

INSTRUCTURE INC
Form 10-Q
May 01, 2019

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 March 31, 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: 001-37629

Instructure, Inc.

(Exact name of registrant as specified in its charter)

Delaware 26-3505687
(State or other jurisdiction of (I.R.S. Employer
incorporation or organization) Identification No.)

6330 South 3000 East, Suite 700

Salt Lake City, UT 84121

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(Address of principal executive offices, including zip code)

(800) 203-6755

(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 each exchange on which registered
Common Stock, par value \$0.0001 per share	INST	New York Stock Exchange

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 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 definition 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
Non-accelerated filer	Smaller reporting company
Emerging growth company	

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

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

As of April 26, 2019, there were 36,582,747 shares of the registrant's common stock outstanding.

Instructure, Inc.

Quarterly Report on Form 10-Q

For the Quarter Ended March 31, 2019

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In this Quarterly Report on Form 10-Q, “we,” “our,” “us,” “Instructure,” and the “Company” refer to Instructure, Inc. and its wholly-owned subsidiaries.

PART I. FINANCIAL INFORMATION

Item 1. Consolidated Financial Statements
INSTRUCTURE, INC.

Consolidated Balance Sheets

(in thousands)

(unaudited)

	March 31, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	\$49,339	\$ 94,320
Short-term marketable securities	41,824	58,630
Accounts receivable—net of allowance of \$824 and \$1,092 at March 31, 2019 and December 31, 2018, respectively	26,694	35,514
Prepaid expenses	28,568	13,918
Deferred commissions	8,710	8,226
Other current assets	1,667	2,019
Total current assets	156,802	212,627
Property and equipment, net	28,276	27,388
Right-of-use assets	38,085	—
Goodwill	38,532	12,354
Intangible assets, net	26,340	6,262
Noncurrent prepaid expenses	6,053	3,516
Deferred commissions, net of current portion	11,458	11,404
Other assets	552	446
Total assets	\$306,098	\$ 273,997
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$6,050	\$ 3,581
Accrued liabilities	11,526	9,809
Deferred rent	—	1,329
Lease liabilities	5,552	—
Deferred revenue	89,635	117,298
Total current liabilities	112,763	132,017
Deferred revenue, net of current portion	2,807	3,372
Lease liabilities, net of current portion	43,923	—
Deferred rent, net of current portion	—	10,150
Other long-term liabilities	806	20
Total liabilities	160,299	145,559
Stockholders' equity:		
Common stock	3	3
Additional paid-in capital	429,349	395,865
Accumulated other comprehensive loss	11	(8)

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Accumulated deficit	(283,564)	(267,422)
Total stockholders' equity	145,799	128,438
Total liabilities and stockholders' equity	\$306,098	\$ 273,997

See accompanying notes.

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INSTRUCTURE, INC.

Consolidated Statements of Operations

(in thousands, except per share amounts)

(unaudited)

	Three months ended March 31,	
	2019	2018
Revenue:		
Subscription and support	\$53,201	\$43,200
Professional services and other	4,875	4,791
Total revenue	58,076	47,991
Cost of revenue:		
Subscription and support	13,921	10,391
Professional services and other	4,236	3,594
Total cost of revenue	18,157	13,985
Gross profit	39,919	34,006
Operating expenses:		
Sales and marketing	27,925	23,188
Research and development	18,939	14,660
General and administrative	12,514	8,291
Total operating expenses	59,378	46,139
Loss from operations	(19,459)	(12,133)
Other income (expense):		
Interest income	649	238
Interest expense	(5)	(9)
Other income (expense), net	(80)	175
Total other income, net	564	404
Loss before income taxes	(18,895)	(11,729)
Income tax benefit (expense)	2,753	(139)
Net loss	\$(16,142)	\$(11,868)
Net loss per common share, basic and diluted	\$(0.45)	\$(0.37)
Weighted average common shares used in computing basic and diluted net loss per common share	35,729	32,370

See accompanying notes.

INSTRUCTURE, INC.

Consolidated Statements of Comprehensive Loss

(in thousands)

(unaudited)

	Three months ended March 31,	
	2019	2018
Net loss	\$(16,142)	\$(11,868)
Other comprehensive gain:		
Net change in unrealized gains on marketable securities	19	1
Comprehensive loss	\$(16,123)	\$(11,867)

See accompanying notes.

INSTRUCTURE, INC.

Consolidated Statements of Stockholders' Equity

(in thousands)

(unaudited)

	Common Stock, \$0.001 Par Value		Additional Paid-In Capital	Accumulated Other Comprehensive Income		Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount		Income	Deficit		
Balances at December 31, 2018	35,386	3	395,865	(8)	(267,422)		128,438
Exercise of common stock options	188	—	1,514	—	—		1,514
Vesting of restricted stock units, net	288	—	—	—	—		—
Stock-based compensation	—	—	14,396	—	—		14,396
Common stock and options issued in acquisition	400	—	17,849	—	—		17,849
Unrealized gain on marketable securities	—	—	—	19	—		19
Shares withheld for tax withholding on vesting of restricted stock	—	—	(275)	—	—		(275)
Net loss	—	—	—	—	(16,142)		(16,142)
Balances at March 31, 2019	36,262	\$ 3	\$ 429,349	\$ 11	\$ (283,564)		\$ 145,799

	Common Stock, \$0.001 Par Value		Additional Paid-In Capital	Accumulated Other Comprehensive Income		Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount		Income	Deficit		
Balances at December 31, 2017	30,860	3	250,899	(1)	(223,957)		26,944
Exercise of common stock options	455	—	2,832	—	—		2,832
Vesting of restricted stock units, net	120	—	—	—	—		—
Stock-based compensation	—	—	4,840	—	—		4,840
Secondary offering	2,875	—	109,803	—	—		109,803
Unrealized gain on marketable securities	—	—	—	1	—		1
Shares withheld for tax withholding on vesting of restricted stock	—	—	(127)	—	—		(127)
Net loss	—	—	—	—	(11,868)		(11,868)
Balances at March 31, 2018	34,310	\$ 3	\$ 368,247	\$ —	\$ (235,825)		\$ 132,425

See accompanying notes.

INSTRUCTURE, INC.

Consolidated Statements of Cash Flows

(in thousands)

(unaudited)

	Three months ended March 31,	
	2019	2018
Operating activities:		
Net loss	\$(16,142)	\$(11,868)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation of property and equipment	2,320	2,013
Amortization of intangible assets	1,208	763
Amortization of deferred financing costs	5	7
Change in fair value of mark-to-market liabilities	—	(122)
Stock-based compensation	13,938	4,744
Other	(219)	65
Changes in assets and liabilities:		
Accounts receivable, net	9,106	8,720
Prepaid expenses and other assets	(19,927)	2,623
Deferred commissions	(538)	212
Right-of-use assets	1,145	—
Accounts payable and accrued liabilities	3,126	2,068
Deferred revenue	(29,763)	(22,555)
Lease liabilities	(1,234)	—
Deferred rent	—	1,372
Other liabilities	786	(389)
Net cash used in operating activities	(36,189)	(12,347)
Investing activities:		
Purchases of property and equipment	(2,336)	(4,847)
Proceeds from sale of property and equipment	24	26
Purchases of marketable securities	(15,394)	—
Maturities of marketable securities	32,500	5,700
Business acquisition, net of cash received	(24,829)	—
Net cash provided by (used in) investing activities	(10,035)	879
Financing activities:		
Proceeds from common stock offerings, net of offering costs	—	109,803
Proceeds from issuance of common stock from employee equity plans	1,518	2,832
Shares repurchased for tax withholdings on vesting of restricted stock	(275)	(127)
Net cash provided by financing activities	1,243	112,508
Net increase (decrease) in cash and cash equivalents	(44,981)	101,040
Cash and cash equivalents, beginning of period	94,320	35,693
Cash and cash equivalents, end of period	\$49,339	\$136,733
Supplemental cash flow disclosure:		
Cash paid for taxes	\$61	\$61
Non-cash investing and financing activities:		

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Capital expenditures incurred but not yet paid	\$482	\$275
Acquisition consideration not yet paid	\$149	\$-
Issuance of common stock for acquisition	\$17,848	\$-

See accompanying notes.

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INSTRUCTURE, INC.

Notes to Unaudited Consolidated Financial Statements

1. Description of Business and Basis of Presentation

Organization

Instructure provides innovative applications for learning, assessment and talent management. We enable organizations worldwide to develop, deliver, manage and track engaging academic and employee development programs. We offer our platform through a Software-as-a-Service, or SaaS, business model. We were incorporated in the State of Delaware in September 2008. We are headquartered in Salt Lake City, Utah, and have wholly-owned subsidiaries in the United Kingdom, Australia, the Netherlands, Hong Kong, Sweden, Brazil, Mexico and Hungary.

Basis of Presentation

The accompanying unaudited interim consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States (“GAAP”) applicable to interim periods, under the rules and regulations of the United States Securities and Exchange Commission (“SEC”). In the opinion of management, we have prepared the accompanying unaudited financial statements on a basis substantially consistent with the audited consolidated financial statements of the Company as of and for the fiscal year ended December 31, 2018, and these financial statements include all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the results of the interim periods presented. All intercompany balances and transactions have been eliminated in consolidation. The results of operations for the interim periods presented are not necessarily indicative of the results to be expected for any subsequent quarter or for the entire year ending December 31, 2019. The year-end balance sheet data was derived from audited financial statements, but this Form 10-Q does not include all disclosures required under GAAP. Certain information and note disclosures normally included in annual financial statements prepared in accordance with GAAP have been omitted under the rules and regulations of the SEC.

These interim financial statements should be read in conjunction with the audited consolidated financial statements and related notes contained in the Company’s Annual Report on Form 10-K filed with the SEC on February 20, 2019.

Use of Estimates

The preparation of the consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect reported amounts and disclosures. Accordingly, actual results could differ from those estimates. Such estimates, which we evaluate on an on-going basis, include allowances for doubtful accounts, useful lives for property and equipment and intangible assets, valuation of marketable securities, valuation allowances for net deferred income tax assets, valuation of stock-based compensation and common stock, the standalone selling price (“SSP”) of performance obligations and the determination of the period of benefit for deferred commissions. We base our estimates on historical experience and on various other assumptions which we believe to be reasonable.

Segment Information

We operate in a single operating segment, cloud-based learning management systems. Operating segments are defined as components of an enterprise for which separate financial information is regularly evaluated by the chief operating decision makers, or CODMs, which are our chief executive officer and chief financial officer, in deciding how to allocate resources and assess performance. Our CODMs evaluate our financial information and resources and assess the performance of these resources on a consolidated basis. Since we operate in one operating segment, all required financial segment information can be found on the consolidated financial statements.

Summary of Significant Accounting Policies

Except for the accounting policies for leases that were updated as a result of adopting ASU No. 2016-02, Leases (“Topic 842”) described below, there have been no changes to our significant accounting policies described in the Annual Report on Form 10-K as of and for the year ended December 31, 2018, filed with the SEC on February 20, 2019, that have had a material impact on our condensed consolidated financial statements and related notes.

Revenue Recognition

We generate revenue primarily from two main sources: (1) subscription and support revenue, which is comprised of SaaS fees from customers accessing our learning, assessment and talent management systems and from customers purchasing additional support beyond the standard support that is included in the basic SaaS fees; and (2) related professional services revenue, which is comprised of training, implementation services and other types of professional services. Revenue is recognized when control of these services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those services.

We determined revenue recognition through 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
- Recognition of revenue when, or as, we satisfy a performance obligation

The following describes the nature of our primary types of revenue and the revenue recognition policies and significant payment terms as they pertain to the types of transactions we enter into with our customers.

Subscription and Support

Subscription and support revenue is derived from fees from customers to access our learning, assessment and talent management systems and support beyond the standard support that is included with all subscriptions. The terms of our subscriptions do not provide customers the right to take possession of the software. Subscription and support revenue is generally recognized on a ratable basis over the contract term. Payments from customers are primarily due annually in advance.

Professional Services and Other

Professional services revenue is derived from implementation, training, and consulting services. Our professional services are typically considered distinct from the related subscription services as the promise to transfer the subscription can be fulfilled independently from the promise to deliver the professional services (i.e., customer receives standalone functionality from the subscription and the customer obtains the intended benefit of the subscription without the professional services). Professional services revenue is typically recognized over time as the services are rendered, using an efforts-expended (labor hours) input method. Implementation services also include nonrefundable upfront setup fees, which are allocated to the remaining performance obligations.

Contracts with Multiple Performance Obligations

Many of our contracts with customers contain multiple performance obligations. We account for individual performance obligations separately if they are distinct. The transaction price is allocated to the separate performance obligations on a relative standalone selling price basis. We determine the standalone selling prices based on our overall pricing objectives by reviewing our significant pricing practices, including discounting practices, the size and volume of our transactions, the customer type, price lists, our pricing strategy, and historical stand-alone sales. SSP is

analyzed on a periodic basis to identify if we have experienced significant changes in our selling prices.

Accounts Receivable

Accounts receivable, net is comprised of trade receivables that are recorded at the invoice amount, net of an allowance for doubtful accounts, and other receivables, which represents unbilled receivables related to subscription and professional services contracts. Unbilled receivable balances as of March 31, 2019 and December 31, 2018 were \$6,339,000 and \$6,032,000, respectively.

Standard payment terms to customers range from 30 to 90 days; however, payment terms and conditions in our customer contracts may vary. In some cases, customers prepay for products and services in advance of our delivery of the related products or services; in other cases, payment is due as services are performed or in arrears following the delivery of the related products or services. The unbilled receivable primarily relates to revenue recognized when transferred services are more than amounts billable to customers.

Deferred Commissions

Sales commissions earned by our sales force, as well as related payroll taxes, are considered incremental and recoverable costs of obtaining a contract with a customer. These costs are deferred and then amortized on a straight-line basis over a period of benefit that we have determined to be generally four years. We determined the period of benefit by taking into consideration our customer contracts, our technology and other factors. Amortization of deferred commissions is included in sales and marketing expenses in the accompanying consolidated statements of operations.

Recent Accounting Pronouncements

Adopted accounting pronouncements

In February 2016, the FASB issued Topic 842, which establishes a comprehensive new lease accounting model. Under the new guidance, at the commencement date, lessees are required to recognize a lease liability with a corresponding right-of-use (“ROU”) asset.

On January 1, 2019, the Company adopted Topic 842 using the modified retrospective approach with the effective date as of the date of initial application. Consequently, results for the three months ended March 31, 2019 are presented under Topic 842. No prior period amounts were adjusted and continue to be reported in accordance with previous lease guidance, ASC Topic 840, Leases. The Company elected to apply the package of practical expedients to not reassess under the new standard prior conclusions about lease identification, lease classification, and initial direct costs in relation to its leases in effect as of January 1, 2019. The Company also elected the practical expedient allowing the use of hindsight in determining the lease term and assessing impairment of right-of-use assets based on all facts and circumstances through the effective date of the new standard.

Adoption of the new standard resulted in recording operating lease right-of-use assets and operating lease liabilities of approximately \$34,726,000 and \$46,205,000, respectively, on our consolidated balance sheets as of January 1, 2019. Adoption of the standard did not have an impact on the Company’s beginning accumulated deficit, results from operations or cash flows.

Effective January 1, 2019, the Company adopted ASU 2018-07, Improvements to Nonemployee Share-Based Payment Accounting, which expands the scope of current stock compensation recognition standards to include share-based payment transactions for acquiring goods and services from nonemployees. The adoption of this guidance did not have a significant impact on our condensed consolidated financial statements and related notes.

Effective January 1, 2019, the Company early adopted ASU 2018-15, Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (“ASU 2018-15”) using a prospective approach. This guidance aligns the accounting for implementation costs related to a hosting arrangement that is a service contract with the guidance on capitalizing costs associated with developing or obtaining internal-use software. The adoption of this guidance did not have a significant impact on our condensed consolidated financial statements and related notes.

Issued accounting pronouncements

In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments – Credit Losses, a new standard to replace the incurred loss impairment methodology under current GAAP with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. The new standard will require the use of a forward-looking expected credit loss model for accounts receivables, loans and other financial instruments. Credit losses relating to available-for-sale debt securities will also be recorded through an allowance for credit losses rather than as a reduction in the amortized cost basis of the securities. The standard will be effective for us beginning January 1, 2020. We are currently evaluating the effect that the updated standard will have on our consolidated financial statements and related disclosures.

2. Net Loss Per Share

Basic net loss per share is computed by dividing net loss by the weighted average number of common shares outstanding for the period. Diluted net loss per share is computed by giving effect to all potential dilutive common stock equivalents outstanding for the period. For purposes of the diluted net loss per share calculation, options to purchase common stock and restricted stock units are considered to be common stock equivalents.

A reconciliation of the denominator used in the calculation of basic and diluted loss per share is as follows (in thousands, except per share amounts):

	Three months ended March 31,	
	2019	2018
Numerator:		
Net loss	\$(16,142)	\$(11,868)
Denominator:		
Total weighted average common shares		
outstanding—basic	35,729	32,370
Dilutive effect of share equivalents resulting from stock		
options and restricted stock units	—	—
Weighted average common shares outstanding-diluted	35,729	32,370
Net loss per common share, basic and diluted	\$(0.45)	\$(0.37)

For all periods presented, we incurred net losses and, therefore, the effect of our outstanding stock options and restricted stock units were not included in the calculation of diluted loss per share as the effect would be anti-dilutive. The following table contains share totals with a potentially dilutive impact (in thousands):

	As of March 31,	
	2019	2018
Options to purchase common stock	1,146	1,683
Restricted stock units	3,154	1,884
Total	4,300	3,567

3. Acquisition

On February 21, 2019, we acquired all outstanding shares of Portfolium, Inc. (“Portfolium”), for the purpose of enhancing our learning management system and human capital management offerings. We have included the operating results of the business combination in our consolidated financial statements since the date of the acquisition. The acquisition did not have a material effect on the revenue or earnings on the consolidated statement of operations for the reporting periods presented. The pro forma results as if the acquisition had taken place on the first day of 2018 were not materially different from the amounts reflected in the accompanying consolidated financial statements.

The following table summarizes the estimated fair values of the consideration transferred, assets acquired and liabilities assumed as of the date of acquisition (in thousands):

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Consideration transferred	
Cash paid	\$25,882
Common stock	17,133
Fair value of assumed Portfolium awards attributable to pre-combination services	715
Total purchase consideration	\$43,730
Identifiable assets acquired	
Cash	\$604
Accounts receivable	273
Other assets	31
Intangible assets: developed technology	10,016
Intangible assets: customer relationships	8,560
Intangible assets: trade name	2,710
Total assets acquired	\$22,194
Liabilities assumed	
Accounts payable and accrued liabilities	\$115
Deferred revenue	1,535
Deferred tax liability, net	2,992
Total liabilities assumed	\$4,642
Goodwill	26,178
Total purchase consideration	\$43,730

The excess of purchase consideration over the fair value of net tangible and identifiable intangible assets acquired was recorded as goodwill, none of which is expected to be deductible for tax purposes. The goodwill generated from this transaction is attributable to the expected synergies to be achieved upon consummation of the business combination and the assembled workforce value. The fair values assigned to tangible and identifiable intangible assets acquired and liabilities assumed are based on management's estimates and assumptions.

Developed technology represents the estimated fair value of the acquired existing technology and is being amortized over its estimated remaining useful life of five years. Amortization of developed technology is included in subscription and support cost of revenue expenses in the accompanying consolidated statements of operations. Customer relationships represents estimated fair value of the acquired customer base and is amortized over the estimated remaining useful life of four years. The trade name acquired is amortized over the estimated remaining useful life of four years. Amortization of customer relationships and trade name is included in sales and marketing expenses in the accompanying consolidated statements of operations.

The net deferred tax liability from this acquisition provided a source of additional income to support the realizability of our pre-existing deferred tax assets and as a result, we released a portion of our valuation allowance. This resulted in a provisional income tax benefit of \$3.0 million and an increase to goodwill of the same amount.

4. Property and Equipment

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

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	March 31, 2019	December 31, 2018
Computer and office equipment	\$ 6,552	\$ 6,204
Purchased software	1,071	1,071
Capitalized software development costs	24,227	22,181
Furniture and fixtures	4,901	4,688
Leasehold improvements and other	16,147	15,632
Total property and equipment	52,898	49,776
Less accumulated depreciation and amortization	(24,622)	(22,388)
Total	\$ 28,276	\$ 27,388

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Accumulated amortization for capitalized software development costs was \$10,324,000 and \$9,035,000 at March 31, 2019 and December 31, 2018, respectively. Amortization expense for capitalized software development costs was \$1,289,000 and \$940,000 for the three months ended March 31, 2019 and 2018, respectively. Amortization expense for capitalized software development costs is recorded within cost of revenue on the consolidated statements of operations.

5. Goodwill and Intangible Assets

Goodwill was \$38,532,000 and \$12,354,000 as of March 31, 2019 and December 31, 2018, respectively.

Intangible assets consisted of the following (in thousands):

	Average Remaining Useful Life	March 31, 2019	December 31, 2018
Domain names	2 Months	\$ 1,268	\$ 1,268
Trademarks	53 Months	120	120
Software	6 Months	620	620
Capitalized learning content	31 Months	400	400
Trade names	34 Months	3,030	320
Developed technology	45 Months	15,336	5,320
Customer relationships	34 Months	11,470	2,910
Accumulated amortization		(5,904)	(4,696)
Total		\$ 26,340	\$ 6,262

Amortization expense for intangible assets was \$1,208,000 and \$763,000 for the three months ended March 31, 2019 and 2018, respectively. Amortization expense for capitalized learning content and developed technology is recorded within cost of revenue on the consolidated statements of operations.

Based on the recorded intangible assets at March 31, 2019, estimated amortization expense is expected to be as follows (in thousands):

Years Ending December 31,	Amortization Expense
Remainder of 2019	\$ 5,569
2020	7,207
2021	6,071
2022	4,821
2023	2,394
Thereafter	278
Total	\$ 26,340

6. Revenue

Disaggregation of Revenue

Revenue by geographic region, based on the physical location of the customer, is (in thousands):

	Three months ended March 31,		
	2019	2018	
United States	\$45,766	\$39,307	
Foreign	12,310	8,684	
Total revenue	\$58,076	\$47,991	
Percentage of revenue generated outside of the United States	21	% 18	%

Deferred Revenue and Performance Obligations

During the three months ended March 31, 2019, 85% to 95% of revenue recognized was included in our deferred revenue balance at the beginning of the period.

Transaction Price Allocated to the Remaining Performance Obligations

As of March 31, 2019, approximately \$453 million of revenue is expected to be recognized from remaining performance obligations. We expect to recognize revenue on approximately 71% of these remaining performance obligations over the next 24 months, with the balance recognized thereafter.

7. Deferred Commissions

Deferred commissions primarily consist of sales commissions, as well as related payroll taxes, that are capitalized as incremental contract origination costs and were \$20,168,000 and \$19,630,000 as of March 31, 2019 and December 31, 2018, respectively. For the three months ended March 31, 2019 and 2018, amortization expense for deferred commissions was \$2,606,000 and \$2,078,000, respectively, and there were no impairments of deferred commissions.

8. Marketable Securities

Our investment policy is consistent with the definition of available-for-sale securities. We do not buy and hold securities principally for the purpose of selling them in the near future nor do we intend to hold securities to maturity. Rather, our policy is focused on the preservation of capital, liquidity and return. From time to time, we may sell certain securities but the objectives are generally not to generate profits on short-term differences in price.

The following table summarizes, by major security type, our assets that are measured at fair value on a recurring basis (in thousands):

	March 31, 2019			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Corporate debt securities	\$24,890	\$ 9	\$ —	\$ 24,899
Government treasury bills	16,924	2	(1)	16,925
	\$41,814	\$ 11	\$ (1)	\$ 41,824

	December 31, 2018			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Corporate debt securities	\$31,977	\$ 3	\$ (7)	\$ 31,973
Government treasury bills	26,662	—	(5)	26,657
	\$58,639	\$ 3	\$ (12)	\$ 58,630

There were no gross realized gains or losses from the sale or maturity of marketable securities during the three months ended March 31, 2019 and 2018.

During the three months ended March 31, 2019, we recognized gross interest income on securities of \$224,000. Interest income was supplemented by accretion income of \$288,000 during the three months ended March 31, 2019, and reported within interest income on the consolidated statements of operations.

During the three months ended March 31, 2018, we recognized gross interest income on securities of \$66,000. Interest income was offset by amortization expense on securities of \$2,000 during the three months ended March 31, 2018, and reported net within interest income on the consolidated statements of operations.

The estimated fair value of investments by contractual maturity is as follows (in thousands):

	March 31, 2019	December 31, 2018
Due within one year	\$ 41,824	\$ 58,630
Total	\$ 41,824	\$ 58,630

9. Stockholders' Equity and Stock-Based Compensation

Common Stock

As of March 31, 2019 and December 31, 2018, there were 200,000,000 shares of common stock authorized. As of March 31, 2019 and December 31, 2018, there were 36,263,274 and 35,385,810 shares issued and outstanding, respectively. 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 if 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 the common stock through March 31, 2019.

Employee Equity Plans

Our 2015 Equity Incentive Plan (the "2015 Plan") serves as the successor to our 2010 Equity Incentive Plan (the "2010 Plan"). Accordingly, no shares are available for issuance under the 2010 Plan; however, any outstanding options granted under the 2010 Plan will remain outstanding and subject to the terms of that plan until exercised, terminated or expired by their terms. As of March 31, 2019, options to purchase 690,907 shares of common stock remained outstanding under the 2010 Plan. Pursuant to the terms of the 2015 Plan, the share reserve automatically increased by 1,592,361 shares in January 2019. As of March 31, 2019, we had 2,288,859 shares of common stock available for future grants under the 2015 Plan.

As part of our acquisition of Practice XYZ, Inc. ("Practice") we assumed Practice's 2014 Equity Incentive Plan (the "Practice 2014 Plan"). No shares are available for issuance under the Practice 2014 Plan; however, any outstanding options granted under the 2014 Plan will remain outstanding and subject to the terms of that plan until exercised, terminated or expired by their terms. As of March 31, 2019, options to purchase 1,009 shares of common stock remained outstanding under the Practice 2014 Plan.

Additionally, as part of our acquisition of Portfolium, we assumed Portfolium's 2014 Equity Incentive Plan (the "Portfolium 2014 Plan"). No shares are available for issuance under the Portfolium 2014 Plan; however, any outstanding options granted under the Portfolium 2014 Plan will remain outstanding and subject to the terms of that plan until exercised, terminated or expired by their terms. As of March 31, 2019, options to purchase 41,138 shares of common stock remained outstanding under the Portfolium 2014 Plan.

We also have a 2015 Employee Stock Purchase Plan (the "ESPP"). The ESPP allows eligible employees to purchase shares of our common stock at a discount through payroll deductions of up to 15% of their eligible compensation, subject to any plan limitations. Our board of directors approves the ESPP offerings. The offerings need not be identical, but each offering may not exceed 27 months and may specify one or more shorter purchase periods within the offering. Pursuant to the terms of the ESPP, the share reserve increased by 333,333 shares in January 2019. As of March 31, 2019, 791,132 shares of common stock were available for issuance under the ESPP.

During January 2019, our board of directors approved the 2019 Incentive Bonus Plan (the "2019 Bonus Plan"). Under the 2019 Bonus Plan, performance-based bonuses may be earned by certain employees, excluding executive officers, based on actual performance as measured against selected financial performance criteria and individual performance. The bonuses will be paid in the form of restricted stock units and the number of shares underlying equity awards granted to each employee will be determined based on the performance bonus amount divided by our closing stock price on grant date. For additional information regarding the 2019 Bonus Plan refer to the Proxy Statement on Form DEF14A filed with the SEC on April 8, 2019. As of March 31, 2019, there was \$465,000 included in accrued liabilities on our consolidated balance sheets related to the 2019 Bonus Plan. As of March 31, 2019, we had \$2,289,000 of unrecognized stock-based compensation costs related to the 2019 Bonus Plan.

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The following two tables show stock-based compensation expense by award type and where the stock-based compensation expense was recorded in our consolidated statements of operations (in thousands):

	Three months ended March 31,	
	2019	2018
Options	\$550	\$701
Restricted stock units	12,729	3,500
Employee stock purchase plan	659	543
Total stock-based compensation	\$13,938	\$4,744

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	Three months ended March 31,	
	2019	2018
Subscription and support cost of revenue	\$504	\$229
Professional services and other cost of revenue	500	193
Sales and marketing	3,707	1,348
Research and development	4,770	1,894
General and administrative	4,457	1,080
Total stock-based compensation	\$13,938	\$4,744

Stock Options

The following table summarizes stock option activity for the three months ended March 31, 2019 (in thousands, except per share data and years):

	Shares Underlying Options	Weighted- Average Exercise Price	Weighted- Average Remaining Life (in years)	Aggregate Intrinsic Value
Outstanding at December 31, 2018	1,303	\$ 14.09	6.5	\$ 30,552
Granted	41	3.54		
Exercised	(188)	8.05		
Forfeited or cancelled	(10)	14.01		
Outstanding at March 31, 2019	1,146	14.68	6.5	37,181
Vested and expected to vest—March 31, 2019	1,146	14.68	6.5	37,181
Exercisable at March 31, 2019	836	9.90	5.8	31,125

As of March 31, 2019, we had \$3,682,000 of unrecognized stock-based compensation costs related to non-vested options that are expected to be recognized over a weighted average period of 2.6 years.

As of March 31, 2019, we had \$445,000 of unrecognized stock-based compensation expense related to our ESPP that is expected to be recognized over the term of the offering period ending May 31, 2019.

Restricted Stock Units

The following table summarizes the activity of restricted stock units (“RSUs”) for the three months ended March 31, 2019 (in thousands, except per share data):

	RSUs Outstanding	Weighted- Average Grant Date Fair Value Per Share
	Shares	
Unvested and outstanding at December 31, 2018	1,690	\$ 32.87

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Granted	1,891	42.29
Vested	(295)	35.70
Cancelled	(132)	34.33
Unvested and outstanding at March 31, 2019	3,154	38.19

As of March 31, 2019, we had \$112,701,000 of unrecognized stock-based compensation costs related to outstanding RSUs that are expected to be recognized over a weighted average period of 3.1 years.

10. Income Taxes

Utilization of the net operating loss carryforwards and credits may be subject to substantial annual limitation due to the ownership change limitations provided by Section 382 of the Internal Revenue Code of 1986, as amended, and similar state provisions. The annual limitation may result in the expiration of net operating losses and credits before utilization.

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We file tax returns in the United States, the United Kingdom, Australia, the Netherlands, Hong Kong, Sweden, Brazil, Mexico, Hungary and various state jurisdictions. All of our tax years remain open to examination by major taxing jurisdictions to which we are subject, as carryforward attributes generated in past years may still be adjusted upon examination by the Internal Revenue Service or state and foreign tax authorities if they have or will be used in future periods.

We believe that we have provided adequate reserves for our income tax uncertainties in all open tax years. We do not expect our gross unrecognized tax benefits to change significantly in the next 12 months.

11. Fair Value of Financial Instruments

The fair value of a financial instrument is the amount that could be received upon the sale of an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Financial assets are marked to bid prices and financial liabilities are marked to offer prices. Fair value measurements do not include transaction costs. The fair value hierarchy prioritizes the quality and reliability of the information used to determine fair values. Categorization within the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement. The fair value hierarchy is defined into the following three categories:

Level 1: Quoted market prices in active markets for identical assets or liabilities.

Level 2: Observable market based inputs or unobservable inputs that are corroborated by market data.

Level 3: Unobservable inputs that are not corroborated by market data.

There were no transfers between Level 1 and Level 2 of the fair value measurement hierarchy during the three months ended March 31, 2019 and the year ended December 31, 2018. Assets measured at fair value on a recurring basis as of March 31, 2019, were as follows (in thousands):

	March 31, 2019			Total
	Level 1	Level 2	Level 3	
Assets:				
Money market funds	\$13,778	\$—	\$ —	\$13,778
Corporate debt securities	—	24,899	—	24,899
Government treasury bills	16,925	—	—	16,925
Total assets	\$30,703	\$24,899	\$ —	\$55,602

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

	December 31, 2018			Total
	Level 1	Level 2	Level 3	
Assets:				

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Money market funds	\$32,458	\$—	\$—	\$32,458
Corporate debt securities	—	31,973	—	31,973
U.S. Treasury bills	26,657	—	—	26,657
Total assets	\$59,115	\$31,973	\$—	\$91,088
Liabilities:				
Contingent liability	—	—	20	20
Total liabilities	\$—	\$—	\$ 20	\$20

The carrying amount of our cash, receivables and payables approximates fair value because of the short-term nature of these items.

The following table sets forth a summary of the change in fair value adjustments for liabilities that are required to be marked-to-market. The change in fair value of the contingent liability was recognized in general and administrative expense on the consolidated statements of operations. The following balance is measured at fair value on a recurring basis using significant unobservable inputs (Level 3) (in thousands):

	Change in Fair Value Adjustments
Balance at January 1, 2019	\$ 20
Change in fair value of contingent liability	(20)
Balance at March 31, 2019	\$ —

We have classified our liability for contingent consideration relating to our acquisition of Practice, which we closed in November 2017, within Level 3 of the fair value hierarchy because the fair value is determined using the Monte Carlo simulation model and significant unobservable inputs, including forecasted net bookings attainment. We have not observed a significant change in Practice bookings during the three months ended March 31, 2019 and, therefore, we wrote-off the remaining balance.

Fair value is a market-based measurement that should be determined based on the assumptions that market participants would use in pricing an asset or liability. The hierarchy level assigned to each security in our marketable securities portfolio and cash equivalents is based on our assessment of the transparency and reliability of the inputs used in the valuation of such instrument at the measurement date. The fair value of cash equivalents included in the Level 1 category is based on quoted prices that are readily and regularly available in an active market. The fair value of the marketable securities included in the Level 2 category is based on observable inputs, such as quoted prices for similar assets at the measurement date; quoted prices in markets that are not active; or other inputs that are observable, either directly or indirectly. These values were obtained from an independent pricing service and were evaluated using pricing models that vary by asset class and may incorporate available trade, bid and other market information and price quotes from well-established independent pricing vendors and broker-dealers. See Note 8—Marketable Securities for further information regarding the fair value of our investments.

12. Leases

The Company leases office space under non-cancelable operating leases with lease terms ranging from one to twelve years. These leases require monthly lease payments that may be subject to annual increases throughout the lease term. Certain of these leases also include renewal options at the election of the Company to renew or extend the lease for an additional three to five years. These optional periods have not been considered in the determination of the right-of-use assets or lease liabilities associated with these leases as the Company did not consider it reasonably certain it would exercise the options.

The Company performed evaluations of its contracts and determined each of its identified leases are operating leases. For the three months ended March 31, 2019, the Company incurred \$2,593,000 of lease expense included in operating expenses on the consolidated statements of operations in relation to these operating leases, of which \$613,000 was variable rent expense and not included within the measurement of the Company's operating right-of-use assets and lease liabilities. The variable rent expense is comprised primarily of the Company's proportionate share of operating expenses, property taxes, and insurance and is classified as lease expense due to the Company's election to not separate lease and non-lease components. For the three months ended March 31, 2018, the Company incurred \$1,879,000 in rent expense under non-cancellable operating leases.

Cash paid for amounts included in the measurement of operating lease liabilities for the three months ended March 31, 2019, was \$2,139,000 and was included in net cash used in operating activities in the Company's consolidated

statements of cash flows. Right-of-use assets obtained in exchange for lease obligations for the three months ended March 31, 2019, was \$4,505,000.

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As of March 31, 2019, the maturities of the Company's operating lease liabilities were as follows (in thousands):

2019 (excluding the three months ended March 31, 2019)	\$6,618
2020	8,827
2021	8,811
2022	9,202
2023	8,709
Thereafter	23,620
Total lease payments	65,787
Less:	
Imputed interest	(15,199)
Tenant improvement reimbursements included in lease liabilities measurement but not yet received	(1,113)
Total	49,475

As of March 31, 2019, the weighted average remaining lease term is 7.3 years and the weighted average discount rate used to determine operating lease liabilities was 7.16%.

13. Commitments and Contingencies

Litigation

We are involved in legal proceedings from time to time arising in the normal course of business. Management believes that the outcome of these proceedings will not have a material impact on our financial position, results of operations or liquidity.

14. Subsequent Events

In April 2019, the Company signed an agreement to acquire MasteryConnect, Inc. ("MasteryConnect") for the purposes of enhancing our learning management system offerings. Pursuant to the agreement, we acquired all the outstanding equity of MasteryConnect in exchange for 265,923 shares of common stock and \$28,400,000 in cash.

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

Forward-Looking Statements

The following discussion of our financial condition and results of operations contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Forward-looking statements are based on our management's beliefs and assumptions and on information currently available to our management. All statements other than statements of historical facts are "forward-looking statements" for purposes of these provisions, including those relating to future events or our future financial performance and financial guidance. In some cases, you can identify forward-looking statements by terminology such as "may," "might," "will," "should," "expect," "plan," "anticipate," "project," "believe," "estimate," "predict," "potential," "intend" or "continue," the negative of terms like these or other comparable terminology, and other words or terms of similar meaning in connection with any discussion of future operating or financial performance. These statements are only predictions. All forward-looking statements included in this Quarterly Report on Form 10-Q are based on information available to us on the date hereof, and we assume no obligation to update any such forward-looking statements. Any or all of our forward-looking statements in this document may turn out to be wrong. Actual events or results may differ materially. Our forward-looking statements can be affected by inaccurate assumptions we might make or by known or unknown risks, uncertainties and other factors. We discuss many of these risks, uncertainties and other factors in this Quarterly Report on Form 10-Q in greater detail under the heading "Item 1A—Risk Factors." We caution investors that our business and financial performance are subject to substantial risks and uncertainties. In addition, statements that "we believe" and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this Quarterly Report on Form 10-Q, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and investors are cautioned not to unduly rely upon these statements.

You should read the following discussion and analysis together with the financial statements and the related notes to those statements included elsewhere in this report. This discussion contains forward-looking statements that involve risks and uncertainties. As a result of many factors, such as those set forth in the section of this report captioned "Risk Factors" and elsewhere in this report, our actual results may differ materially from those anticipated in these forward-looking statements.

Overview

Instructure provides innovative applications for learning, assessment and talent management. We enable organizations worldwide to develop, deliver, manage and track engaging academic and employee development programs. Our platform combines powerful, elegant and easy-to-use functionality with the reliability, security, scalability and support required by our customers.

We offer our platform through a Software-as-a-Service, or SaaS, business model. Customers can rapidly deploy our applications with minimal upfront implementation. They also benefit from regular software updates and 99.9% uptime. Our SaaS business model reduces the cost, complexity and disruptions associated with implementations and upgrades of on-premise software.

We were founded in 2008, and in 2011, we launched Canvas, with the goal to make teaching and learning easier. Initially, we focused on the U.S. education market, targeting colleges and universities. In 2012, we expanded our focus to include the K-12 market in the United States. We opened our international headquarters in London, England in June 2014 and have offices in Sydney, Australia, Hong Kong, Sao Paulo, Brazil and Budapest, Hungary. To date, a substantial majority of our revenue has been derived from our sales of Canvas to the U.S. education market. While our initial efforts were focused on the education market, we discovered that companies also needed a cloud-based

platform to enable them to better train their employees. Our initial corporate customers licensed Canvas for this purpose. In February 2015, we launched Bridge to enable companies to further realize the benefits of our cloud-based platform with an application specifically designed to address their needs.

We sell our applications and services through a direct sales force. Our sales organization includes technical sales engineers who serve as experts in the technical aspects of our applications and customer implementations. Many of our sales efforts require us to respond to requests for proposals, particularly in the higher education space and to a lesser extent in K-12, and to a minimal extent in the corporate market. As we grow internationally, we may use reseller partnerships as needed to penetrate certain new markets.

As of March 31, 2019, we have grown to serve more than 4,000 customers, representing colleges, universities, K-12 school districts, and companies in more than 70 countries. Our customers range from a single school to large corporations and academic institutions and accordingly our total contract values range from thousands of dollars to several million dollars. We generally define a customer as an entity with a subscription contract as of the measurement date. In situations where there is a single contract that applies to entities with multiple subsidiaries or divisions, universities, or governmental organizations, only the entity that has contracted for our platform is counted as a customer. For example, a contracting school district is counted as a single customer even though the school district encompasses multiple schools. In 2018, and the three months ended March 31, 2019, no single customer represented more than 10% of our revenue.

Our subscription fee includes the use of our platform and our technical support and is based on the number of users. We also generate revenue from training, implementation services and other types of professional services. We have experienced net revenue retention rates of over 100% at each of March 31, 2019 and 2018. Our revenue was \$58.1 million and \$48.0 million for the three months ended March 31, 2019 and 2018, respectively, representing year-over-year growth of 21%. Our net losses were \$16.1 million and \$11.9 million for the three months ended March 31, 2019 and 2018, respectively.

Key Factors Affecting Our Performance

Investment in Sales and Marketing Organization

We continue to invest in our sales and marketing organization to drive additional revenue and support the growth of our customer base. Any investments we make in our sales and marketing organization will occur in advance of experiencing any benefits from such investments, so it may be difficult for us to determine if we are efficiently allocating our resources in these areas. We plan to continue to expand sales and marketing to grow our customer base and increase sales to existing customers. This expansion is expected to include adding sales personnel and expanding our marketing activities to continue to generate additional sales opportunities and build brand awareness.

We intend to expand and continue to invest in our international sales and marketing organization, which we believe will be an important factor in our continued growth. As we grow internationally, we may use reseller partnerships as needed to penetrate new markets. During the three months ended March 31, 2019 and 2018, 21% and 18% of our revenue was derived from outside the United States, respectively.

Investment in Technology

We have aggressively invested, and intend to continue to invest, in developing technology to support our growth. We expect our research and development expenses to increase as we expand headcount. While we invest heavily in research and development, we have also built a foundation for innovation through our approach to the learning management system as a learning platform. However, our investments in research and development may result in enhancements or new applications that may not achieve market adoption, are more expensive to develop than anticipated, may take longer to generate revenue or may generate less revenue than we anticipate.

Net Revenue Retention Rate

We calculate our net revenue retention rate by dividing the total revenue obtained from a particular customer in a given month by the total revenue from that customer from the same month in the immediately preceding year. This calculation contemplates all changes to revenue for the designated customer, which includes customer terminations, changes in quantities of users, changes in pricing, additional applications purchased or applications no longer used. We calculate the net revenue retention for our entire customer base at a given point in time. We believe our net revenue retention rate is an important metric to measure the long-term value of customer agreements and our ability to retain our customers. Our net revenue retention rate was over 100% at each of March 31, 2019 and 2018.

Focus on Free Cash Flow

We define free cash flow as net cash provided by (used in) operating activities less purchases of property and equipment and intangible assets, net of proceeds from disposals of property and equipment. We consider free cash flow to be an important measure that we are focused on to run our business. For more information about free cash flow, see the section titled “Non-GAAP Financial Measures.”

Financial Operations Overview

Revenue

We generate revenue primarily from two main sources: (1) subscription and support revenue, which is comprised of SaaS fees from customers accessing our learning, assessment and talent management systems and from customers purchasing additional support beyond the standard support that is included in the basic SaaS fees; and (2) related professional services revenue, which is comprised of training, implementation services and other types of professional services. Revenue is recognized when control of these services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those services.

Subscription and support revenue is derived from fees from customers to access our learning, assessment and talent management systems and support beyond the standard support that is included with all subscriptions. The terms of our subscriptions do not provide customers the right to take possession of the software. Subscription and support revenue is generally recognized on a ratable basis over the contract term. Payments from customers are primarily due annually in advance.

Professional services revenue is derived from implementation, training and consulting services. Our professional services are typically considered distinct from the related subscription services as the promise to transfer the subscription can be fulfilled independently from the promise to deliver the professional services (i.e., customer receives standalone functionality from the subscription and the customer obtains the intended benefit of the subscription without the professional services). Professional services revenue is typically recognized over time as the services are rendered, using an efforts-expended (labor hours) input method. Implementation services also include nonrefundable upfront setup fees, which are allocated to the remaining performance obligations.

Cost of Revenue

Cost of subscription and support revenue consists primarily of the costs of our managed hosting provider and other third-party service providers, employee-related costs including payroll, benefits and stock-based compensation expense for our operations and customer support teams, amortization of capitalized software development costs and acquired technology, and allocated overhead costs, which we define as rent, facilities and costs related to information technology, or IT.

Cost of professional services and other revenue consists primarily of personnel costs of our professional services organization, including salaries, benefits, travel, bonuses and stock-based compensation, as well as allocated overhead costs.

We expect a decrease in gross margin due to the recent acquisitions of Portfolium and MasteryConnect while we focus on improving our operating structure related to integration.

Operating Expenses

Sales and Marketing. Sales and marketing expenses consist primarily of personnel costs of our sales and marketing employees, including sales commissions and incentives, benefits and stock-based compensation expense, marketing

programs, including lead generation, costs of our annual InstructureCon user conference and allocated overhead costs. We defer and amortize on a straight-line basis sales commission costs related to acquiring new customers and upsells from existing customers over a period of benefit that we have determined to be generally four years. We expect sales and marketing expenses will increase as a result of hiring net new quota-carrying sales representatives inside and outside the United States, adding to the marketing staff and expanding our annual InstructureCon user conference and potentially adding other annual conferences. Over time, we expect sales and marketing expenses will decline as a percentage of total revenue.

Research and Development. Research and development expenses consist primarily of personnel costs of our development team, including payroll, benefits and stock-based compensation expense and allocated overhead costs. We capitalize certain software development costs that are attributable to developing new applications, features and adding incremental functionality to our platform and amortize such costs as costs of subscription revenue over the estimated life of the new application or incremental functionality, which is generally three years. We expect research and development expenses to increase in absolute dollars as we continue to increase the functionality of our software platform.

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General and Administrative. General and administrative expenses consist of personnel costs and related expenses for executive, finance, legal, human resources, recruiting, employee-related information technology, administrative personnel, including payroll, benefits and stock-based compensation expense; professional fees for external legal, accounting and other consulting services; and allocated overhead costs. As a result of a change in our compensation philosophy and more employees electing to receive greater stock-based compensation in lieu of salary, we expect that general and administrative expenses will increase on an absolute dollar basis and as a percentage of total revenue.

Other Income (Expense)

Other income (expense) consists primarily of interest income, interest expense, the change in fair value of the warrant liability, which is subject to mark-to-market adjustments as of each reporting period, and the impact of foreign currency transaction gains and losses. We have historically had a minimal amount of debt outstanding on which we pay interest. As we have expanded our international operations, our exposure to fluctuations in foreign currencies has increased.

Income Tax Expense

We are subject to income taxes in the United States and foreign jurisdictions in which we do business. These foreign jurisdictions have statutory tax rates different from those in the United States. Accordingly, our effective tax rates will vary depending on the relative proportion of foreign to U.S. income and changes in tax laws. Income tax expense consists primarily of state income taxes in the United States and income taxes in certain foreign jurisdictions in which we conduct business.

Results of Operations

The following tables set forth our results of operations for the periods presented and as a percentage of our total revenue for those periods. The data has been derived from the unaudited consolidated financial statements contained in this Quarterly Report on Form 10-Q which include, in our opinion, all adjustments, consisting only of normal recurring adjustments, that we consider necessary for a fair presentation of the financial position and results of operations for the interim periods presented. The period-to-period comparison of financial results is not necessarily indicative of financial results to be achieved in future periods.

	Three months ended	
	March 31,	
	2019	2018
	(in thousands)	
Revenue:		
Subscription and support	\$53,201	\$43,200
Professional services and other	4,875	4,791
Total revenue	58,076	47,991
Cost of revenue:		
Subscription and support ⁽¹⁾⁽²⁾	13,921	10,391
Professional services and other ⁽¹⁾	4,236	3,594
Total cost of revenue	18,157	13,985
Gross profit	39,919	34,006
Operating expenses:		
Sales and marketing ⁽¹⁾⁽²⁾	27,925	23,188
Research and development ⁽¹⁾	18,939	14,660
General and administrative ⁽¹⁾⁽³⁾	12,514	8,291

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Total operating expenses	59,378	46,139
Loss from operations	(19,459)	(12,133)
Other income (expense):		
Interest income	649	238
Interest expense	(5)	(9)
Other income (expense), net	(80)	175
Total other income, net	564	404
Loss before income taxes	(18,895)	(11,729)
Income tax benefit (expense)	2,753	(139)
Net loss	\$(16,142)	\$(11,868)

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(1) Includes stock-based compensation as follows:

	Three months ended March 31, 2019 2018 (in thousands)	
Cost of revenue:		
Subscription and support	\$504	\$229
Professional services and other	500	193
Sales and marketing	3,707	1,348
Research and development	4,770	1,894
General and administrative	4,457	1,080
Total stock-based compensation	\$13,938	\$4,744

(2) Includes amortization of acquisition-related intangibles as follows:

	Three months ended March 31, 2019 2018 (in thousands)	
Cost of revenue:		
Subscription and support	\$555	\$342
Sales and marketing	582	350
Total amortization of acquisition-related intangibles	\$1,137	\$692

(3) Includes the change in fair value of the contingent liability as follows:

	Three months ended March 31, 2019 2018 (in thousands)	
General and administrative	\$(20)	\$(389)

Three months
ended
March 31,
2019 2018
(as a
percentage of

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	total revenue)	
Revenue:		
Subscription and support	92 %	90 %
Professional services and other	8	10
Total revenue	100	100
Cost of revenue:		
Subscription and support	24	22
Professional services and other	7	7
Total cost of revenue	31	29
Gross profit	69	71
Operating expenses:		
Sales and marketing	48	48
Research and development	33	31
General and administrative	21	17
Total operating expenses	102	96
Loss from operations	(33)	(25)
Other income (expense):		
Interest income	1	0
Interest expense	(0)	(0)
Other income (expense), net	(0)	0
Total other income, net	1	0
Loss before income taxes	(32)	(25)
Income tax benefit (expense)	5	(0)
Net loss	(27)%	(25)%

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Three Months Ended March 31, 2019 Compared to the Three Months Ended March 31, 2018

Revenue

	Three months ended March 31,		Change	
	2019	2018	Amount	%
	(dollars in thousands)			
Subscription and support	\$53,201	\$43,200	\$10,001	23%
Professional services and other	4,875	4,791	84	2
Total revenue	\$58,076	\$47,991	\$10,085	21

Subscription and support revenue increased \$10.0 million for the three months ended March 31, 2019, primarily due to an increase in the total number of customers, which has grown to over 4,000 as of March 31, 2019, net revenue retention in excess of 100% as of March 31, 2019 and continued growth in international revenue, which contributed 21% of total revenue for the three months ended March 31, 2019, versus 18% of total revenue for the three months ended March 31, 2018.

Professional services and other revenue increased \$0.1 million for the three months ended March 31, 2019, primarily due to the increase in new customers discussed above.

Cost of Revenue and Gross Margin

	Three months ended March 31,		Change	
	2019	2018	Amount	%
	(dollars in thousands)			
Cost of revenue:				
Subscription and support	\$13,921	\$10,391	\$3,530	34%
Professional services and other	4,236	3,594	642	18
Total cost of revenue	\$18,157	\$13,985	\$4,172	30
Gross margin percentage:				
Subscription and support revenue	74	%	76	%
Professional services and other	13		25	
Total gross margin	69		71	

Total cost of revenue increased \$4.2 million for the three months ended March 31, 2019, primarily due to an increase in employee-related costs, web hosting and third-party software license costs, amortization of developed technology and third-party contractor costs.

Subscription and support cost of revenue increased \$3.5 million for the three months ended March 31, 2019, primarily due to an increase in web hosting and third-party software license costs, employee-related costs and amortization of developed and acquisition-related technology. Web hosting and third-party software license costs increased \$2.2 million due to the increase in total customers. Employee-related costs increased \$0.7 million as we continued to grow our customer support organization to support our customer growth and improve service levels and offerings.

Amortization costs increased \$0.6 million due to the continued development of our software platform and amortization of acquisition-related technology.

Professional services and other cost of revenue increased \$0.7 million for the three months ended March 31, 2019, primarily due to an increase in employee-related costs of \$0.5 million, as we continued to grow our professional services organization to support our customer growth and improve service levels and offerings. Other insignificant items, primarily related to increased use of third-party contractors, increased by \$0.2 million.

Operating Expenses

Sales and Marketing

	Three months ended March 31,		Change	
	2019	2018	Amount	%
	(dollars in thousands)			
Sales and marketing	\$27,925	\$23,188	\$4,737	20%

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Sales and marketing expenses increased \$4.7 million for the three months ended March 31, 2019, primarily due to an increase in employee-related and sales commission costs, third-party contractor costs, expansion of our marketing programs, amortization of acquisition-related technology and information technology expenses. Employee-related and sales commission costs increased \$3.6 million as a result of hiring additional employees domestically and internationally and growth in our customer base. Third-party contractor costs increased \$0.5 million and marketing program costs increased \$0.2 million both due to continued expansion into international and corporate markets. Amortization expense increased \$0.3 million due to an increase in amortization of acquisition-related identified intangible assets. Information technology expense increased \$0.1 million as we continue to automate our internal systems.

Research and Development

	Three months ended March 31,		Change	
	2019	2018	Amount	%
	(dollars in thousands)			
Research and development	\$ 18,939	\$ 14,660	\$ 4,279	29%

Research and development expenses increased \$4.3 million for the three months ended March 31, 2019, due to an increase in employee-related costs, information technology expenses and allocated overhead expenses. Employee-related costs increased \$3.7 million and information technology costs increased \$0.3 million as we continued to grow our engineering organization to develop new applications and continue to develop additional features for Canvas and Bridge. Allocated overhead expenses and other insignificant items increased \$0.3 million primarily due to higher rent and maintenance on our facilities.

General and Administrative

	Three months ended March 31,		Change	
	2019	2018	Amount	%
	(dollars in thousands)			
General and administrative	\$ 12,514	\$ 8,291	\$ 4,223	51%

General and administrative expenses increased \$4.2 million for the three months ended March 31, 2019, primarily due to an increase in employee-related costs, third-party costs, allocated overhead expenses and the change in fair value of the contingent liability. Employee-related costs increased \$3.4 million due to increased stock-based compensation expense. Allocated overhead expenses increased \$0.4 million primarily due to higher rent and maintenance on our facilities. Third-party services increased \$0.3 million due to increased legal and consulting costs to support continued growth. Other insignificant items increased \$0.1 million primarily due to a change in fair value of the contingent liability.

Other Income, Net

	Three months ended March 31, Change			
	2019	2018	Amount	%
	(dollars in thousands)			
Other income, net	\$564	\$404	\$160	40%

Other income, net includes interest income, interest expense and the impact of foreign currency transaction gains and losses. Other income, net increased \$0.2 million for the three months ended March 31, 2019, primarily as a result of recognized gross interest income on securities.

Liquidity and Capital Resources

As of March 31, 2019, we had \$49.4 million of cash and cash equivalents and \$41.8 million in short-term marketable securities. We believe our cash, cash equivalents, short-term marketable securities and cash flows from operations will be sufficient to support our planned operations for at least the next 12 months. Our future capital requirements will depend on many factors including our growth rate, net revenue retention rates, the timing and extent of spending to support the expansion of sales and marketing and research and development activities, the introduction of new and enhanced offerings, and the continuing market acceptance of our platform. We may in the future enter into arrangements to acquire or invest in complementary businesses, services and technologies, and intellectual property rights. We may be required to seek additional equity or debt financing. If 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, operating results and financial condition may be adversely affected.

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In June 2018, we entered into an amended and restated loan and security agreement, or credit facility, with Silicon Valley Bank (“SVB”), which was amended on March 30, 2018 and June 28, 2018. The agreement provides for up to \$5.0 million in revolving borrowings (subject to increase to \$35.0 million in the lender’s sole discretion). Availability is subject to a formula based on our monthly recurring revenue. Advances under the credit facility accrue interest at a floating per year rate equal to the prime rate plus 0.5%. The credit facility terminates in June 2019, at which time the principal amount of all outstanding advances becomes due and payable. As of March 31, 2019, we did not have any outstanding borrowing under the credit facility.

To secure our obligations under the credit facility, we granted SVB a security interest in substantially all of our tangible and intangible assets, excluding intellectual property. The credit facility contains customary events of default, conditions to borrowing, and covenants, including restrictions on our ability to make acquisitions, make distributions and dividends to stockholders, and maintain certain amounts of cash or debt with other financial institutions. The agreement also includes a financial covenant to maintain a certain adjusted quick ratio, reported quarterly. In the event the accordion feature of the line is utilized the covenants convert to a recurring revenue measurement. During the continuance of an event of default, SVB may accelerate amounts outstanding, terminate the credit facility and foreclose on the collateral. As of March 31, 2019, we were in compliance with all covenants under the terms of the credit facility.

The following table shows our cash flows for the three months ended March 31, 2019 and 2018:

	Three months ended March 31,	
	2019	2018
	(in thousands)	
Net cash used in operating activities	\$(36,189)	\$(12,347)
Net cash provided by (used in) investing activities	(10,035)	879
Net cash provided by financing activities	1,243	112,508

Our cash flows are subject to seasonal fluctuations. A significant portion of our contracts have terms that coincide with our academic customers’ typical fiscal year-end of June 30. Historical experience has shown an increase in new and renewed contracts as well as anniversary billings, all of which immediately precede the beginning of our academic customers’ typical fiscal year-end. We typically invoice SaaS fees annually upfront with credit terms of net 30 or 60 days. In turn, our cash flows from operations are affected by this seasonality and are typically reflected in higher cash flow, accounts receivable and deferred revenue balances for the second and third quarter of each year.

Operating Activities

Net cash provided by operating activities consists primarily of net loss adjusted for certain non-cash items, including stock-based compensation, depreciation and amortization and other non-cash charges, net.

Net cash used in operating activities during the three months ended March 31, 2019 was \$36.2 million, which primarily reflected our net loss of \$16.1 million, offset by non-cash expenses including \$13.9 million of stock-based compensation and \$3.3 million of depreciation and amortization along with other insignificant items. Working capital uses of cash included a net decrease of \$20.7 million in deferred revenue and accounts receivable primarily due to the seasonality of our business where a significant number of customer agreements occur in the second and third quarter of each year and an increase in prepaid expenses and other current assets of \$19.9 million due to prepayment of web hosting costs. Working capital sources of cash included a net increase of \$3.3 million in accounts payable, accrued liabilities and other insignificant items.

Investing Activities

Our investing activities have consisted primarily of business acquisitions, purchases of marketable securities, property and equipment purchases for computer-related equipment and capitalization of software development costs. Capitalized software development costs are related to new applications or improvements to our existing software platform that expand the functionality for our customers. As our business grows, we expect that we will continue to invest in the expansion of, and improvements to, our leased spaces, both domestically and internationally.

Net cash used in investing activities during the three months ended March 31, 2019 was \$10.0 million, consisting primarily of business acquisitions of \$24.8 million, purchases of marketable securities of \$15.4 million, and purchases of property plant and equipment and capitalized software development costs of \$2.3 million. These were offset by \$32.5 million primarily due to cash maturities from our marketable securities and other insignificant items.

Financing Activities

Our financing activities have consisted primarily of proceeds from the common stock offering and the issuance of common stock from employee equity plans.

Net cash provided by financing activities for the three months ended March 31, 2019 was \$1.2 million and consisted of \$1.5 million in proceeds received from the issuance of common stock under employee equity plans, including the exercise of stock options, offset by \$0.3 million in shares repurchased for tax withholdings on vesting of restricted stock.

Contractual Obligations and Commitments

As of March 31, 2019, there were no material changes in our contractual obligations and commitments from those disclosed in the Annual Report on Form 10-K for the year ended December 31, 2018, filed with the Securities and Exchange Commission (“SEC”) on February 20, 2019 other than a new lease agreement that we entered into and commenced during the three months ended March 31, 2019, in Philadelphia, Pennsylvania. The lease term is seven and a half years ending in 2026 and allows for one option to renew for an additional five-year period and one option to terminate after five and a half years into the lease term. The base annual rent is \$36,000 for the remainder of 2019, and an average monthly rent payment of \$23,000 for the remainder of the lease term.

As of March 31, 2019, we have no material commitments for capital expenditures.

Off-Balance Sheet Arrangements

Through March 31, 2019, we did not have any relationships with any entities or financial partnerships, such as structured finance or special purpose entities established for the purpose of facilitating off-balance sheet arrangements or other purposes.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States. The preparation of these 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. On an ongoing basis, we evaluate our estimates and assumptions. Our actual results may differ from these estimates under different assumptions or conditions.

Except for the accounting policies for leases that were updated as a result of adopting ASU No. 2016-02, Leases (see Note 1 in the notes to consolidated financial statements), there have been no changes to our critical accounting policies and estimates described in the Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC on February 20, 2019, that have had a material impact on our condensed consolidated financial statements and related notes.

Recent Accounting Pronouncement

For information on recent accounting pronouncements, see Recent Accounting Pronouncements in the notes to the consolidated financial statements appearing elsewhere in this Quarterly Report on Form 10-Q.

Non-GAAP Financial Measures

In addition to our results determined in accordance with GAAP, we believe the following non-GAAP measures are useful in evaluating our operating performance. We regularly review the measures set forth below as we evaluate our

business.

	Three months ended March 31,	
	2019	2018
	(in thousands)	
Other Financial Data:		
Non-GAAP operating loss ⁽¹⁾	(4,404)	(7,086)
Free cash flow ⁽²⁾	(38,501)	(17,168)

(1) We define non-GAAP operating loss as operating loss before stock-based compensation, accrual and reversal of payroll tax expense on secondary stock purchase transactions, amortization of acquisition-related intangibles and the change in fair value of the contingent liability.

(2) We define free cash flow as net cash used in operating activities less purchases of property and equipment and intangible assets, net of proceeds from disposals of property and equipment.

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We believe non-GAAP operating loss and free cash flow provide investors and other users of our financial information consistency and comparability with our past financial performance and facilitates period-to-period comparisons of operations and liquidity. We believe non-GAAP operating loss 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 for different companies for reasons unrelated to overall operating performance. We consider free cash flow to be an important measure because it measures the amount of cash we generate and reflects changes in working capital. We use non-GAAP operating loss and free cash flow in conjunction with traditional GAAP measures as part of our overall assessment of our performance, including the preparation of our annual operating budget and quarterly forecasts, to evaluate the effectiveness of our business strategies and to communicate with our board of directors concerning our financial performance and liquidity.

Our definitions may differ from the definitions used by other companies and therefore comparability may be limited. In addition, other companies may not publish these or similar metrics. Thus, our non-GAAP operating loss and free cash flow should be considered in addition to, not as substitutes for, or in isolation from, measures prepared in accordance with GAAP.

We compensate for these limitations by providing investors and other users of our financial information, reconciliations of non-GAAP operating loss to the related GAAP financial measure, loss from operations and reconciliations of free cash flow to the related GAAP financial measure of net cash used in operating activities. We encourage investors and others to review our financial information in its entirety, not to rely on any single financial measure and to view non-GAAP operating loss and free cash flow in conjunction with the related GAAP financial measure.

The following table provides a reconciliation of loss from operations to non-GAAP operating loss:

	Three months ended March 31,	
	2019	2018
	(in thousands)	
Loss from operations	\$(19,459)	\$(12,133)
Stock-based compensation	13,938	4,744
Amortization of acquisition-related intangibles	1,137	692
Change in fair value of contingent liability	(20)	(389)
Non-GAAP operating loss	\$(4,404)	\$(7,086)

The following table provides a reconciliation of net cash used in operating activities to free cash flow, a non-GAAP measure:

	Three months ended March 31,	
	2019	2018
	(in thousands)	
Net cash used in operating activities	\$(36,189)	\$(12,347)
Purchases of property and equipment and intangible assets	(2,336)	(4,847)

Proceeds from disposals of property and equipment	24	26
Free cash flow	\$(38,501)	\$(17,168)

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Management believes there have been no material changes to our quantitative and qualitative disclosures about market risks during the three months ended March 31, 2019 compared to those discussed in our Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC on February 20, 2019.

Item 4. Controls and Procedures

Evaluation of disclosure controls and procedures. Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer have evaluated our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended) prior to the filing of this Quarterly Report on Form 10-Q. Based on that evaluation, our Chief Executive Officer and our Chief Financial Officer have concluded that, as of the end of the period covered by this Quarterly Report on Form 10-Q, our disclosure controls and procedures were, in design and operation, effective at a reasonable assurance level.

Changes in internal control over financial reporting. There were no changes in our internal control over financial reporting during the quarter ended March 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent limitation on the effectiveness of internal control. The effectiveness of any system of internal control over financial reporting, including ours, is subject to inherent limitations, including the exercise of judgment in designing, implementing, operating, and evaluating the controls and procedures, and the inability to eliminate misconduct completely. Accordingly, any system of internal control over financial reporting, including ours, no matter how well designed and operated, can only provide reasonable, not absolute assurances. In addition, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. We intend to continue to monitor and upgrade our internal controls as necessary or appropriate for our business, but cannot assure you that such improvements will be sufficient to provide us with effective internal control over financial reporting.

Part II. Other Information

Item 1. Legal Proceedings

We are, and from time to time may be, party to litigation and subject to claims incident to the ordinary course of business. As our growth continues, we may become party to an increasing number of litigation matters and claims. The outcome of litigation and claims cannot be predicted with certainty, and the resolution of these matters could materially affect our future results of operations, cash flows or financial position. We are not presently party to any legal proceedings that in the opinion of management, if determined adversely to us, would individually or taken together have a material adverse effect on our business, operating results, financial condition or cash flows.

Item 1A. Risk Factors

You should carefully consider the following risk factors, in addition to the other information contained in this Quarterly Report on Form 10-Q, including our condensed consolidated financial statements and related notes. If any of the events described in the following risk factors and the risks described elsewhere in this Quarterly Report occur, our business, operating results and financial condition could be seriously harmed. This Quarterly Report on Form 10-Q also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of factors that are described below and elsewhere in this Quarterly Report on Form 10-Q.

We have marked with an asterisk (*) those risks described below that reflect substantive changes from, or additions to, the risks described in our Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC.

Risks Related to Our Business and Industry

We have a history of losses and anticipate that we will continue to incur losses for the foreseeable future and may not achieve or maintain profitability in the future.*

We have incurred net losses of \$16.1 million and \$11.9 million in the three months ended March 31, 2019 and 2018, respectively. We had an accumulated deficit of \$283.6 million at March 31, 2019. We must generate and sustain higher revenue levels in future periods to become profitable, and, even if we do, we may not be able to maintain or increase our profitability. We expect to continue to incur losses for the foreseeable future as we expend substantial financial and other resources on, among other things:

- sales and marketing, including expanding our direct sales organization and marketing programs, particularly for larger customers;
- investments in our research and development team, and the development of new applications and new features for, and enhancements of, our existing applications;
- expansion of our operations and infrastructure, both domestically and internationally; and
- general administration, including legal, accounting, and other expenses related to being a public company.

These expenditures may not result in additional revenue or the growth of our business. We also expect that our revenue growth rate will continue to decline over time. Accordingly, we may not be able to generate sufficient revenue to offset our expected cost increases and achieve and sustain profitability. If we fail to achieve and sustain profitability, the market price of our common stock could decline.

We have a limited operating history, which makes it difficult to evaluate our prospects and future operating results.

We launched Canvas in February 2011 and launched Bridge in February 2015. Our limited operating history makes our ability to forecast future operating results difficult and subjects us to a number of uncertainties, including our ability to plan and model future growth. Our revenue grew 30%, 43%, and 54% in 2018, 2017, and 2016, respectively, compared to the prior year; however, our historical revenue growth is not necessarily indicative of our future performance. We expect our revenue growth rates to continue to slow in future periods due to a number of reasons,

which may include the maturation of our business, slowing demand for our platform and applications, increasing competition, a decrease in the growth of our overall markets, or if we fail, for any reason, to continue to capitalize on growth opportunities, our relative lack of experience with renewals or a decline in available opportunities as a result of our increased market penetration in one or more of our markets.

We have encountered and will encounter risks and uncertainties frequently experienced by growing companies in rapidly changing industries, such as determining appropriate investments of our limited resources, market adoption of our current and future applications, competition from other companies, acquiring and retaining customers, hiring, integrating, training and retaining skilled personnel, developing new applications, determining prices and contract terms for our applications, unforeseen expenses and challenges in forecasting accuracy. If our assumptions regarding these risks and uncertainties, which we use to plan our business, are incorrect or change, or if we do not address these risks successfully, our prospects, operating results and business could be harmed.

We depend on new customer acquisition and expansion and customer renewals to grow our business.

We derive, and expect to continue to derive, a substantial majority of our revenue from the sale of new subscriptions or renewals of subscriptions to our learning management platform and applications. Our growth today is primarily driven by new subscriptions. Our contracts typically vary in length between one and five years and our customers have no obligation to renew their subscriptions after the expiration of their initial subscription periods. Our customers may elect not to renew or may seek to renew for lower subscription amounts or for shorter contract lengths. Our renewal rates may decline or fluctuate as a result of a number of factors, including limited customer resources, pricing changes, adoption and utilization of our applications and services by our customers, customer satisfaction with our learning management platform and applications, the acquisition of our customers by other companies, procurement or budgetary decisions from legislative or other regulatory bodies, and deteriorating general economic conditions. As our customer base continues to grow, renewals will become an increasingly important part of our results. If our customers do not renew their subscriptions for our learning management platform and applications, or decrease the amount they spend with us, our revenue will decline and our business will be harmed.

Because our recent growth has resulted in the rapid expansion of our business, we do not have a long history upon which to base forecasts of customer renewal rates or future revenue. As a result, our future operating results may be significantly below the expectations of investors, which could harm the market price of our common stock.

We have a limited history with our subscription and pricing models and changes in our models could adversely affect our revenue, gross profit and financial position.

We have limited experience with respect to determining the optimal prices and contract length for our platform and applications, in particular with Bridge, and as a result, we have in the past and expect in the future that we will need to change our pricing model or contract length from time to time. For example, in January 2017, we raised our subscription prices for Canvas for higher education institutions. As the market for our platform and applications grows, as new competitors introduce new competitive applications or services, or as we enter into new international markets, we may be unable to attract new customers at the same price or based on the same pricing models we have historically used, or for contract lengths consistent with our historical averages. Pricing and contract length decisions may also impact the mix of adoption among our applications and negatively impact our overall revenue. Moreover, larger organizations may demand substantial price concessions or shorter contract durations. As a result, in the future we may be required to reduce our prices or offer shorter contract durations, which could adversely affect our revenue, gross profit and financial position.

We may experience quarterly fluctuations in our operating results due to a number of factors, which makes our future results difficult to predict and could cause our operating results to fall below expectations.

Our quarterly operating results have fluctuated in the past and we expect them to fluctuate in the future due to a variety of factors, many of which are outside of our control. As a result, our past results may not be indicative of our future performance, and comparing our operating results on a period-to-period basis may not be meaningful. In addition to the other risks described in this Quarterly Report on Form 10-Q, factors that may affect our quarterly operating results include:

- changes in spending on learning, assessment, development or engagement systems by our current or prospective customers;
- pricing our applications effectively so that we are able to attract and retain customers without compromising our operating results;
- attracting new customers and increasing our existing customers' use of our applications;
- customer renewal rates and the amounts for which agreements are renewed;
 - awareness of our brands;
- changes in the competitive dynamics of our market, including consolidation among competitors or customers and the introduction of new applications or application enhancements;
- changes to the commission plans, quotas and other compensation-related metrics for our sales representatives;

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the amount and timing of payment for operating expenses, particularly research and development, sales and marketing expenses and employee benefit expenses;

- our ability to manage our existing business and future growth, including increases in the number of customers on our platform and the introduction and adoption of our platform in new markets outside of the United States;
- unforeseen costs and expenses related to the expansion of our business, operations and infrastructure, including disruptions in our hosting network infrastructure and privacy and data security;
- foreign currency exchange rate fluctuations; and
- general economic and political conditions in our domestic and international markets.

We may not be able to accurately forecast the amount and mix of future subscriptions, size or duration of contracts, revenue and expenses and, as a result, our operating results may fall below our estimates or the expectations of public market analysts and investors. If our revenue or operating results fall below the expectations of investors, or below any estimates we may provide, the market price of our common stock could decline.

Our business is subject to seasonal sales and customer growth fluctuations which could result in volatility in our operating results.

We have historically experienced a pattern of higher sales and new academic customers in the second and third quarters, as a result of school procurement periods, which are typically based on a fiscal year ending June 30. This has resulted in lower sequential sales and customer growth in the other quarters of the year. As we attempt to expand the number of our corporate customers, we may see changes to this pattern of seasonality. Seasonality may cause our sales and customer growth to vary from quarter-to-quarter depending on the variability in the volume and timing of sales and renewals. These factors, among other things, make forecasting more difficult and may adversely affect our ability to predict financial results accurately, which could result in volatility or adversely affect the market price of our common stock.

We could lose revenue if there are changes in the spending policies or budget priorities for government funding of colleges, universities, schools and other education providers.

Our Canvas customers include colleges, universities, K-12 schools and other education providers, many of which depend substantially on government funding. Accordingly, any general decrease, delay or change in federal, state or local funding for colleges, universities, schools and other education providers could cause our current and potential customers to reduce their purchases of Canvas and related services, or decide not to renew their subscriptions, any of which could cause us to lose customers and revenue. In addition, a specific reduction in governmental funding support for learning management systems could also cause us to lose customers and revenue.

Because we generally recognize revenue from subscriptions ratably over the term of the agreement, near term changes in sales may not be reflected immediately in our operating results.

We offer our platform and learning, assessment, development and engagement applications primarily through multi-year subscription agreements and generally recognize revenue ratably over the related subscription period. As a result, much of the revenue we report in each quarter is derived from agreements entered into during prior quarters or years. A decline in new or renewed subscriptions in any one quarter is not likely to be reflected immediately in our revenue results for that quarter. However, declines would negatively affect our revenue and deferred revenue balances in future periods, and the effect of significant downturns in sales and market acceptance of our platform and applications, and potential changes in our rate of renewals, may not be fully reflected in our results of operations until future periods. Our subscription model also makes it difficult for us to rapidly increase our total revenue and deferred revenue balance through additional sales in any period, as revenue from new customers is recognized over the applicable subscription term.

If the markets for our applications develop more slowly than we expect, our growth may slow or stall, and our operating results would be harmed.

The markets for learning, assessment, development and engagement systems is still evolving, and we depend on continued growth of these markets. In particular, we do not know whether the trend of adoption of cloud-based learning management systems we have experienced with our academic customers in the past will continue in the future. To date, we have derived a substantial majority of our revenue from Canvas. A critical factor for our continued growth is our ability to sell Canvas to new customers in K-12 and higher education. The adoption trend for our academic customers is subject to influence from federal, state and local policymakers. We launched Bridge in February 2015. Given our limited history with corporate customers, we do not know whether companies will adopt cloud-based learning, development and engagement systems, or what prices or contract terms to which they will agree. We will incur substantial operating costs, particularly in sales and marketing and research and development, in attempting to develop these markets. If the market for Canvas does not continue to grow, or grows more slowly than we expect, or if the market for Bridge does not develop as we anticipate, our operating results would be harmed.

If we fail to effectively develop and expand our sales and marketing capabilities, our ability to increase our customer base and increase the market share of our learning management platform and applications could be harmed.

To increase the number of customers and increase the market share of our platform and applications, we will need to expand our sales and marketing operations, including our domestic and international sales force. We will continue to dedicate significant resources to sales and marketing programs. The effectiveness of our inbound sales and marketing has varied over time and, together with the effectiveness of any international resellers we may engage, may vary in the future. Our business will be harmed if our efforts do not generate a correspondingly significant increase in revenue. We may not achieve anticipated revenue growth from expanding our sales force if we are unable to hire, develop and retain talented sales personnel, if our new sales personnel are unable to achieve desired productivity levels in a reasonable period of time or if our sales and marketing programs are not effective.

We face significant competition from both established and new companies offering learning, assessment, development and engagement systems, which may harm our ability to gain new customers, retain existing customers and grow our business.

The learning, assessment, development and engagement systems market is evolving, highly competitive and significantly fragmented, particularly in the K-12 and corporate markets. With the introduction of new technologies and the potential entry of new competitors into the market, we expect competition to persist and intensify in the future, which could harm our ability to increase sales, maintain or increase renewals and maintain our prices.

We face intense competition from other software companies that develop learning management systems. Canvas primarily competes with systems offered by Blackboard, D2L and Moodle. Bridge primarily competes with systems offered by Cornerstone OnDemand, Saba Software and SumTotal Systems (owned by Skillsoft) along with dozens of small, specialized systems for specific industries to large, generalized systems provided as part of a larger human resources management suite. Competition could significantly impede our ability to sell or renew subscriptions to our platform and applications on terms favorable to us. Our current and potential competitors may develop and market new technologies that render our existing or future applications less competitive, unmarketable or obsolete. In addition, if these competitors develop applications with similar or superior functionality to our software, we may need to decrease the prices or accept less favorable terms for our subscriptions in order to remain competitive. If we are unable to maintain our pricing due to competitive pressures, margins will be reduced and operating results will be negatively affected.

Current competitors have, and potential competitors may have, significantly more financial, technical, marketing and other resources than us, and may be able to devote greater resources to the development, promotion, sale and support of their applications and services, have more extensive customer bases and broader customer relationships, and longer

operating histories and greater name recognition than us. As a result, these competitors may be better able to respond quickly to new technologies and to undertake more extensive marketing campaigns. In a few cases, these vendors may also be able to offer additional software at little or no additional cost by bundling them with their existing suite of applications. To the extent any competitor has existing relationships with potential customers for other applications, those customers may be unwilling to purchase our software because of their existing relationships with the competitor. If we are unable to compete with such companies, the demand for our platform and applications could be adversely affected.

In addition, if one or more competitors were to merge or partner with another competitor, our ability to compete effectively could be adversely affected. Competitors may also establish or strengthen cooperative relationships with current or future distribution or technology partners or other parties with whom we have relationships, thereby limiting our ability to sell our applications. We may not be able to compete successfully against current or future competitors, and competitive pressures may harm our business, operating results and financial condition.

If we fail to adapt and respond effectively to rapidly changing technology, evolving industry standards and changing customer needs or requirements, our platform and applications may become less competitive.

Our future success depends on our ability to adapt and enhance our platform and applications. To attract new customers and increase revenue from existing customers, we need to continue to enhance and improve our application offerings, features and enhancements to meet customer needs at prices that our customers are willing to pay. Such efforts will require adding new functionality and responding to technological advancements, which will increase our research and development costs. If we are unable to develop applications that address customers' needs, or enhance and improve our platform in a timely manner, we may not be able to maintain or increase market acceptance of our platform and applications. Further, our competitors may expend a considerably greater amount of funds on their research and development programs, and those that do not may be acquired by larger companies that would allocate greater resources to our competitors' research and development programs. If we fail to maintain adequate research and development resources or compete effectively with the research and development programs of our competitors our business could be harmed. Our ability to grow is also subject to the risk of future disruptive technologies. Access and use of our platform and applications is provided via the internet, which, itself, was disruptive to the previous enterprise software model. If new technologies emerge that are able to deliver learning management software and related applications at lower prices, more efficiently, more conveniently or more securely, such technologies could adversely affect our ability to compete.

The length and unpredictability of the sales cycle for our platform and applications could delay new sales and cause our revenue for any given quarter to fail to meet our estimates or market expectations.

The sales cycle between our initial contact with a potential customer and the signing of a subscription agreement varies. As a result of the variability and length of the sales cycle, we have only a limited ability to forecast the timing of sales. A delay in or failure to complete sales could harm our business and financial results, and could cause our financial results to vary significantly from period to period. Our sales cycle varies widely, reflecting differences in potential customers' decision-making processes, procurement requirements and budget cycles, and is subject to significant risks over which we have little or no control, including:

- customers' budgetary constraints and priorities;
- the timing of customers' budget cycles;
- the need by some customers for lengthy evaluations that often include both their administrators and faculties; and
- the length and timing of customers' approval processes.

Potential customers typically conduct extensive and lengthy evaluations before committing to our applications and services and generally require us to expend substantial time, effort and money educating them as to the value of our offerings.

Our business outside the United States exposes us to risks associated with international operations.*

For the three months ended March 31, 2019, 21% of our revenue was derived from outside the United States. We opened our international headquarters in London, England in June 2014 and have offices in Sydney, Australia, Hong Kong, Sao Paulo, Brazil and Budapest, Hungary. Our growth strategy involves the further expansion of our operations and customer base internationally. Our current international operations and future initiatives will involve a variety of risks, including:

- more stringent regulations relating to data security and the unauthorized use of, or access to, commercial and personal information, particularly in the European Union;
- technical or latency issues in delivering our platform and applications;
- dependence on certain third parties, including potential resellers with whom we do not have extensive experience;
- unexpected changes in regulatory requirements, taxes or trade laws;
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differing labor regulations, especially in the European Union, where labor laws are generally more advantageous to employees as compared to the United States, including deemed hourly wage and overtime regulations in these locations;

• challenges inherent in efficiently managing an increased number of employees over large geographic distances, including the need to implement appropriate systems, policies, benefits and compliance programs;

• difficulties in maintaining our company culture with a dispersed and distant workforce;

• difficulties in managing a business in new markets with diverse cultures, languages, customs, legal systems, alternative dispute systems and regulatory systems;

• currency exchange rate fluctuations and the resulting effect on our revenue and expenses, and the cost and risk of entering into hedging transactions if we choose to do so in the future;

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• limitations on our ability to reinvest earnings from operations in one country to fund the capital needs of our operations in other countries;

• limited or insufficient intellectual property protection;

• political instability or terrorist activities;

• requirements to comply with foreign privacy and information security laws and regulations and the risks and costs of non-compliance;

• likelihood of potential or actual violations of domestic and international anticorruption laws, such as the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act, or of U.S. and international export control and sanctions regulations, which likelihood may increase with an increase of sales or operations in foreign jurisdictions and operations in certain industries; and

• adverse tax burdens and foreign exchange controls that could make it difficult to repatriate earnings and cash. For example, in June 2016, the electorate in the United Kingdom voted in favor of leaving the European Union (commonly referred to as “Brexit”). The U.K. government delivered notice of withdrawal in March 2017. The withdrawal of the U.K. from the European Union will take effect either on the effective date of the withdrawal agreement or, in the absence of agreement, October 31, 2019. The withdrawal of the U.K. from the European Union has involved a process of lengthy negotiations between the U.K. and European Union member states to determine the future terms of the U.K.’s relationship with the European Union. Depending on the terms of Brexit, the U.K., where we operate our international headquarters, could lose the benefits of global trade agreements negotiated by the European Union on behalf of its members, which may result in increased trade barriers which could make our doing business in Europe more difficult. In addition, currency exchange rates for the British Pound and the Euro with respect to each other and the U.S. dollar have already been affected by Brexit. Should this foreign exchange volatility continue, it could cause volatility in our quarterly financial results. In any event, we cannot predict to what extent these changes will impact our business or results of operations, or our ability to conduct operations in Europe.

Our limited experience in operating our business internationally increases the risk that any potential future expansion efforts that we may undertake will not be successful. If we invest substantial time and resources to expand our international operations and are unable to do so successfully and in a timely manner, our business and operating results will be harmed.

If we fail to offer high-quality professional services and support, our business and reputation may suffer.

High-quality professional services and support, including training, implementation and consulting services, are important for the successful marketing, sale and use of our learning management platform and applications and for the renewal of existing customers. The importance of high-quality professional services and support will increase as we expand our business and pursue new customers. If we do not provide effective ongoing support, our ability to sell additional functionality and services to, or to retain, existing customers may suffer and our reputation with existing or potential customers may be harmed.

If we fail to manage our growth effectively or our business does not grow as we expect, our operating results may suffer.*

Our employee base and operations have grown in a relatively short period of time. Our full-time employee base grew from 1,177 employees as of March 31, 2018 to 1,291 employees as of March 31, 2019. Our growth has placed, and will continue to place, a significant strain on our operational, financial and management infrastructure. We anticipate further increases in headcount will be required to support increases in our application offerings and continued expansion. To manage this growth effectively, we must continue to improve our operational, financial and management systems and controls by, among other things:

- effectively attracting, training and integrating a large number of new employees, particularly technical personnel and members of our management and sales teams;
-

further improving our key business systems, processes and information technology infrastructure to support our business needs;

•enhancing our information and communication systems to ensure that our employees are well-coordinated and can effectively communicate with each other and our customers; and

•improving our internal control over financial reporting and disclosure controls and procedures to ensure timely and accurate reporting of our operational and financial results.

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If we fail to manage our expansion or implement new systems, or if we fail to implement improvements or maintain effective internal controls and procedures, costs and expenses may increase more than expected and we may not expand our customer base, increase renewal rates, enhance existing applications, develop new applications, satisfy customers, respond to competitive pressures, or otherwise execute our business plan. If we are unable to effectively manage our growth, our operating results will be harmed.

We rely on our management team and other key employees, and the loss of one or more key employees could harm our business.*

Our success and future growth depend upon the continued services of our management team, including Dan Goldsmith, our Chief Executive Officer, and other key employees in the areas of engineering, marketing, sales, services and general and administrative functions. From time to time, there may be changes in our management team resulting from the hiring or departure of executives. We also are dependent on the continued service of our existing software engineers and information technology personnel because of the complexity of our software, technologies and infrastructure. We may terminate any employee's employment at any time, with or without cause, and any employee may resign at any time, with or without cause. We do not maintain any "key man" insurance for any employee. The loss of one or more of our key employees could harm our business.

If we fail to attract and retain additional qualified personnel we may be unable to execute our business strategy.

To execute our business strategy, we must attract and retain highly qualified personnel. In particular, we compete with many other companies for software developers with high levels of experience in designing, developing and managing cloud-based software, as well as for skilled information technology, marketing, sales and operations professionals, and we may not be successful in attracting and retaining the professionals we need, in particular in Utah, where we are headquartered. We have from time to time experienced, and we expect to continue to experience, difficulty in hiring and retaining highly skilled employees with appropriate qualifications which may, among other things, impede our ability to execute our software development and sales strategies. Many of the companies with which we compete for experienced personnel have greater resources than we do. In addition, in making employment decisions, particularly in the software industry, job candidates often consider the value of the stock options or other equity incentives they are to receive in connection with their employment. If the price of our stock declines, or experiences significant volatility, our ability to attract or retain qualified employees will be adversely affected. If we fail to attract new personnel or fail to retain and motivate our current personnel, our growth prospects could be harmed.

If we cannot maintain our company culture as we grow, we could lose the innovation, teamwork, passion and focus on execution that we believe contribute to our success and our business may be harmed.

We believe that a critical component to our success has been our company culture, which is based on dedication to customer experience, openness, ownership, trust, integrity, excellence and simplicity. We have invested substantial time and resources in building our team within this company culture. If we fail to preserve our culture our ability to retain and recruit personnel and to effectively focus on and pursue our corporate objectives could be harmed. As we grow and develop the infrastructure of a public company, we may find it difficult to maintain these important aspects of our company culture. If we fail to maintain our company culture, our business may be harmed.

If we do not maintain the compatibility of our applications and platform with third-party applications that our customers use in their businesses or schools, our revenue will decline.

A significant percentage of our customers choose to integrate our applications and platform with certain capabilities of third-party publishers and software providers using application programming interfaces, or APIs. The functionality and popularity of our platform depends, in part, on our ability to integrate our platform with third-party applications and software. Third-party providers of applications may change the features of their applications and software, restrict our access to their applications and software or alter the terms governing use of their applications and access to those

applications and software in an adverse manner. Such changes could functionally limit or terminate our ability to use these third-party applications and software in conjunction with our platform, which could negatively impact our offerings and harm our business. If we fail to integrate our platform with new third-party applications and software that our customers utilize, we may not be able to offer the functionality that our customers need, which would negatively impact our ability to generate revenue and adversely impact our business.

If our network or computer systems are breached or unauthorized access to customer data is otherwise obtained, our platform and applications may be perceived as insecure and we may lose existing customers or fail to attract new customers, our reputation may be damaged and we may incur significant liabilities.

Use of our platform and applications involve the storage, transmission and processing of our customers' data, including personal or identifying information regarding their students or employees. Cyber-attacks and other malicious internet-based activities continue to increase generally, and cloud-based platform providers of software and services have been targeted. If any unauthorized access to or security breaches of our platform, or those of our service providers, occurs, or is believed to have occurred, such an event or perceived event could result in the loss of data, loss of intellectual property or trade secrets, loss of business, severe reputational or brand damage adversely affecting customer or investor confidence, regulatory investigations and orders, litigation, indemnity obligations, damages for contract breach, penalties for violation of applicable laws, regulations, or contractual obligations, and significant costs for remediation that may include liability for stolen assets or information and repair of system damage that may have been caused, incentives offered to customers or other business partners in an effort to maintain business relationships after a breach, and other liabilities. Additionally, any such event or perceived event could impact our reputation, harm customer confidence, hurt our sales and expansion into existing and new markets, or cause us to lose existing customers. We could be required to expend significant capital and other resources to alleviate problems caused by such actual or perceived breaches and to remediate our systems, we could be exposed to a risk of loss, litigation or regulatory action and possible liability, and our ability to operate our business may be impaired. Additionally, actual, potential or anticipated attacks may cause us to incur increasing costs, including costs to deploy additional personnel and protection technologies, train employees and engage third-party experts and consultants. Moreover, failure to maintain effective internal accounting controls related to data security breaches and cybersecurity in general could impact our ability to produce timely and accurate financial statements and could subject us to regulatory scrutiny.

In addition, if the security measures of our customers are compromised, even without any actual compromise of our own systems, we may face negative publicity or reputational harm if our customers or anyone else incorrectly attributes the blame for such security breaches to us or our systems. If customers believe that our platform and applications do not provide adequate security for the storage of personal or other sensitive information or its transmission over the internet, our business will be harmed. Customers' concerns about security or privacy may deter them from using our platform for activities that involve personal or other sensitive information.

Our errors and omissions insurance covering certain security and privacy damages and claim expenses may not be sufficient to compensate for all liability. Although we maintain liability insurance for liabilities incurred as a result of some security and privacy damages, we cannot be certain that our coverage will be adequate for liabilities actually incurred or that insurance will continue to be available to us on economically reasonable terms, or at all. Because the techniques used and vulnerabilities exploited to obtain unauthorized access or to 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 vulnerabilities or implement adequate preventative measures. We may also experience security breaches that may remain undetected for an extended period.

Because data security is a critical competitive factor in our industry, we make public statements in our privacy policies describing the security of our platform. Should any of these statements be untrue, become untrue, or be perceived to be untrue, even if through circumstances beyond our reasonable control, we may face claims, including claims of unfair or deceptive trade practices, brought by the U.S. Federal Trade Commission, or FTC, state, local, or foreign regulators, and private litigants.

Interruptions or performance problems associated with our technology and infrastructure may adversely affect our business and operating results.

Our continued growth depends in part on the ability of our existing and potential customers to access our applications at any time. We have experienced, and may in the future experience, disruptions, outages and other performance

problems due to a variety of factors, including infrastructure changes, introductions of new functionality, human or software errors, distributed denial of service attacks, or other security related incidents. In some instances, we may not be able to identify the cause or causes of these performance problems within an acceptable period of time. It may become increasingly difficult to maintain and improve our performance, especially during peak usage times and as our platform becomes more complex and our user traffic increases. If our platform and applications are unavailable or if our users are unable to access our applications within a reasonable amount of time or at all, our business will be harmed.

Moreover, our standard customer agreements include performance guarantees and service level standards that obligate us to provide credits or termination rights in the event of a significant disruption in our platform. To the extent that our third-party service providers experience outages, or to the extent we do not effectively address capacity constraints, upgrade our systems as needed, and continually develop our technology and network architecture to accommodate actual and anticipated changes in technology, our business and operating results may be adversely affected.

Our use of “open source” software could negatively affect our ability to offer our platform and applications and subject us to possible litigation.

Our applications, in particular a substantial portion of Canvas, use “open source” software that we, in some cases, have obtained from third parties. Open source software is generally freely accessible, usable and modifiable, and is made available to the general public on an “as-is” basis under the terms of a non-negotiable license. Use and distribution of open source software may entail greater risks than use of third-party commercial software. Open source licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the code. In addition, certain open source licenses, like the GNU Affero General Public License, or AGPL, may require us to offer for no cost the components of our software that incorporate the open source software, to make available source code for modifications or derivative works we create based upon incorporating or using the open source software, or to license our modifications or derivative works under the terms of the particular open source license. If we are required, under the terms of an open source license, to release the source code of our proprietary software to the public, our competitors could create similar applications with lower development effort and time, which ultimately could result in a loss of sales for us.

We may also face claims alleging noncompliance with open source license terms or infringement or misappropriation of proprietary software. These claims could result in litigation, require us to purchase a costly license or require us to devote additional research and development resources to change our software, any of which would have a negative effect on our business and operating results, including being enjoined from the offering of the components of our software that contained the open source software. In addition, if the license terms for open source software that we use change, and we cannot continue to use the version of such software that we had been using, we may be forced to re-engineer our applications, incur additional costs, or discontinue the sale of applications or services if re-engineering could not be accomplished on a timely basis.

We could also be subject to suits by parties claiming ownership of what we believe to be open source software. Litigation could be costly for us to defend, have a negative effect on our operating results and financial condition and require us to devote additional research and development resources to change our applications. Although we monitor our use of open source software to avoid subjecting our applications to unintended conditions, few courts have interpreted open source licenses, and there is a risk that these licenses could be construed in a way that could impose unanticipated conditions or restrictions on our ability to commercialize our applications. We cannot guarantee that we have incorporated open source software in our software in a manner that will not subject us to liability, or in a manner that is consistent with our current policies and procedures.

We make a substantial portion of the source code for Canvas available under the terms of an open source license, and accept contributions of modifications to that source code, each of which could negatively affect our ability to offer our platform and applications and subject us to possible litigation.

To promote our open platform philosophy, we make a substantial portion of the source code for Canvas available to the public on the “GitHub” platform for no charge, under the terms of the AGPL. An individual or entity with the appropriate technical and human resources may choose to use this open source version of Canvas to try to self-host the platform to avoid paying any fees to us. In addition, some individuals or entities may try to use the open source version of Canvas for commercial purposes and directly compete with us for customers. We are aware of a few entities that currently self-host the platform and are aware of some entities that are currently selling hosting and support services. If more customers decide to self-host or other entities use the base code to compete with us, we may experience lower revenue and our business may be harmed.

We accept modifications of the source code for Canvas from contributors who agree to the terms of our contributor agreement. Our contributor agreement provides for assignment of joint ownership in the copyright to the contribution, and a license to any patent rights of the contributor. Contributors must also represent that it is an original work and that the contribution does not violate any third-party intellectual property right. However, we cannot ensure that any of

these contributions is free of all third-party rights and claims of intellectual property infringement or misappropriation. By incorporating any contribution into our code base, we may be subject to intellectual property infringement or misappropriation claims, which as discussed elsewhere, are costly to defend and could require costly re-writing of our code base or licensing of replacement third-party solutions. Third-party alternatives may not be available to us on commercially reasonable terms.

Our business is dependent upon our brand recognition and reputation, and if we fail to maintain or enhance our brand recognition or reputation, our business could be harmed.

We believe that maintaining and enhancing our brands and our reputation are critical to our relationships with our customers and to our ability to attract new customers. We also believe that our brands and reputation will be increasingly important as competition in our markets continues to develop. Our success in this area will depend on a wide range of factors, some of which are beyond our control, including the following:

- the efficacy of our marketing efforts;
- our ability to continue to offer high-quality, innovative and error- and bug-free applications;
- our ability to retain existing customers and obtain new customers;
- our ability to maintain high customer satisfaction;
- the quality and perceived value of our applications;
- our ability to successfully differentiate our applications from those of our competitors;
- actions of competitors and other third parties;
- our ability to provide customer support and professional services;
- any misuse or perceived misuse of our applications;
- positive or negative publicity;
- interruptions or delays on our platform or applications;
- cyber-attacks on or security breaches of our platform and applications or the platforms of certain of our subcontractors; and
- litigation, legislative or regulatory-related developments.

If our brand promotion activities are not successful, our operating results and growth may be harmed.

Furthermore, negative publicity, whether or not justified, relating to events or activities attributed to us, our employees, our partners or others associated with any of these parties, may tarnish our reputation and reduce the value of our brand. Damage to our reputation and loss of brand equity may reduce demand for our applications and have an adverse effect on our business, operating results and financial condition. Moreover, any attempts to rebuild our reputation and restore the value of our brands may be costly and time consuming, and such efforts may not ultimately be successful.

We rely upon Amazon Web Services to operate certain aspects of our service and any disruption of or interference with our use of Amazon Web Services could impair our ability to deliver our platform and applications to our customers, resulting in customer dissatisfaction, damage to our reputation, loss of customers and harm to our business.

Amazon Web Services, or AWS, provides a distributed computing infrastructure platform for business operations, or what is commonly referred to as a cloud computing service. We have designed our software and computer systems to use data processing, storage capabilities and other services provided by AWS. Currently, our cloud service infrastructure is run on AWS. Given this, we cannot easily switch our AWS operations to another cloud provider, so any disruption of or interference with our use of AWS would impact our operations and our business would be adversely impacted. AWS provides us with computing and storage capacity pursuant to an agreement that continues until terminated by either party. AWS may terminate the agreement without cause by providing 90 days' prior written notice, and may terminate the agreement with 30 days' prior written notice for cause, including any material default or breach of the agreement by us that we do not cure within the 30-day period. The agreement requires AWS to provide us their standard computing and storage capacity and related support in exchange for timely payment by us. If any of our arrangements with AWS is terminated, we could experience interruptions in our software as well as delays and additional expenses in arranging new facilities and services.

We utilize third-party data center hosting facilities operated by AWS, located in various sites within the states of Virginia and Oregon. For international customers, we utilize third-party data center hosting facilities operated by AWS located in Dublin, Ireland, Frankfurt, Germany, Sydney, Australia, Montreal, Canada and Singapore.

Our operations depend, in part, on AWS's abilities to protect these facilities against damage or interruption from natural disasters, power or telecommunications failures, criminal acts and similar events. Despite precautions taken at our data centers, the occurrence of spikes in usage volume, a natural disaster, an act of terrorism, vandalism or sabotage, a decision to close a facility without adequate notice, or other unanticipated problems at a facility could result in lengthy interruptions in the availability of our platform. Even with current and planned disaster recovery arrangements, our business could be harmed. Also, in the event of damage or interruption, our insurance policies may not adequately compensate us for any losses that we may incur. These factors in turn could further reduce our revenue, subject us to liability and cause us to issue credits or cause customers to fail to renew their subscriptions, any of which could harm our business.

We are dependent on the continued availability of the internet and third-party computer and communications systems.

Our ability to provide our platform and applications to our customers depends on our ability to communicate with our customers through the public internet and third-party computer and communications systems. A severe disruption of one or more of these systems could impair our ability to process information, which could impede our ability to provide services to our customers, harm our reputation, result in a loss of customers and harm our business and operating results.

Real or perceived errors, failures, or bugs in our platform or applications could adversely affect our operating results and growth prospects.

We push updates to our platform on a frequent basis. Despite testing by us, errors, failures or bugs may not be found in our platform or applications until after they are deployed to our customers. We have discovered and expect we will continue to discover software errors, failures and bugs in our platform or applications and anticipate that certain of these errors, failures and bugs will only be discovered and remediated after deployment to customers. Real or perceived errors, failures or bugs in our platform and applications could result in negative publicity, loss of or delay in market acceptance of our platform and applications, loss of competitive position, or claims by customers for losses sustained by them. In such an event, we may be required, or may choose, for customer relations or other reasons, to expend additional resources in order to help correct the problem.

We implement bug fixes and upgrades as part of our regular system maintenance, which may lead to system downtime. Even if we are able to implement the bug fixes and upgrades in a timely manner, any history of defects or inaccuracies in the data we collect for our customers, or the loss, damage or inadvertent release of confidential data could cause our reputation to be harmed, and customers may elect not to purchase or renew their agreements with us or we may incur increased insurance costs. The costs associated with any material defects or errors in our software or other performance problems may be substantial and could harm our operating results.

Because many of our customers use our applications to store and retrieve critical information, we may be subject to liability claims if our applications do not work properly. We cannot be certain that the limitations of liability set forth in our licenses and agreements would be enforceable or would otherwise protect us from liability for damages. A material liability claim against us, regardless of its merit or its outcome, could result in substantial costs, significantly harm our business reputation and divert management's attention from our operations.

We are subject to governmental laws, regulation and other legal obligations, particularly related to privacy, data protection and information security, and any actual or perceived failure to comply with such obligations could harm our business.

Personal privacy and information security are significant issues in the U.S. and the other jurisdictions where we offer our applications. The legislative and regulatory framework for privacy and security issues worldwide is rapidly evolving and is likely to remain uncertain for the foreseeable future. Our handling of data is subject to a variety of laws and regulations, including laws and regulations enforced by various government agencies, such as the Federal

Trade Commission, or FTC, and various state, local and foreign agencies. We collect personally identifiable information, or PII, and other data from our employees, customers and users. We use this information to provide services to our customers and users and to operate, support, expand and improve our business. We may also share customers' or users' PII with third parties as allowed by applicable law and agreements, as authorized by the customer, or as described in our privacy policies.

The U.S. federal and various state and foreign governments have adopted or proposed limitations on the collection, distribution, use and storage of PII. In the U.S., the FTC and many state attorneys general are applying federal and state consumer protection laws to impose standards on the online collection, use and dissemination of data. Furthermore, many states have enacted laws that apply directly to the operators of online services that are intended for K-12 school purposes or are proposing legislation to mandate privacy and data security obligations on the collection, use, and disclosure of PII generally. For example, the recently enacted California Consumer Privacy Act, or CCPA, which is scheduled to take effect on January 1, 2020, imposes a number of privacy and security obligations on companies who process PII of California residents. These laws may impose limits on the collection, distribution, use and storage of student PII. Many foreign countries and governmental bodies, including the European Union, or EU, Canada, Australia and other jurisdictions, have laws and regulations concerning the collection and use of PII obtained from their residents or by businesses operating within their jurisdiction. These laws and regulations often are more restrictive than those in the U.S. Laws and regulations in these jurisdictions may apply broadly to the collection, use, storage, disclosure and security of data that identifies or may be used to identify or locate an individual, such as names, email addresses and, in some jurisdictions, Internet Protocol, or IP, addresses and other online identifiers. We publicly post our privacy policies and practices concerning our processing, use and disclosure of PII. Our publication of our privacy policy and other statements we publish that provide promises and assurances about privacy and security can subject us to potential state and federal action if they are found to be deceptive or misrepresentative of our practices.

In the EU, where companies must meet specified privacy and security standards, the General Data Protection Regulation, or GDPR, became enforceable on May 25, 2018. The GDPR introduced new and enhanced data protection requirements throughout the EU and significant penalties of up to the greater of 4% of worldwide turnover and €20 million for violations of data protection rules. We are actively working to ensure ongoing compliance with the GDPR. We may find it necessary to establish systems to maintain EU-origin data in the European Economic Area, or EEA, or to amend agreements with our customers which may involve substantial expense and distraction from other aspects of our business. In addition, data protection authorities in each member state of the EU will still have the ability to interpret certain aspects of the GDPR, which has the potential to create inconsistencies on a country-by-country basis. Ongoing implementation of the GDPR could require us to change certain business practices and result in increased costs. Further, the EU's proposed ePrivacy Regulation is currently under discussion by EU member states to complement and bring electronic communications services in line with the GDPR and force a harmonized approach across EU member states. Although it remains under debate, drafts of the proposed ePrivacy Regulation would alter rules on third-party cookies, web beacons and similar technologies, and significantly increase penalties for non-compliance. We cannot yet determine the impact such future laws, regulations, and standards may have on our business.

We rely on adherence to the EU-U.S. Privacy Shield and Swiss-U.S. Privacy Shield Frameworks, as agreed to and set forth by the U.S. Department of Commerce, and the European Union and Switzerland, which established a means for legitimizing the transfer of PII by U.S. companies doing business in the EU from the EEA to the U.S. In light of the continued uncertainty around cross-border data transfer, we have engaged in efforts to legitimize data transfers from the EEA through means other than the Privacy Shield Frameworks, such as through the use of so-called 'model contract clauses' developed by the European Commission. We may experience hesitancy, reluctance, or refusal by European or multi-national customers to continue to use our services due to the potential risk exposure to such customers as a result of the uncertainty around the legality of cross-border data transfer methods on which we rely. Ongoing legal challenges to the Privacy Shield Framework and 'model contract clauses' may render either or both methods invalid or could result in further limitations on the ability to transfer data across borders. Additionally, certain countries have passed or are considering passing laws requiring local data residency.

Although we are working to comply with those federal, state, and foreign laws and regulations, industry standards, contractual obligations and other legal obligations that apply to us, those laws, regulations, standards and obligations are evolving and may be modified, interpreted and applied in an inconsistent manner from one jurisdiction to another, and may conflict with one another, other requirements or legal obligations, our practices or the features of our

applications or platform. Any failure or perceived failure by us to comply with federal, state or foreign laws or regulations, industry standards, contractual obligations 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 PII 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. Any inability to adequately address privacy and security concerns, even if unfounded, or comply with applicable laws, regulations, policies, industry standards, contractual obligations, or other legal obligations could result in additional cost and liability to us, damage our reputation, inhibit sales, and materially adversely affect our business.

We also expect that there will continue to be new proposed laws, regulations and industry standards concerning privacy, data protection and information security in the U.S., the EU and other jurisdictions, 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 applications, 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. Such laws and regulations may require companies to implement or update privacy and security policies, permit users to access, correct and delete personal information stored or maintained by such companies, inform individuals of security breaches that affect their personal information, and, in some cases, obtain individuals' consent to use PII for certain purposes. In addition, a foreign government could require that any PII collected in a country not be disseminated outside of that country, and we are not currently equipped to comply with such a requirement. Other proposed legislation could, if enacted, impose additional requirements and prohibit the use of certain technologies that track individuals' activities on web pages or that record when individuals click through to an internet address contained in an email message. Such laws and regulations could require us to change features of our software or restrict our customers' ability to collect and use email addresses, page viewing data and personal information, which may reduce demand for our software. If we fail to comply with federal, state and international data privacy laws and regulations our ability to successfully operate our business and pursue our business goals could be harmed.

We also may find it necessary or desirable to join industry or other self-regulatory bodies or other privacy- or data protection-related organizations that require compliance with their rules pertaining to privacy and data protection. We also may be bound by additional, more stringent contractual obligations relating to our collection, use and disclosure of personal, financial and other data.

We are subject to contractual clauses that require us to comply with certain provisions of the Family Educational Rights and Privacy Act and we are subject to the Children's Online Privacy Protection Act, and if we fail to comply with these laws, our reputation and business could be harmed.

The Family Educational Rights and Privacy Act, or FERPA, generally prohibits educational institutions that receive federal funding from disclosing PII from a student's education records without the student's consent. Through Canvas, our academic learning management application, our customers and users disclose to us certain information that may originate from or comprise a student education record, as the term is defined under FERPA. As an entity that provides services to institutions, we are often subject to contractual clauses that impose restrictions derived from FERPA on our ability to collect, process, transfer, disclose, and store student data, under which we may not transfer or otherwise disclose any PII from a student record to another party other than in a manner permitted under the statute. If we violate our obligations to any of our educational institution customers relating to the privacy of student records subject to FERPA, such a violation could constitute material breach of contract with one or more of our customers and could harm our reputation. Further, in the event that we disclose student information in a manner that results in a violation of FERPA by one of our educational customers, the U.S. Department of Education could require that customer to suspend our access to the customer's student information that is covered under FERPA for a period of at least five years.

We are subject to the Children's Online Privacy Protection Act, or COPPA, which applies to operators of commercial websites and online services directed to U.S. children under the age of 13 that collect personal information from children, and to operators of general audience websites with actual knowledge that they are collecting information from U.S. children under the age of 13. Canvas is directed, in part, at children under the age of 13. Through Canvas and other means, we collect certain personal information, including names and email addresses from children. COPPA is subject to interpretation by courts and other governmental authorities, including the FTC, and the FTC is authorized to promulgate, and has promulgated, revisions to regulations implementing provisions of COPPA, and provides

non-binding interpretive guidance regarding COPPA that changes periodically with little or no public notice. Although we strive to ensure that our platform and applications are compliant with applicable COPPA provisions, these provisions may be modified, interpreted, or applied in new manners that we may be unable to anticipate or prepare for appropriately, and we may incur substantial costs or expenses in attempting to modify our systems, platform, applications, or other technology to address changes in COPPA or interpretations thereof. If we fail to accurately anticipate the application, interpretation or legislative expansion of COPPA we could be subject to governmental enforcement actions, litigation, fines and penalties or adverse publicity and we could be in breach of our customer contracts and our customers could lose trust in us, which could harm our reputation and business.

Third-party claims that we are infringing the intellectual property rights of others, whether successful or not, could subject us to costly and time-consuming litigation or require us to purchase expensive licenses, and our business could be harmed.

The software industry is characterized by the existence of a large number of patents, copyrights, trademarks, trade secrets and other intellectual property rights. Companies in the software industry must often defend against litigation claims based on allegations of infringement or other violations of intellectual property rights. Third parties, including our competitors, may own patents or other intellectual property rights that cover aspects of our technology or business methods and may assert patent or other intellectual property rights within the industry. Moreover, in recent years, individuals and groups that are non-practicing entities, commonly referred to as “patent trolls,” have purchased patents and other intellectual property assets for the purpose of making claims of infringement in order to extract settlements. From time to time, we may receive threatening letters, notices or “invitations to license,” or may be the subject of claims that our services or software and underlying technology infringe or violate the intellectual property rights of others. Responding to such claims, regardless of their merit, can be time consuming, costly to defend in litigation, divert management’s attention and resources, damage our reputation and brand and cause us to incur significant expenses. Our technologies may not be able to withstand any third-party claims against their use. Claims of intellectual property infringement might require us to stop using technology found to be in violation of a third-party’s rights, redesign our application, which could require significant effort and expense, and cause delays of releases, enter into costly settlement or license agreements or pay costly damage awards, or face a temporary or permanent injunction prohibiting us from marketing or selling our software. If we cannot or do not license the infringed technology on reasonable terms or at all, or substitute similar technology from another source, we could be forced to limit or stop selling our software, we may not be able to meet our obligations to customers under our customer contracts, our revenue and operating results could be adversely impacted, and we may be unable to compete effectively. Additionally, our customers may not purchase our applications if they are concerned that they may infringe third-party intellectual property rights. The occurrence of any of these events may harm our business.

In our subscription agreements with our customers, we generally agree to indemnify our customers against any losses or costs incurred in connection with claims by a third-party alleging that the customer’s use of our services or software infringes the intellectual property rights of the third-party. Our customers who are accused of intellectual property infringement may seek indemnification from us. If any claim is successful, or if we are required to indemnify or defend our customers from any of these or other claims, these matters could be disruptive to our business and management and result in additional legal expenses.

The success of our business depends in part on our ability to protect and enforce our intellectual property rights.

Our success is dependent, in part, upon protecting our proprietary technology. We do not own any patents and we rely on a combination of copyrights, trademarks, service marks, trade secret laws and contractual restrictions to establish and protect our proprietary rights in our applications and services. However, the steps we take to protect our intellectual property may be inadequate. We will not be able to protect our intellectual property if we are unable to enforce our rights or if we do not detect unauthorized use of our intellectual property. Any of our trademarks or other intellectual property rights may be challenged by others or invalidated through administrative process or litigation. Furthermore, legal standards relating to the validity, enforceability and scope of protection of intellectual property rights are uncertain. Despite our precautions, it may be possible for unauthorized third parties to copy our technology and use information that we regard as proprietary to create applications and services that compete with ours. Some license provisions protecting against unauthorized use, copying, transfer and disclosure of our offerings may be unenforceable under the laws of certain jurisdictions and foreign countries. Our corporate name and the name of our platform and applications have not been trademarked in each market where we operate and plan to operate. If we do not secure registrations for our trademarks, we may encounter more difficulty in enforcing them against third parties. Effective copyright, trademark and trade secret protection may not be available in every country in which our platform and applications are available. The laws of some foreign countries may not be as protective of intellectual property rights as those in the United States, and mechanisms for enforcement of intellectual property rights may be

inadequate. To the extent we expand our international operations, our exposure to unauthorized copying and use of our technology and proprietary information may increase. Accordingly, despite our efforts, we may be unable to prevent third parties from infringing upon or misappropriating our technology and intellectual property.

Although we enter into confidentiality and invention assignment agreements with our employees and consultants and enter into confidentiality agreements with the parties with whom we have strategic relationships and business alliances, no assurance can be given that these agreements will be effective in controlling access to and distribution of our applications and proprietary information or prevent reverse engineering. Further, these agreements may not prevent our competitors from independently developing technologies that are substantially equivalent or superior to our software and offerings, and we may be unable to prevent this competition.

We may be required to spend significant resources to monitor and protect our intellectual property rights. Litigation may be necessary in the future to enforce our intellectual property rights and to protect our trade secrets. Such litigation 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. We may not prevail in any lawsuits that we initiate. Any litigation, whether or not resolved in our favor, could subject us to substantial costs, divert resources and the attention of management and technical personnel from our business and adversely affect our business. Our inability to protect our proprietary technology against unauthorized copying or use, as well as any costly litigation, could delay further sales or the implementation of our software and offerings, impair the functionality of our software and offerings, delay introductions of new features or enhancements, result in our substituting inferior or more costly technologies into our software and offerings, or injure our reputation.

We could face liability, or our reputation might be harmed, as a result of the activities of our customers or users, the content in our platform or the data they store on our servers.

As a provider of cloud-based software, we may be subject to potential liability for the activities of our customers or users on or in connection with the data they store on our servers. Although our customer terms of use prohibit illegal use of our services by our customers and permit us to take down content or take other appropriate actions for illegal use, customers may nonetheless engage in prohibited activities or upload or store content with us in violation of applicable law or the customer's own policies, which could subject us to liability or harm our reputation.

Various U.S. federal statutes may apply to us with respect to various customer activities. The Digital Millennium Copyright Act of 1998, or DMCA, provides recourse for owners of copyrighted material who believe that their rights under U.S. copyright law have been infringed on the internet. Under the DMCA, based on our current business activity as an internet service provider that does not own or control website content posted by our customers, we generally are not liable for infringing content posted by our customers or other third parties, provided that we follow the procedures for handling copyright infringement claims set forth in the DMCA. Generally, if we receive a proper notice from, or on behalf of, a copyright owner alleging infringement of copyrighted material located on websites we host, and we fail to expeditiously remove or disable access to the allegedly infringing material or otherwise fail to meet the requirements of the safe harbor provided by the DMCA, the copyright owner may seek to impose liability on us. Technical mistakes in complying with the detailed DMCA take-down procedures, or if we fail to otherwise comply with the other requirements of the safe harbor, could subject us to liability for copyright infringement.

Although statutes and case law in the United States have generally shielded us from liability for customer activities to date, court rulings in pending or future litigation may narrow the scope of protection afforded us under these laws. In addition, laws governing these activities are unsettled in many international jurisdictions, or may prove difficult or impossible for us to comply with in some international jurisdictions. Also, notwithstanding the exculpatory language of these bodies of law, we may become involved in complaints and lawsuits which, even if ultimately resolved in our favor, add cost to our doing business and may divert management's time and attention. Finally, other existing bodies of law, including the criminal laws of various states, may be deemed to apply or new statutes or regulations may be adopted in the future, any of which could expose us to further liability and increase our costs of doing business.

Additionally, our customers could use our platform or applications to store or process PII, including sensitive PII, without our knowledge of such storage or processing. In the event that our systems experience a data security incident, or an individual or entity accesses information without, or in excess of, proper authorization, we could be subject to data security incident notification laws, as described elsewhere, which may require prompt remediation and notification to individuals. If we are unaware of the data and information stored on our systems, we may be unable to appropriately comply with all legal obligations, and we may be exposed to governmental enforcement or prosecution actions, private litigation, fines and penalties or adverse publicity and these incidents could cause our customers to lose trust in us, which could harm our reputation and business.

Future acquisitions could disrupt our business and may divert management's attention and if unsuccessful, harm our business.

We intend to expand by making acquisitions that could be material to our business. To date, we have only completed four acquisitions and our ability as an organization to successfully acquire and integrate technologies or businesses is unproven and limited. Acquisitions involve many risks, including the following:

- an acquisition may negatively affect our results of operations and financial condition because it may require us to incur charges or assume substantial debt or other liabilities, may cause adverse tax consequences or unfavorable accounting treatment, may expose us to claims and disputes by third parties, including intellectual property claims and disputes, or may not generate sufficient financial return to offset additional costs and expenses related to the acquisition;

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- we may encounter difficulties or unforeseen expenditures in integrating the business, technologies, products, personnel or operations of any company that we acquire, particularly if key personnel of the acquired company decide not to work for us;
- an acquisition may disrupt our ongoing business, divert resources, increase our expenses and distract our management;
- an acquisition may result in a delay or reduction of customer purchases for both us and the company we acquired due to customer uncertainty about continuity and effectiveness of service from either company;
- we may encounter difficulties in, or may be unable to, successfully sell any acquired products;
- an acquisition may involve the entry into geographic or business markets in which we have little or no prior experience or where competitors have stronger market positions;
- challenges inherent in effectively managing an increased number of employees in diverse locations;
- the potential strain on our financial and managerial controls and reporting systems and procedures;
- potential known and unknown liabilities associated with an acquired company;
- our use of cash to pay for acquisitions would limit other potential uses for our cash;
- if we incur debt to fund such acquisitions, such debt may subject us to material restrictions on our ability to conduct our business as well as financial maintenance covenants;
- the risk of impairment charges related to potential write-downs of acquired assets or goodwill in future acquisitions;
- to the extent that we issue a significant amount of equity or equity-linked securities in connection with future acquisitions, existing stockholders may be diluted and earnings per share may decrease; and
- managing the varying intellectual property protection strategies and other activities of an acquired company.

We may not succeed in addressing these or other risks or any other problems encountered in connection with the integration of any acquired business. The inability to integrate successfully the business, technologies, products, personnel or operations of any acquired business, or any significant delay in achieving integration, could harm our business and operating results.

Our ability to raise capital in the future may be limited, and if we fail to raise capital when needed, we could be prevented from growing.

Our business and operations may consume resources faster than we anticipate. While we believe our cash, cash equivalents, short-term marketable securities and cash flows from operations will be sufficient to support our planned operations for at least the next 12 months, in the future, we may need to raise additional funds to invest in future growth opportunities. Additional financing may not be available on favorable terms, if at all. If adequate funds are not available on acceptable terms, we may be unable to invest in future growth opportunities, which could harm our business and operating results. If we incur debt, the debt holders would have rights senior to common stockholders to make claims on our assets. In addition, our credit facility imposes, and future debt instruments may impose, restrictions on our ability to dispose property, make changes in our business, engage in mergers or acquisitions, incur additional indebtedness, and make investments and distributions. Furthermore, if we issue additional equity securities, stockholders will experience dilution, and the new equity securities could have rights senior to those of our common stock. Because our decision to issue securities in any future offering will depend on market conditions and other factors beyond our control, we cannot predict or estimate the amount, timing or nature of our future offerings. As a result, stockholders bear the risk that future securities offerings reduce the market price of our common stock and dilute their interest.

We may be subject to additional obligations to collect and remit sales tax and other taxes, and we may be subject to tax liability for past sales, which could harm our business.

State, local and foreign jurisdictions have differing rules and regulations governing sales, use, value added and other taxes, and these rules and regulations are subject to varying interpretations that may change over time. In particular, the applicability of such taxes to our learning management software in various jurisdictions is unclear. Further, these jurisdictions' rules regarding tax nexus are complex and vary significantly. As a result, we could face the possibility of tax assessments and audits, and our liability for these taxes and associated penalties could exceed our original

estimates. A successful assertion that we should be collecting additional sales, use, value added or other taxes in those jurisdictions where we have not historically done so and do not accrue for such taxes could result in substantial tax liabilities and related penalties for past sales, discourage customers from purchasing our application or otherwise harm our business and operating results.

Changes in tax laws or regulations that are applied adversely to us or our customers could increase the costs of learning management software and adversely impact our business.

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time. Any new taxes could adversely affect our domestic and international business operations, and our business and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us. These events could require us or our customers to pay additional tax amounts on a prospective or retroactive basis, as well as require us or our customers to pay fines or penalties and interest for past amounts deemed to be due. If we raise our prices to offset the costs of these changes, existing and potential future customers may elect not to purchase our learning management platform or applications in the future. Additionally, new, changed, modified or newly interpreted or applied tax laws could increase our customers' and our compliance, operating and other costs, as well as the costs of our software. Any or all of these events could harm our business and operating results.

The recently passed comprehensive tax reform bill could adversely affect our business and financial condition.

On December 22, 2017, President Trump signed into law new legislation that significantly revises the Internal Revenue Code of 1986, as amended. The newly enacted federal income tax law, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law is uncertain and our business and financial condition could be adversely affected. In addition, it is uncertain if and to what extent various states will conform to the newly enacted federal tax law. The impact of this tax reform on holders of our common stock is also uncertain and could be adverse. We urge our stockholders to consult with their legal and tax advisors with respect to this legislation and the potential tax consequences of investing in or holding our common stock.

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

As of March 31, 2019, we had approximately \$287.1 million and \$337.5 million of federal and state net operating loss carryforwards, respectively, available to reduce future taxable income that will begin to expire in 2028 for federal purposes and 2019 for state tax purposes. These net operating loss carryforwards could expire unused and be unavailable to offset future income tax liabilities. Under the newly enacted federal income tax law, federal net operating losses incurred in 2018 and in future years may be carried forward indefinitely, but the deductibility of such federal net operating losses is limited. It is uncertain if and to what extent various states will conform to the newly enacted federal tax law. In addition, under Section 382 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, if a corporation undergoes an "ownership change," which is generally defined as a greater than 50% change, by value, in its equity ownership over a three-year period, the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income or taxes may be limited. We may experience ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control. If an ownership change occurs and our ability to use our net operating loss carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations.

We are a multinational organization faced with increasingly complex tax issues in many jurisdictions, and we could be obligated to pay additional taxes in various jurisdictions.

As a multinational organization, we are subject to taxation in several jurisdictions around the world with increasingly complex tax laws, the application of which can be uncertain. The amount of taxes we pay in these jurisdictions could increase substantially as a result of changes in the applicable tax principles, including increased tax rates, new tax laws or revised interpretations of existing tax laws and precedents, which could harm our liquidity and operating results. In addition, the authorities in these jurisdictions could review our tax returns and impose additional tax, interest and penalties, and the authorities could claim that various withholding requirements apply to us or our subsidiaries or assert that benefits of tax treaties are not available to us or our subsidiaries, any of which could adversely affect our operating results.

Risks Related to Our Common Stock

Our stock price has been and will likely continue to be volatile and may decline regardless of our operating performance.*

The trading price of our common stock has been, and is likely to continue to be, volatile for the foreseeable future. For example, during 2019, our common stock's daily price on the New York Stock Exchange has ranged from \$36.91 to \$48.46 through April 26, 2019. The market price of our common stock may fluctuate significantly in response to numerous factors, many of which are beyond our control, including:

- actual or anticipated fluctuations in our revenue and other operating results, including as a result of the addition or loss of any number of customers;
- announcements by us or our competitors of new products or applications, significant technical innovations, acquisitions, strategic partnerships, joint ventures or capital commitments;
- the financial projections we may provide to the public, any changes in these projections or our failure to meet these projections;
- failure of securities analysts to maintain coverage of us, changes in ratings and financial estimates and the publication of other news by any securities analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- changes in operating performance and stock market valuations of cloud-based software or other technology companies, or those in our industry in particular;
- the size of our public float;
- price and volume fluctuations in the trading of our common stock and in the overall stock market, including as a result of trends in the economy as a whole;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business or industry, including data privacy and data security;
- lawsuits threatened or filed against us for claims relating to intellectual property, employment issues or otherwise;
- changes in our board of directors or management;
- short sales, hedging and other derivative transactions involving our common stock;
- sales of large blocks of our common stock including sales by our executive officers, directors and significant stockholders; and
- other events or factors, including changes in general economic, industry and market conditions and trends, as well as any natural disasters that may affect our operations.

In addition, the stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many technology companies, including providers of cloud-based software. Stock prices of many technology companies have fluctuated in a manner unrelated or disproportionate to the operating performance of those companies.

In the past, stockholders have instituted 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 and harm our business.

Future sales of shares by stockholders could cause our stock price to decline.*

Sales of a substantial number of shares of our common stock in the public market could occur at any time. If our stockholders sell, or the market perceives that our stockholders intend to sell, substantial amounts of our common stock in the public market, the market price of our common stock could decline. We are unable to predict the effect that such sales may have on the prevailing market price of our common stock.

As of March 31, 2019, we had options outstanding that, if fully exercised, would result in the issuance of 1,146,077 shares of common stock and RSUs outstanding that, upon vesting, would result in the issuance of 3,153,913 shares of common stock. In addition, as of March 31, 2019, there were 2,288,859 shares of common stock reserved for future issuance under our 2015 Equity Incentive Plan and 791,132 shares of common stock reserved for issuance under our 2015 Employee Stock Purchase Plan. The authorized number of shares under both such benefit plans are subject to automatic annual increases in the number of shares of common stock reserved for future issuance on January 1 of each year.

Further, as part of our acquisition of Practice, we assumed Practice's 2014 Plan. No shares are available for issuance under the Practice 2014 Plan; however, any outstanding options granted under the Practice 2014 Plan will remain outstanding and subject to the terms of that plan until exercised, terminated or expired by their terms. As of March 31, 2019, options to purchase 1,009 shares of common stock remained outstanding under the Practice 2014 Plan.

Additionally, as part of our acquisition of Portfolium, we assumed Portfolium's 2014 Plan. No shares are available for issuance under the Portfolium 2014 Plan; however, any outstanding options granted under the Portfolium 2014 Plan will remain outstanding and subject to the terms of that plan until exercised, terminated or expired by their terms. As of March 31, 2019, options to purchase 41,138 shares of common stock remained outstanding under the Portfolium 2014 Plan.

All of the shares of common stock issuable pursuant to our equity compensation plans have been registered for public resale under the Securities Act of 1933, as amended, or the Securities Act. Accordingly, these shares will be able to be freely sold in the public market upon issuance as permitted by any applicable vesting requirements.

The concentration of our stock ownership will likely limit your ability to influence corporate matters, including the ability to influence the outcome of director elections and other matters requiring stockholder approval.*

Based upon shares outstanding as of March 31, 2019, our executive officers, directors and the holders of more than 5% of our outstanding common stock, in the aggregate, beneficially owned approximately 42.2% of our common stock. As a result, these stockholders, acting together, will have significant influence over all matters that require approval by our stockholders, including the election of directors and approval of significant corporate transactions. Corporate actions might be taken even if other stockholders oppose them. This concentration of ownership might also have the effect of delaying or preventing a change of control of our company that other stockholders may view as beneficial.

If securities or industry analysts do not publish research or reports about our business, or if they downgrade our common stock, the price of our common stock could decline.

The trading market for our common stock depends, in part, on the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. If one or more of the analysts who cover us downgrade our stock, publish inaccurate or unfavorable research about our business or cease to maintain coverage, our stock price would likely decline. In addition, if our operating results fail to meet the forecast of analysts, our stock price would likely decline. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, demand for our common stock could decrease, which might cause our stock price and trading volume to decline.

If we do not continue to develop effective internal controls, we may not be able to accurately report our financial results and our business could be harmed.

The Sarbanes-Oxley Act requires, among other things, that we assess the effectiveness of our internal control over financial reporting annually and the effectiveness of our disclosure controls and procedures quarterly. In particular, Section 404 of the Sarbanes-Oxley Act, or Section 404, requires us to perform system and process evaluation and

testing of our internal control over financial reporting to allow management to report on, and our independent registered public accounting firm to attest to, the effectiveness of our internal control over financial reporting. If we are not able to comply with the requirements of Section 404 applicable to us, or if we or our independent registered public accounting firm identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our stock could decline and we could be subject to sanctions or investigations by the SEC or other regulatory authorities, which would require additional financial and management resources.

Investor perceptions of our company may suffer if material weaknesses are found, and this could cause a decline in the market price of our common stock. Irrespective of compliance with Section 404, any failure of our internal control over financial reporting could harm our operating results and reputation. If we are unable to implement these requirements effectively or efficiently, it could harm our operations, financial reporting, or financial results and could result in an adverse opinion on our internal controls from our independent registered public accounting firm.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws and under Delaware law might discourage, delay or prevent a change of control of our company or changes in our management and, therefore, depress the trading price of our common stock.

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that could depress the trading price of our common stock by acting to discourage, delay or prevent a change of control of our company or changes in our management that the stockholders of our company may deem advantageous. These provisions:

• authorize the issuance of “blank check” preferred stock that our board of directors could issue to increase the number of outstanding shares to discourage a takeover attempt;

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

• prohibit stockholders from calling a special meeting of our stockholders;

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

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

Additionally, we are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with any “interested” stockholder for a period of three years following the date on which the stockholder became an “interested” stockholder and which may discourage, delay or prevent a change of control of our company.

Any provision of our amended and restated certificate of incorporation, bylaws or Delaware law that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock, and could also affect the price that some investors are willing to pay for our common stock.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders’ ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for: 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 bylaws; or any action asserting a claim against us that is governed by the internal affairs doctrine. The 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 our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officer and other employees. If a court were to find the choice of forum provision contained in our amended and restated certificate of incorporation 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 and financial condition.

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

None.

Item 3. Defaults upon Senior Securities.

Not applicable.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

None.

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Item 6. Exhibits

EXHIBIT INDEX

Exhibit Number	Description	Incorporated by Reference Schedule File			Filing Date	Filed Herewith
		Form	Number	Exhibit		
2.1†	<u>Merger Agreement by and among Instructure, Inc., Gas Lamp Mergers, Inc., Gas Lamp Mergers II, LLC, Portfolium, Inc. and Fortis Advisors LLC dated February 16, 2019.</u>	8-K	001-37629	2.1	February 21, 2019	
2.2†	<u>Merger Agreement by and among Instructure, Inc., Slick Rock Panda, Inc., MasteryConnect, Inc. and Stockholder Representative Services LLC dated April 1, 2019.</u>	8-K	001-37629	2.1	April 8, 2019	
3.1	<u>Amended and Restated Certificate of Incorporation, as currently in effect.</u>	8-K	001-37629	3.1	November 18, 2015	
3.2	<u>Amended and Restated Bylaws, as currently in effect.</u>	S-1	333-207349	3.4	October 9, 2015	
4.1	<u>Form of Common Stock Certificate.</u>	S-1	333-207349	4.1	November 2, 2015	
10.1	<u>Offer Letter by and between Registrant and Marta DeBellis, dated January 19, 2019</u>					X
31.1	<u>Certification of Periodic Report by Principal Executive Officer under Section 302 of the Sarbanes-Oxley Act of 2002</u>					X
31.2	<u>Certification of Periodic Report by Principal Financial Officer under Section 302 of the Sarbanes-Oxley Act of 2002</u>					X
32.1*	<u>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</u>					X
101.INS	XBRL Instance Document					X
101.SCH	XBRL Taxonomy Extension Schema Document					X

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101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document	X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document	X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document	X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document	X

The schedules and certain exhibits to the Agreement and Plan of Merger have been omitted pursuant to Item 601(b)(2) of Regulation S-K. Instructure hereby agrees to furnish supplementally a copy of any omitted schedule or exhibit to the Commission upon request.

*Document has been furnished, is not deemed filed and is not to be incorporated by reference into any of the Company's filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, irrespective of any general incorporation language contained in any such filing.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Instructure, Inc.

Date: May 1, 2019 By: /s/ Steven B. Kaminsky
Steven B. Kaminsky
Chief Financial Officer (Duly Authorized Officer and Principal Financial Officer)