protect individual privacy by limiting the uses and disclosures of PHI and implementing data security standards that require covered entities to implement administrative, physical, and technological safeguards to ensure the confidentiality, integrity, availability, and security of PHI in electronic form. HIPAA also specifies formats that must be used in certain electronic transactions, such as admission and discharge messages. By processing and maintaining PHI on behalf of our covered entity customers, we are a HIPAA business associate and mandated by HIPAA to enter into written agreements with our covered entity clients – known as business associate agreements (BAAs) – that require us to safeguard PHI. BAAs typically include:

    - a description of our permitted uses of PHI;
    - a covenant not to disclose that information except as permitted under the BAA and to require that our subcontractors, if any, are subject to the substantially similar restrictions;
    - assurances that reasonable and appropriate administrative, physical, and technical safeguards are in place to prevent misuse of PHI;
    - an obligation to report to our customer any use or disclosure of PHI other than as provided for in the BAA;
    - a prohibition against our use or disclosure of PHI if a similar use or disclosure by our customer would violate the HIPAA standards;
    - the ability of our customers to terminate the underlying support agreement if we breach a material term of the BAA and are unable to cure the breach;
    - the requirement to return or destroy all PHI at the end of our services agreement; and
    - access by the Department of Health and Human Services (HHS) to our internal practices, books, and records to validate that we are safeguarding PHI.

In addition, we are also required to maintain BAAs, which contain similar provisions, with our subcontractors that access or otherwise process PHI on our behalf.

We may not be able to adequately address the business risks created by HIPAA implementation. Furthermore, we are unable to predict what changes to HIPAA or other laws or regulations might be made in the future or how those changes could affect our business or the costs of compliance. For example, in 2018, the HHS Office for Civil Rights published a Request for Information in the Federal Register seeking comments on a number of areas in which HHS is considering making both minor and significant modifications to the HIPAA privacy and security standards to, among other things, improve care coordination. We are unable to predict what, if any, impact the changes in such standards will have on our compliance costs or our Solution.

Finally, some of our analytics applications, for example one of our benchmarking applications, require that we obtain permissions consistent with HIPAA to provide "data aggregation services" and the right to create de-identified information and to use and disclose such de-identified information. We will also require large sets of de-identified information to enable us to continue to develop machine learning algorithms that enhance our Solution. If we are unable to secure these rights in customer BAAs or as a result of any future changes to HIPAA or other applicable laws, we may face limitations on the use of PHI and our ability to use de-identified information that could negatively affect the scope of our Solution as well as impair our ability to provide upgrades and enhancements to our Solution.

We outsource important aspects of the storage and transmission of customer and member information, and thus rely on third parties to manage functions that have material cyber-security risks. We attempt to address these risks by requiring outsourcing subcontractors who handle customer information to sign BAAs contractually requiring those subcontractors to adequately safeguard PHI in a similar manner that applies to us and in some cases by requiring such outsourcing subcontractors to undergo third-party security examinations as well as to protect the confidentiality of other sensitive customer information. In addition, we periodically hire third-party security experts to assess and test our security measures. However, we cannot be assured that these contractual measures and other safeguards will adequately protect us from the risks associated with the storage and transmission of customer proprietary information and PHI.

In addition to the HIPAA privacy and security standards, most states have enacted patient confidentiality laws that protect against the disclosure of confidential medical and other personally identifiable information (PII) and many states have adopted or are considering new privacy laws, including legislation that would mandate new privacy safeguards, security standards, and data security breach notification requirements. Such state laws, if more stringent than HIPAA requirements, are not preempted by the federal requirements, and we are required to comply with them.

Failure by us to comply with any of the federal and state standards regarding patient privacy and/or privacy more generally may subject us to penalties, including significant civil monetary penalties and, in some circumstances, criminal penalties. In addition, such failure may injure our reputation and adversely affect our ability to retain customers and attract new customers.

Even an unsuccessful challenge by regulatory authorities of our activities could result in adverse publicity and could require a costly response from us.

- *Anti-Kickback and Anti-Bribery Laws.* There are federal and state laws that prohibit payment for patient referrals, patient brokering, remuneration of patients, or billing based on referrals between individuals or entities that have various financial, ownership, or other business relationships with healthcare providers. In particular, the federal Anti-Kickback Statute prohibits offering, paying, soliciting, or receiving anything of value, directly or indirectly, for the referral of patients covered by Medicare, Medicaid, and other federal healthcare programs or the leasing, purchasing, ordering, or arranging for or recommending the lease, purchase, or order of any item, good, facility, or service covered by these programs. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. Some enforcement activities focus on below or above market payments for federally reimbursable health care items or services as evidence of the intent to provide a kickback. Many states also have similar anti-kickback laws that are not necessarily limited to items or services for which payment is made by a federal healthcare program. In addition, the federal anti-referral law—the Stark Law—is very complex in its application, and prohibits physicians (and certain other healthcare professionals) from making a referral for a designated health service to a provider in which the referring healthcare professional (or spouse or any immediate family member) has a financial or ownership interest, unless an enumerated exception applies. The Stark Law also prohibits the billing for services rendered resulting from an impermissible referral. Many states also have similar anti-referral laws that are not necessarily limited to items or services for which payment is made by a federal healthcare program and may include patient disclosure requirements. Moreover, both federal and state laws prohibit bribery and similar behavior. Any determination by a state or federal regulatory agency that we or any of our customers, vendors, or partners violate or have violated any of these laws could subject us to significant civil or criminal penalties, require us to change or terminate some portions of our business, require us to refund portions of our services fees, subject us to additional reporting requirements and oversight under a corporate integrity agreement or similar agreement to resolve allegations of noncompliance with these laws,

cause us to be disqualified from serving customers doing business with government payors, and have an adverse effect on our business. Even an unsuccessful challenge by regulatory authorities of our activities could result in adverse publicity and could require a costly response from us.

- *Corporate Practice of Medicine Laws and Fee-Splitting Laws.* Many states have laws prohibiting physicians from practicing medicine in partnership with non-physicians, such as business corporations. In some states, including New York, these take the form of laws or regulations prohibiting splitting of physician fees with non-physicians or others. Any determination by a state court or regulatory agency that our service contracts with our clients violate these laws could subject us to civil or criminal penalties, invalidate all or portions of some of those contracts, require us to change or terminate some portions of our business, require us to refund portions of our services fees, and have an adverse effect on our business. Even an unsuccessful challenge by regulatory authorities of our activities could result in adverse publicity and could require a costly response from us.

- *Medical professional regulation.* The practice of most healthcare professions requires licensing under applicable state law. In addition, the laws in some states prohibit business entities from practicing medicine. We employ and contract with physicians who assist our customers with the customers' care coordination, care management, population health management, and patient safety activities. We do not intend to provide medical care, treatment, or advice. However, any determination that we are acting in the capacity of a healthcare provider and acted improperly as a healthcare provider may result in additional compliance requirements, expense, and liability to us, and require us to change or terminate some portions of our business.

- *Medical Device Laws.* The FDA may regulate medical or health-related software, including machine learning functionality and predictive algorithms, if such software falls within the definition of a "device" under the federal Food, Drug, and Cosmetic Act (FDCA). However, the FDA exercises enforcement discretion for certain low risk software, as described in its guidance documents for Mobile Medical Applications, General Wellness: Policy for Low Risk Devices, and Medical Device Data Systems, Medical Image Storage Devices, and Medical Image Communications Devices. In addition, in December of 2016, President Obama signed into law the 21st Century Cures Act, which included exemptions for certain medical-related software, including software used for administrative support functions at a healthcare facility, software intended for maintaining or encouraging a healthy lifestyle, EHR software, software for transferring, storing, or displaying medical device data or in vitro diagnostic data, and certain clinical decision support software. The FDA has also issued draft guidance documents to clarify how it intends to interpret and apply the new exemptions under the 21st Century Cures Act. Although we believe that our software products are currently not subject to active FDA regulation, we continue to follow the FDA's developments in this area. There is a risk that the FDA could disagree with our determination or that the FDA could develop new final guidance documents that would subject our Solution to active FDA oversight. If the FDA determines that any of our current or future analytics applications are regulated as medical devices, we would become subject to various requirements under the FDCA and the FDA's implementing regulations. Depending on the functionality and FDA classification of our analytics applications, we may be required to:

  - register and list our analytics applications with the FDA;

  - notify the FDA and demonstrate substantial equivalence to other products on the market before marketing our analytics applications;

  - submit a de novo request to the FDA to down-classify our analytics applications prior to marketing; or

  - obtain FDA approval by demonstrating safety and effectiveness before marketing our analytics applications.

The FDA can impose extensive requirements governing pre- and post-market conditions, such as service investigation and others relating to approval, labeling, and manufacturing. In addition, the FDA can impose extensive requirements governing software development controls and quality assurance processes.

These laws and regulations may change rapidly, and it is frequently unclear how they apply to our business. Any failure of our products or services to comply with these laws and regulations could result in substantial civil or criminal liability and could, among other things, adversely affect demand for our services, force us to expend significant capital, research and development, and other resources to address the failure, invalidate all or portions of some of our contracts with our customers, require us to change or terminate some portions of our business, require us to refund portions of our revenue, cause us to be disqualified from serving customers doing business with government payors, and give our customers the right to terminate our contracts with them, any one of which could have an adverse effect on our business. Additionally, the introduction of new services may require us to comply with additional, yet undetermined, laws and regulations.

The security measures that we and our third-party vendors and subcontractors have in place to ensure compliance with privacy and data protection laws may not protect our facilities and systems from security breaches, acts of vandalism or theft, computer viruses, misplaced or lost data, programming and human errors, or other similar events. Under the HITECH Act, as a business associate we may also be liable for privacy and security breaches and failures of our subcontractors. Even though we provide for appropriate protections through our agreements with our subcontractors, we still have limited control over their actions and practices. A breach of privacy or security of individually identifiable health information by a subcontractor may result in an enforcement action, including criminal and civil liability, against us. We are not able to predict the extent of the impact such incidents may have on our business.

Our failure to comply may result in criminal and civil liability because the potential for enforcement action against business associates is now greater. Enforcement actions against us could be costly and could interrupt regular operations, which may adversely affect our business. While we have not received any notices of violation of the applicable privacy and data protection laws and believe we are in compliance with such laws, there can be no assurance that we will not receive such notices in the future.

There is ongoing concern from privacy advocates, regulators, and others regarding data protection and privacy issues, and the number of jurisdictions with data protection and privacy laws has been increasing. Also, there are ongoing public policy discussions regarding whether the standards for deidentified, anonymous, or pseudonymized health information are sufficient, and the risk of re-identification sufficiently small, to adequately protect patient privacy. We expect that there will continue to be new proposed laws, regulations, and industry standards concerning privacy, data protection, and information security in the United States, including the California Consumer Privacy Act, which will go into effect January 1, 2020, and we cannot yet determine the impact such future laws, regulations, and standards may have on our business. Future laws, regulations, standards, and other obligations, and changes in the interpretation of existing laws, regulations, standards, and other obligations could impair our or our customers' ability to collect, use, or disclose information relating to consumers, which could decrease demand for our platform, increase our costs, and impair our ability to maintain and grow our customer base and increase our revenue. New laws, amendments to or re-interpretations of existing laws and regulations, industry standards, contractual obligations, and other obligations may require us to incur additional costs and restrict our business operations. In view of new or modified federal, state, or foreign laws and regulations, industry standards, contractual obligations, and other legal obligations, or any changes in their interpretation, we may find it necessary or desirable to fundamentally change our business activities and practices or to expend significant resources to modify our software or platform and otherwise adapt to these changes.

Any failure or perceived failure by us to comply with federal or state laws or regulations, industry standards, or other legal obligations, or any actual or suspected security incident, whether or not resulting in unauthorized access to, or acquisition, release, or transfer of personally identifiable information or other data, may result in governmental enforcement actions and prosecutions, private litigation, fines, and penalties or adverse publicity and could cause our customers to lose trust in us, which could have an adverse effect on our reputation and business. We may be unable to make such changes and modifications in a commercially reasonable manner or at all, and our ability to develop new products and features could be limited. Any of these developments could harm our business, financial condition, and results of operations. Privacy and data security concerns, whether valid or not valid, may inhibit market adoption of our platform.

Further, on February 11, 2019, ONC and CMS proposed complementary new rules to support access, exchange, and use of EHI. The proposed rules are intended to clarify provisions of the 21st Century Cures Act regarding interoperability and "information blocking," and, if adopted, will create significant new requirements for health care industry participants. The proposed ONC rule, if adopted, would require certain electronic health record technology to incorporate standardized application programming interfaces (APIs) to allow individuals to securely and easily access structured EHI using smartphone applications. The ONC rule would also implement provisions of the 21st Century Cures Act requiring that patients be provided with electronic access to all of their EHI (structured and/or unstructured) at no cost. Finally, the proposed ONC rule would also implement the information blocking provisions of the 21st Century Cures Act, and proposes seven "reasonable and necessary activities" that will not be considered information blocking as long as specific conditions are met.

The CMS proposed rule focuses on health plans, payors, and health care providers and proposes measures to enable patients to move from health plan to health plan, provider to provider, and have both their clinical and administrative information travel with them.

It is unclear whether or when these rules, and others released simultaneously, will be adopted, in whole or in part. If adopted, the rules may benefit us in that certain EHR vendors will no longer be permitted to interfere with our attempts at integration, but the rules may also make it easier for other similar companies to enter the market, creating increased competition, and reducing our market share. It is unclear at this time what the costs of compliance with the proposed rules, if adopted, would be, and what additional risks there may be to our business.

Due to the particular nature of certain services we provide or the manner in which we provide them, we may be subject to additional government regulation and foreign government regulation.

While our Solution is primarily subject to government regulations pertaining to healthcare, certain aspects of our Solution may require us to comply with regulatory schema from other areas. Examples of such regulatory schema include:

- *Antitrust Laws.* Our national cloud-based network allows us access to cost and pricing data for a large number of providers in most regional markets, as well as to the contracted rates for third-party payors. To the extent that our Solution enables providers to compare their cost and pricing data with those of their competitors, those providers could collude to increase the pricing for their services, to reduce the compensation they pay their employees, or to collectively negotiate agreements with third parties. Similarly, if payors are able to compare their contracted rates of payment to providers, those payors may seek to reduce the amounts they might otherwise pay. Such actions may be deemed to be anti-competitive and a violation of federal antitrust laws. To the extent that we are deemed to have enabled such activities, we could be subject to fines and penalties imposed by the U.S. Department of Justice or the FTC and be required to curtail or terminate the services that permitted such collusion.

- *Consumer Protection Regulation.* Federal and state government bodies and agencies have adopted or are considering adopting laws and regulations regarding the collection, use, and dissemination of data, and the presentation of website or other electronic content, which may require compliance with certain standards for notice, choice, security, and access. California recently adopted the California Consumer Privacy Act of 2018 (CCPA), which will come into effect on January 1, 2020. The CCPA has been characterized as the first "GDPR-like" privacy statute to be enacted in the United States because it mirrors a number of the key provisions of the GDPR (discussed below). The CCPA establishes a new privacy framework for covered businesses by creating an expanded definition of personal information, establishing new data privacy rights for consumers in the state of California, imposing special rules on the collection of consumer data from minors, and creating a new and potentially severe statutory damages framework for violations of the CCPA and for businesses that fail to implement reasonable security procedures and practices to prevent data breaches. If we fail to comply with any of these privacy laws that apply to us, and are subject to the aforementioned penalties, our business and financial results could be adversely affected.

- *Foreign Corrupt Practices Act (FCPA) and Foreign Anti-Bribery Laws*. The FCPA makes it illegal for U.S. persons, including U.S. companies, and their subsidiaries, directors, officers, employees, and agents, to promise, authorize or make any corrupt payment, or otherwise provide anything of value, directly or indirectly, to any foreign official, any foreign political party or party official, or candidate for foreign political office to obtain or retain business. Violations of the FCPA can also result in violations of other U.S. laws, including anti-money laundering, mail and wire fraud, and conspiracy laws. There are severe penalties for violating the FCPA. In addition, the Company may also be subject to other non-U.S. anti-corruption or anti-bribery laws, such as the U.K. Bribery Act 2010. If our employees, contractors, vendors, or partners fail to comply with the FCPA and/or foreign anti-bribery laws, we may be subject to penalties or sanctions, and our ability to develop new prospects and retain existing customers could be adversely affected.

- *Economic Sanctions and Export Controls.* Economic and trade sanctions programs that are administered by the U.S. Treasury Department's Office of Foreign Assets Control (OFAC) prohibit or restrict transactions to or from, and dealings with specified countries and territories, their governments, and in certain circumstances, with individuals and entities that are specially designated nationals of those countries, and other sanctioned persons, including narcotics traffickers and terrorists or terrorist organizations. As federal, state and foreign legislative regulatory scrutiny and enforcement actions in these areas increase, we expect our costs to comply with these requirements will increase as well. Failure to comply with any of these requirements could result in the limitation, suspension or termination of our services, imposition of significant civil and criminal penalties, including fines, and/or the seizure and/or forfeiture of our assets. Further, our Solution incorporates encryption technology. This encryption technology may be exported from the United States only with the required export authorizations, including by a license, a license exception or other appropriate government authorizations. Such solutions may also be subject to certain regulatory reporting requirements. Various countries also regulate the import of certain encryption technology, including through import permitting and licensing requirements, and have enacted laws that could limit our customers' ability to import our Solution into those countries. Governmental regulation of encryption technology and of exports and imports of encryption products, or our failure to obtain required approval for our Solution, when applicable, could harm our international sales and adversely affect our revenue. Compliance with applicable regulatory requirements regarding the provision of our Solution, including with respect to new applications, may delay the introduction of our Solution in various markets or, in some cases, prevent the provision of our Solution to some countries altogether.

- *GDPR and Foreign Data Privacy Protection Laws* - In addition, several foreign governments have regulations dealing with the collection and use of personal information obtained from their residents. For example, in the European Union, (EU), the General Data Protection Regulation (GDPR) went into effect on May 25, 2018. If we or our vendors fail to comply with the applicable EU privacy laws, we could be subject to government enforcement actions and significant penalties against us. GDPR introduced new data protection requirements in the EU relating to the consent of the individuals to whom the personal data relates, the information provided to the individuals, the documentation we must retain, the security and confidentiality of the personal data, data breach notification and the use of third-party processors in connection with the processing of personal data. GDPR has increased our responsibility and potential liability in relation to personal data that we process, and we may be required to put in place mechanisms to ensure compliance with GDPR. Data protection authorities of the different EU Member States may interpret GDPR differently, and guidance on implementation and compliance practices are often updated or otherwise revised, which adds to the complexity of processing personal data in the EU. Any failure by us to comply with GDPR could result in proceedings or actions against us by governmental entities or others, which may subject us to significant penalties and negative publicity, require us to change our business practices, and increase our costs and severely disrupt our business. Similarly, Canada's Personal Information and Protection of Electronic Documents Act provides Canadian residents with privacy protections in regard to transactions with businesses and organizations in the private sector and sets out ground rules for how private sector organizations may collect, use, and disclose personal information in the course of commercial activities. Foreign governments may attempt to apply such laws extraterritorially or through treaties or other arrangements with U.S. governmental entities. Other jurisdictions besides the EU and Canada are similarly introducing or enhancing laws and regulations relating to privacy and data security, which enhances risks relating to compliance with such laws. Furthermore, as we enter into business arrangements in countries outside of the United States, we will need to be prepared to comply with applicable

local privacy laws. The GDPR and other changes in laws or regulations associated with the enhanced protection of certain types of personal data, such as healthcare data or other sensitive information, could greatly increase our cost of providing our products and services or even prevent us from offering certain services in jurisdictions that we operate.

- *Regulatory Certification*. We must obtain certification from governmental agencies, such as the Agency for Healthcare Research and Quality (AHRQ) to sell certain of our analytics applications and services in the United States. We cannot be certain that our Solution will continue to meet these standards. The failure to comply with these certification requirements could result in the loss of certification, which could restrict our Solution offerings and cause us to lose customers.

We cannot be certain that the privacy policies and other statements regarding our practices will be found sufficient to protect us from liability or adverse publicity relating to the privacy and security of personal information. Whether and how existing local and international privacy and data protection laws in various jurisdictions apply to the Internet and other online technologies is still uncertain and may take years to resolve. Current and future privacy laws and regulations, if drafted or interpreted broadly, could be deemed to apply to the technology we use and could restrict our information collection methods or decrease the amount and utility of the information that we would be permitted to collect. The costs of compliance with, and the other burdens imposed by, these and other laws or regulatory actions may prevent us from selling our Solution, or increase the costs of doing so, and may affect our ability to invest in or jointly develop our analytics applications. In addition, a determination by a court or government agency that any of our practices, or those of our agents, do not meet these standards could result in civil and/or criminal liability, result in adverse publicity, and adversely affect our business.

The healthcare regulatory and political framework is uncertain and evolving.

Healthcare laws and regulations are rapidly evolving and may change significantly in the future, which could adversely affect our financial condition and results of operations. For example, in March 2010, the Patient Protection and ACA was adopted, which is a healthcare reform measure that provides healthcare insurance for approximately 30 million more Americans. The ACA includes a variety of healthcare reform provisions and requirements that became effective at varying times through 2018 and substantially changes the way healthcare is financed by both governmental and private insurers, which may significantly impact our industry and our business. Many of the provisions of the ACA phase in over the course of the next several years, and we may be unable to predict accurately what effect the ACA or other healthcare reform measures that may be adopted in the future, including amendments to the ACA, will have on our business. On December 14, 2018, a U.S. District Court Judge in the Northern District of Texas, ruled that the individual mandate is a critical and inseverable feature of the ACA, and therefore, because it was repealed as part of the Tax Act, the remaining provisions of the ACA are invalid as well. While the U.S. District Court Judge, as well as the Trump Administration and CMS, have stated that the ruling will have no immediate effect pending appeal, it is unclear how this decision, subsequent appeals and other efforts to repeal and replace the ACA will impact the ACA and our business.

Our business could be adversely impacted by changes in laws and regulations related to the Internet or changes in access to the Internet generally.

The future success of our business depends upon the continued use of the Internet as a primary medium for communication, business applications, and commerce. Federal or state government bodies or agencies have in the past adopted, and may in the future adopt, laws or regulations affecting the use of the Internet as a commercial medium. Legislators, regulators, or government bodies or agencies may also make legal or regulatory changes or interpret or apply existing laws or regulations that relate to the use of the Internet in new and materially different ways. Changes in these laws, regulations or interpretations could require us to modify our platform in order to comply with these changes, to incur substantial additional costs or divert resources that could otherwise be deployed to grow our business, or expose us to unanticipated civil or criminal liability, among other things.

In addition, government agencies and private organizations have imposed, and may in the future impose, additional taxes, fees or other charges for accessing the Internet or commerce conducted via the Internet. Internet access is frequently provided by companies that have significant market power and could take actions that degrade, disrupt or increase the cost of our customers' use of our platform, which could negatively impact our business. In December 2017, the Federal Communications Commission announced it will revise the "net neutrality" rules. These rules were designed to ensure that all online content is treated the same by Internet service providers and other companies that provide Internet services. Should the net neutrality rules be relaxed or eliminated, we could incur greater operating expenses or our customers' use of our platform could be adversely affected, either of which could harm our business and results of operations.

These developments could limit the growth of Internet-related commerce or communications generally or result in reductions in the demand for Internet-based platforms and services such as ours, increased costs to us or the disruption of our business. In addition, as the Internet continues to experience growth in the numbers of users, frequency of use and amount of data transmitted, the use of the Internet as a business tool could be adversely affected due to delays in the development or adoption of new standards and protocols to handle increased demands of Internet activity, security, reliability, cost, ease-of-use, accessibility, and quality of service. The performance of the Internet and its acceptance as a business tool has been adversely affected by "viruses," "worms," and similar malicious programs and the Internet has experienced a variety of outages and other delays as a result of damage to portions of its infrastructure. If the use of the Internet generally, or our platform specifically, is adversely affected by these or other issues, we could be forced to incur substantial costs, demand for our platform could decline, and our results of operations and financial condition could be harmed.

Risks Related to Ownership of Our Common Stock

We have a limited operating history in an evolving industry which makes it difficult to evaluate our current business future prospects and increases the risk of your investment.

We launched operations in 2008 and we acquired Medicity in June 2018. Our limited operating history, in particular with respect to the Medicity business, makes it difficult to effectively assess or forecast our future prospects. You should consider our business and prospects in light of the risks and difficulties we encounter or may encounter. These risks and difficulties include our ability to cost-effectively acquire new customers and retain existing customers, maintain the quality of our technology infrastructure that can efficiently and reliably handle the requirements of our customers and the deployment of new features and solutions and successfully compete with other companies that are currently in, or may enter, the healthcare solution space. Additional risks include our ability to effectively manage growth, responsibly use the data that customers share with us, process, store, protect, and use personal data in compliance with governmental regulation, contractual obligations, and other legal obligations related to privacy and security and avoid interruptions or disruptions in our service or slower than expected load times for our platform. If we fail to address the risks and difficulties that we face, including those associated with the challenges listed above, our business and our results of operations will be adversely affected.

The market price of our common stock may be volatile and may decline regardless of our operating performance, and you may lose all or part of your investments.

The market price of our common stock may fluctuate significantly in response to numerous factors, many of which are beyond our control, including:

- overall performance of the equity markets and/or publicly-listed technology companies;
- actual or anticipated fluctuations in our net revenue or other operating metrics;
- changes in the financial projections we provide to the public or our failure to meet these projections;
- failure of securities analysts to initiate or maintain coverage of us, changes in financial estimates by any securities analysts who follow our company, or our failure to meet the estimates or the expectations of investors;

- the economy as a whole and market conditions in our industry;
- rumors and market speculation involving us or other companies in our industry;
- announcements by us or our competitors of significant innovations, acquisitions, strategic partnerships, joint ventures, or capital commitments;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;
- lawsuits threatened or filed against us;
- recruitment or departure of key personnel;
- other events or factors, including those resulting from war, incidents of terrorism, or responses to these events; and
- the expiration of contractual lock-up or market standoff agreements.

In addition, extreme price and volume fluctuations in the stock markets have affected and continue to affect many technology companies' stock prices. Often, their stock prices have fluctuated in ways unrelated or disproportionate to the companies' operating performance. In the past, stockholders have filed securities class action litigation following periods of market volatility. If we were to become involved in securities litigation, it could subject us to substantial costs, divert resources and the attention of management from our business, and harm our business.

Moreover, because of these fluctuations, comparing our results of operations on a period-to-period basis may not be meaningful. You should not rely on our past results as an indication of our future performance. This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If our net revenue or results of operations fall below the expectations of analysts or investors or below any forecasts we may provide to the market, or if the forecasts we provide to the market are below the expectations of analysts or investors, the price of our common stock could decline substantially. Such a stock price decline could occur even when we have met any previously publicly stated net revenue or earnings forecasts that we may provide.

We are an emerging growth company, and any decision on our part to comply only with certain reduced reporting and disclosure requirements applicable to emerging growth companies could make our common stock less attractive to investors.

We are an emerging growth company, and, for as long as we continue to be an emerging growth company, we may choose to take advantage of exemptions from various reporting requirements applicable to other public companies but not to "emerging growth companies," including:

- not being required to have our independent registered public accounting firm attest to our internal control over financial reporting under Section 404 of the Sarbanes Oxley Act;
- reduced disclosure obligations regarding executive compensation in our periodic reports and annual report on Form 10-K; and
- exemptions from the requirements of holding a non-binding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We could be an emerging growth company for up to five years following the completion of our IPO. Our status as an emerging growth company will end as soon as any of the following takes place:

- the last day of the fiscal year in which we have more than $1.07 billion in annual revenue;

- the date we qualify as a "large accelerated filer," with at least $700 million of equity securities held by non-affiliates;

- the date on which we have issued, in any three-year period, more than $1.0 billion in non-convertible debt securities; or

- the last day of the fiscal year ending after the fifth anniversary of the completion of our IPO.

We cannot predict if investors will find our common stock less attractive if we choose to rely on the exemptions afforded emerging growth companies. If some investors find our common stock less attractive because we rely on any of these exemptions, there may be a less active trading market for our common stock and the market price of our common stock may be more volatile.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this accommodation allowing for delayed adoption of new or revised accounting standards, and therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

If securities or industry analysts do not publish research, or publish inaccurate or unfavorable research, about our business, the price of our common stock and trading volume could decline.

The trading market for our common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If few securities analysts commence coverage of us, or if industry analysts cease coverage of us, the trading price for our common stock could be negatively affected. If one or more of the analysts who cover us downgrade our common stock or publish inaccurate or unfavorable research about our business, our common stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us on a regular basis, demand for our common stock could decrease, which might cause our common stock price and trading volume to decline.

Sales of substantial amounts of our common stock in the public markets, such as when our lock-up restrictions are released, or the perception that sales of common stock might occur, could cause the market price of our common stock to decline.

Sales of a substantial number of shares of our common stock into the public market, particularly sales by our directors, executive officers, and principal stockholders, or the perception that these sales might occur, could cause the market price of our common stock to decline. As of September 30, 2019, we had outstanding a total of 36,472,223 shares of common stock.

Substantially all of our securities outstanding prior to the IPO are currently restricted from resale as a result of lock-up and market standoff agreements. These securities will become available to be sold 180 days after the date of the final prospectus relating to the IPO. Goldman Sachs & Co. LLC and J.P. Morgan Securities LLC may, in their discretion, permit our security holders to sell shares prior to the expiration of the restrictive provisions contained in the lock-up agreements. Sales of a substantial number of such shares upon expiration of the lock-up and market standoff agreements, the perception that such sales may occur or early release of these agreements could cause our market price to fall or make it more difficult for an investor to sell common stock at a time and price that an investor deems appropriate. Shares held by directors, executive officers, and other affiliates will also be subject to volume limitations under Rule 144 under the Securities Act of 1933, as amended (Securities Act), and various vesting agreements.

In addition, as of September 30, 2019, we had 7,923,437 options outstanding that, if fully exercised, would result in the issuance of shares of common stock. All of the shares of common stock issuable upon the exercise of stock options and the shares reserved for future issuance under our equity incentive plans will be registered for public resale under the Securities Act. Accordingly, these shares will be able to be freely sold in the public market upon issuance, subject to existing lock-up or market standoff agreements, volume limitations under Rule 144 for our executive officers and directors, and applicable vesting requirements.

Our management has broad discretion in the use of proceeds from our IPO and our use may not produce a positive rate of return.

The principal purposes of our IPO were to increase our capitalization and financial flexibility, create a public market for our stock and thereby enable access to the public equity markets by our employees and stockholders, obtain additional capital, and strengthen our position in the healthcare data analytics applications and services market. We cannot specify with certainty our plans for the use of the net proceeds we received from our IPO. However, we intend to use the net proceeds we received from our IPO for working capital and other general corporate purposes. Our management has broad discretion over the specific use of the net proceeds we received in our IPO and might not be able to obtain a significant return, if any, on investment of these net proceeds. Investors will need to rely upon the judgment of our management with respect to the use of proceeds. If we do not use the net proceeds that we received in our IPO effectively, our business, results of operations, and financial condition could be harmed.

Our issuance of additional capital stock in connection with financings, acquisitions, investments, our stock incentive plans or otherwise will dilute all other stockholders.

We expect to issue additional capital stock in the future that will result in dilution to all other stockholders. We expect to grant equity awards to employees, directors, and consultants under our stock incentive plans. We may also raise capital through equity financings in the future. As part of our business strategy, we may acquire or make investments in complementary companies, products, or technologies and issue equity securities to pay for any such acquisition or investment. Any such issuances of additional capital stock may cause stockholders to experience significant dilution of their ownership interests and the per share value of our common stock to decline.

The requirements of being a public company may strain our resources, divert management's attention and affect our ability to attract and retain executive management and qualified board members.

As a public company, we are subject to the reporting requirements of the Securities Exchange Act of 1934 (the Exchange Act), the listing standards of Nasdaq and other applicable securities rules and regulations. We expect that the requirements of these rules and regulations will continue to increase our legal, accounting, and financial compliance costs, make some activities more difficult, time-consuming, and costly, and place significant strain on our personnel, systems, and resources. For example, the Exchange Act requires, among other things, that we file annual, quarterly and current reports with respect to our business and results of operations. As a result of the complexity involved in complying with the rules and regulations applicable to public companies, our management's attention may be diverted from other business concerns, which could harm our business, results of operations, and financial condition.

Although we have already hired additional employees to assist us in complying with these requirements, we may need to hire more employees in the future or engage outside consultants, which will increase our operating expenses.

In addition, changing laws, regulations, and standards relating to corporate governance and public disclosure are creating uncertainty for public companies, increasing legal and financial compliance costs, and making some activities more time-consuming. These laws, regulations, and standards are subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. We intend to invest substantial resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management's time and attention from business operations to compliance activities.

If our efforts to comply with new laws, regulations, and standards differ from the activities intended by regulatory or governing bodies due to ambiguities related to their application and practice, regulatory authorities may initiate legal proceedings against us and our business may be harmed.

We also expect that being a public company and these new rules and regulations will make it more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced coverage or incur substantially higher costs to obtain coverage. These factors could also make it more difficult for us to attract and retain qualified members of our board of directors, particularly to serve on our audit committee and compensation committee, and qualified executive officers.

As a result of disclosure of information in filings required of a public company, our business and financial condition is more visible, which may result in an increased risk of threatened or actual litigation, including by competitors and other third parties. If such claims are successful, our business and results of operations could be harmed, and even if the claims do not result in litigation or are resolved in our favor, these claims, and the time and resources necessary to resolve them, could divert the resources of our management and harm our business, results of operations, and financial condition.

The individuals who now constitute our senior management team have limited experience managing a publicly-traded company and limited experience complying with the increasingly complex laws pertaining to public companies. Our senior management team may not successfully or efficiently manage our transition to a public company that is subject to significant regulatory oversight and reporting obligations.

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

You should not rely on an investment in our common stock to provide dividend income. We have never declared or paid any dividends on our capital stock. We intend to retain any earnings to finance the operation and expansion of our business, and we do not anticipate paying any cash dividends in the foreseeable future. In addition, the terms of our debt facilities with OrbiMed and SVB contain, and any future credit facility or financing we obtain may contain, terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. As a result, common stockholders may only receive a return on investment if the market price of our common stock increases.

Provisions in our charter documents and under Delaware law could make an acquisition of our company more difficult, limit attempts by our stockholders to replace or remove our current board of directors, and limit the market price of our common stock.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws may have the effect of delaying or preventing a change of control or changes in our management. Our amended and restated certificate of incorporation and amended and restated bylaws, include provisions that:

- provide that our board of directors is classified into three classes of directors with staggered three-year terms;
- permit the board of directors to establish the number of directors and fill any vacancies and newly-created directorships;
- require super-majority voting to amend some provisions in our amended and restated certificate of incorporation and amended and restated bylaws;
- authorize the issuance of “blank check” preferred stock that our board of directors could use to implement a stockholder rights plan;
- provide that only a majority of our board of directors will be authorized to call a special meeting of stockholders;

- prohibit stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of our stockholders;

- provide that the board of directors is expressly authorized to make, alter, or repeal our bylaws; and

- advance notice requirements for nominations for election to our board of directors or for proposing matters that can be acted upon by stockholders at annual stockholder meetings.

Moreover, Section 203 of the Delaware General Corporation Law may discourage, delay, or prevent a change in control of our company.

Section 203 imposes certain restrictions on mergers, business combinations, and other transactions between us and holders of 15% or more of our common stock.

Our amended and restated bylaws designate a state or federal court located within the State of Delaware as the exclusive forum for certain litigation that may be initiated by our stockholders, which could limit stockholders' ability to obtain a favorable judicial forum for disputes with us.

Our amended and restated bylaws provide, to the fullest extent permitted by law, that a state or federal court located within the State of Delaware will be the exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- any derivative action or proceeding brought on our behalf;

- any action asserting a breach of fiduciary duty;

- any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation, or our amended and restated bylaws; or

- any action asserting a claim against us that is governed by the internal affairs doctrine.

This exclusive forum provision will not apply to any causes of action arising under the Securities Act or the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. Nothing in our amended and restated bylaws precludes stockholders that assert claims under the Securities Act or the Exchange Act from bringing such claims in state or federal court, subject to applicable law. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or any of our directors, officers, or other employees, which may discourage lawsuits with respect to such claims. Alternatively, if a court were to find the choice of forum provision which will be contained in our amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, results of operations, and financial condition.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because technology and healthcare technology companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

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

Option Exercises

From January 1, 2019 through July 24, 2019, we issued an aggregate of224,372 shares of our common stock in connection with the exercise of stock options previously granted to our directors, officers, employees, consultants and other service providers under our 2011 Plan. None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or any public offering. We believe the offers, sales, and issuances of the above securities were exempt from registration under the Securities Act (or Regulation D or Regulation S promulgated thereunder) by virtue of Section 4(a)(2) of the Securities Act because the issuance of securities to the recipients did not involve a public offering, or in reliance on Rule 701 because the transactions were pursuant to compensatory benefit plans or contracts relating to compensation as provided under such rule. The recipients of the securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed upon the stock certificates issued in these transactions. All recipients had adequate access, through their relationships with us, to information about us. The sales of these securities were made without any general solicitation or advertising.

RSU Issuances

From January 1, 2019 through July 24, 2019, we granted37,500 RSUs to our directors, officers, and employees to be settled in shares of our common stock under our 2011 Plan.

Use of Proceeds from Public Offering of Common Stock

On July 29, 2019, we closed our IPO in which we issued and sold8,050,000 shares of common stock at a price to the public of$26.00 per share, including shares sold in connection with the exercise of the underwriters' option to purchase additional shares. The offer and sale of the shares in our IPO were registered under the Securities Act pursuant to a registration statement on Form S-1 (File No. 333-232400), which was declared effective by the SEC on July 24, 2019. We raised $194.6 million after deducting underwriting discounts and commissions of$14.7 million and before deducting offering costs of$4.6 million.

We expect to use the net proceeds for general corporate purposes, including working capital and operating expenses. Additionally, we may use a portion of the net proceeds to acquire or invest in businesses, products, services or technologies. However, we do not have agreements or commitments for any material acquisitions or investments at this time. We cannot specify with certainty the particular uses of the net proceeds that we received from our IPO. Accordingly, we will have broad discretion in using these proceeds. Pending the use of proceeds from our IPO as described above, we may invest the net proceeds that we received in our IPO in short-duration fixed income securities, including government and investment-grade corporate debt securities and money market funds.

Item 6. Exhibits

Exhibit Number	Description of Document	Incorporated by Reference from Form	Incorporated by Reference from Exhibit Number	Date Filed
3.1	Amended and Restated Certificate of Incorporation.	S-1/A	3.2	July 12, 2019
3.2	Amended and Restated Bylaws.	S-1/A	3.4	July 12, 2019
4.1	Form of common stock certificate.	S-1/A	4.1	July 12, 2019
31.1	Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed herewith		
31.2	Certification of Chief Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed herewith		
32.1^	Certifications of the Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	Furnished herewith		
101.SCH	Inline XBRL Taxonomy Extension Schema Document	Filed herewith		
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document	Filed herewith		
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document	Filed herewith		
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document	Filed herewith		
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document	Filed herewith		
104	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101)	Filed herewith		

^ The certifications attached as Exhibit 32.1 accompanying this Quarterly Report on Form 10-Q, are deemed furnished and not filed with the Securities and Exchange Commission and are not to be incorporated by reference into any filing of Health Catalyst, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this Quarterly Report on Form 10-Q, irrespective of any general incorporation language contained in such filing.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1934, the Registrant has duly caused this Quarterly Report on Form 10-Q to be signed on its behalf by the undersigned, thereunto duly authorized.

Signature	Title	Date
/s/ J. Patrick Nelli J. Patrick Nelli	Chief Financial Officer *(Principal Financial Officer and Principal Accounting Officer)*	November 12, 2019

Exhibit 31.1

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

I, Daniel Burton, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Health Catalyst, 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)) 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) 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

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

5. The registrant's other certifying officer(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 the registrant's board of directors (or persons performing the equivalent functions):

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

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

Date: November 12, 2019

/s/ Daniel Burton

Daniel Burton

Chief Executive Officer

(Principal Executive Officer)

Exhibit 31.2

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

I, J. Patrick Nelli, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Health Catalyst, 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)) 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) 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

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

5. The registrant's other certifying officer(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 the registrant's board of directors (or persons performing the equivalent functions):

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

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

Date: November 12, 2019

/s/ J. Patrick Nelli

J. Patrick Nelli

Chief Financial Officer

(Principal Financial Officer and Principal Accounting Officer)

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER
PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), Daniel Burton, Chief Executive Officer of Health Catalyst, Inc. (the "Company"), and J. Patrick Nelli, Chief Financial Officer of the Company, each hereby certifies that, to the best of his knowledge:

1. The Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2019, to which this Certification is attached as Exhibit 32.1 (the "Periodic Report"), fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

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

Date: November 12, 2019

/s/ Daniel Burton

Daniel Burton
Chief Executive Officer
(Principal Executive Officer)

/s/ J. Patrick Nelli

J. Patrick Nelli
Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)