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, 2021

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: 001-34630

ASPEN TECHNOLOGY, INC.
(Exact name of registrant as specified in its charter)

Delaware	**04-2739697**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
20 Crosby Drive **Bedford** **Massachusetts**	**01730**
(Address of principal executive offices)	(Zip Code)

(781) 221-6400
(Registrant’s telephone number, including area code)

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

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Common stock, $0.10 par value per share	**AZPN**	**NASDAQ Global Select Market**

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No o

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

Large accelerated filer	☒	Accelerated filer	o
Non-accelerated filer	o	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. o

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

As of April 21, 2021, there were 68,014,924 shares of the registrant’s common stock (par value $0.10 per share) outstanding.

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aspenONE is one of our registered trademarks. All other trade names, trademarks and service marks appearing in this Form 10-Q are the property of their respective owners.

Our fiscal year ends on June 30th, and references to a specific fiscal year are to the twelve months ended June 30th of such year (for example, “fiscal 2021” refers to the year ending June 30, 2021).

PART I - FINANCIAL INFORMATION

Item 1. Financial Statements.

Consolidated Financial Statements (unaudited)

ASPEN TECHNOLOGY, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited)

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2021	2020	2021	2020
	(Dollars in Thousands, Except per Share Data)			
Revenue:				
License	$ 110,104	$ 78,156	$ 352,133	$ 238,311
Maintenance	45,885	44,199	139,561	132,418
Services and other	6,737	8,233	19,721	26,048
Total revenue	162,726	130,588	511,415	396,777
Cost of revenue:				
License	2,485	1,881	6,859	5,550
Maintenance	5,174	4,778	14,066	14,339
Services and other	8,396	9,046	24,911	26,560
Total cost of revenue	16,055	15,705	45,836	46,449
Gross profit	146,671	114,883	465,579	350,328
Operating expenses:				
Selling and marketing	30,345	28,354	82,092	86,046
Research and development	25,874	23,576	70,576	68,694
General and administrative	21,553	18,219	60,389	54,525
Total operating expenses	77,772	70,149	213,057	209,265
Income from operations	68,899	44,734	252,522	141,063
Interest income	8,410	8,173	26,383	24,577
Interest (expense)	(1,495)	(3,207)	(5,639)	(9,368)
Other (expense), net	(5)	(352)	(1,807)	(217)
Income before income taxes	75,809	49,348	271,459	156,055
Provision for income taxes	13,314	7,522	47,101	20,914
Net income	$ 62,495	$ 41,826	$ 224,358	$ 135,141
Net income per common share:				
Basic	$ 0.92	$ 0.62	$ 3.31	$ 1.98
Diluted	$ 0.91	$ 0.61	$ 3.28	$ 1.96
Weighted average shares outstanding:				
Basic	67,920	67,806	67,809	68,122
Diluted	68,608	68,482	68,439	68,906

See accompanying Notes to these unaudited consolidated financial statements.

ASPEN TECHNOLOGY, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Unaudited)

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2021	2020	2021	2020
	(Dollars in Thousands)			
Net income	$ 62,495	$ 41,826	$ 224,358	$ 135,141
Other comprehensive income (loss):				
Foreign currency translation adjustments	396	(8,265)	11,815	(7,628)
Total other comprehensive income (loss)	396	(8,265)	11,815	(7,628)
Comprehensive income	$ 62,891	$ 33,561	$ 236,173	$ 127,513

See accompanying Notes to these unaudited consolidated financial statements.

ASPEN TECHNOLOGY, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(Unaudited)

	March 31, 2021	June 30, 2020
	(Dollars in Thousands, Except Share Data)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 317,099	$ 287,796
Accounts receivable, net	49,034	56,301
Current contract assets, net	298,835	291,497
Prepaid expenses and other current assets	9,762	10,884
Prepaid income taxes	12,008	3,962
Total current assets	686,738	650,440
Property, equipment and leasehold improvements, net	5,506	5,963
Computer software development costs, net	1,255	928
Goodwill	158,182	137,055
Intangible assets, net	45,996	42,851
Non-current contract assets, net	409,010	318,976
Contract costs	28,419	28,614
Operating lease right-of-use assets	31,589	34,905
Deferred tax assets	2,924	1,735
Other non-current assets	3,042	1,839
Total assets	$ 1,372,661	$ 1,223,306
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 3,563	$ 3,988
Accrued expenses and other current liabilities	43,063	43,556
Current operating lease liabilities	7,214	6,824
Income taxes payable	76	1,799
Current borrowings	18,000	135,163
Current deferred revenue	54,730	43,168
Total current liabilities	126,646	234,498
Non-current deferred revenue	11,535	13,913
Deferred tax liabilities	188,896	179,978
Non-current operating lease liabilities	28,894	33,088
Non-current borrowings, net	278,960	292,369
Other non-current liabilities	4,842	3,107
Commitments and contingencies (Note 17)		
Series D redeemable convertible preferred stock, $0.10 par value— Authorized— 367,000 shares as of March 31, 2021 and June 30, 2020 Issued and outstanding— none as of March 31, 2021 and June 30, 2020	—	—
Stockholders' equity:		
Common stock, $0.10 par value— Authorized—210,000,000 shares Issued— 104,283,957 shares at March 31, 2021 and 103,988,707 shares at June 30, 2020 Outstanding— 68,013,942 shares at March 31, 2021 and 67,718,692 shares at June 30, 2020	10,429	10,399
Additional paid-in capital	799,743	769,411
Retained earnings	1,682,688	1,458,330
Accumulated other comprehensive income (loss)	6,527	(5,288)
Treasury stock, at cost—36,270,015 shares of common stock at March 31, 2021 and 36,270,015 shares at June 30, 2020	(1,766,499)	(1,766,499)
Total stockholders' equity	732,888	466,353
Total liabilities and stockholders' equity	$ 1,372,661	$ 1,223,306

See accompanying Notes to these unaudited consolidated financial statements.

ASPEN TECHNOLOGY, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited)

	Common Stock		Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock		Total Stockholders' Equity
	Number of Shares	$0.10 Par Value				Number of Shares	Cost	
	(Dollars in Thousands, Except Share Data)							
Balance June 30, 2020	103,988,707	$ 10,399	$ 769,411	$ 1,458,330	$ (5,288)	36,270,015	$ (1,766,499)	$ 466,353
Comprehensive income:								
Net income	—	—	—	32,711	—	—	—	32,711
Other comprehensive income	—	—	—	—	4,153			4,153
Issuance of shares of common stock	12,943	1	314	—	—	—		315
Issuance of restricted stock units and net share settlement related to withholding taxes	26,265	3	(1,761)	—	—	—	—	(1,758)
Stock-based compensation	—	—	6,268	—	—	—	—	6,268
Balance September 30, 2020	104,027,915	$ 10,403	$ 774,232	$ 1,491,041	$ (1,135)	36,270,015	$ (1,766,499)	$ 508,042
Comprehensive income:								
Net income	—	—	—	129,152	—	—	—	129,152
Other comprehensive income	—	—	—	—	7,266			7,266
Issuance of shares of common stock	34,681	3	2,843	—	—	—		2,846
Issuance of restricted stock units and net share settlement related to withholding taxes	37,236	4	(2,274)	—	—	—	—	(2,270)
Stock-based compensation	—	—	9,096	—	—	—	—	9,096
Balance December 31, 2020	104,099,832	$ 10,410	$ 783,897	$ 1,620,193	$ 6,131	36,270,015	$ (1,766,499)	$ 654,132
Comprehensive income:								
Net income	—	—	—	62,495	—	—	—	62,495
Other comprehensive income	—	—	—	—	396			396
Issuance of shares of common stock	148,541	15	9,233	—	—	—		9,248
Issuance of restricted stock units and net share settlement related to withholding taxes	35,584	4	(2,612)	—	—	—	—	(2,608)
Stock-based compensation	—	—	9,225	—	—	—	—	9,225
Balance March 31, 2021	104,283,957	$ 10,429	$ 799,743	$ 1,682,688	$ 6,527	36,270,015	$ (1,766,499)	$ 732,888

	Common Stock		Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock		Total Stockholders' Equity
	Number of Shares	$0.10 Par Value				Number of Shares	Cost	
	(Dollars in Thousands, Except Share Data)							
Balance June 30, 2019	103,642,292	$ 10,365	$ 739,099	$ 1,228,659	$ 336	35,017,726	$ (1,616,499)	$ 361,960
Comprehensive income:								
Net income	—	—	—	53,514	—	—	—	53,514
Other comprehensive (loss)	—	—	—	—	(3,102)			(3,102)
Issuance of shares of common stock	17,783	2	933	—	—	—		935
Issuance of restricted stock units and net share settlement related to withholding taxes	57,451	5	(3,399)	—	—	—	—	(3,394)
Repurchase of common stock	—	—	—	—	—	382,279	(50,000)	(50,000)
Stock-based compensation	—	—	9,275	—	—	—	—	9,275
Balance September 30, 2019	103,717,526	$ 10,372	$ 745,908	$ 1,282,173	$ (2,766)	35,400,005	$ (1,666,499)	$ 369,188
Comprehensive income:								
Net income	—	—	—	39,801	—	—	—	39,801
Other comprehensive income	—	—	—	—	3,739			3,739
Issuance of shares of common stock	31,857	3	1,938	—	—	—		1,941
Issuance of restricted stock units and net share settlement related to withholding taxes	39,155	4	(2,623)	—	—	—	—	(2,619)
Repurchase of common stock	—	—	—	—	—	418,019	(50,000)	(50,000)
Stock-based compensation	—	—	7,559	—	—	—	—	7,559
Balance December 31, 2019	103,788,538	$ 10,379	$ 752,782	$ 1,321,974	$ 973	35,818,024	$ (1,716,499)	$ 369,609
Comprehensive income:								
Net income	—	—	—	41,826	—	—	—	41,826
Other comprehensive (loss)	—	—	—	—	(8,265)			(8,265)
Issuance of shares of common stock	42,085	4	2,343	—	—	—		2,347
Issuance of restricted stock units and net share settlement related to withholding taxes	38,281	4	(1,970)	—	—	—	—	(1,966)
Repurchase of common stock	—	—	—	—	—	451,991	(50,000)	(50,000)
Stock-based compensation	—	—	7,299	—	—	—	—	7,299
Balance March 31, 2020	103,868,904	$ 10,387	$ 760,454	$ 1,363,800	$ (7,292)	36,270,015	$ (1,766,499)	$ 360,850

See accompanying Notes to these unaudited consolidated financial statements.

ASPEN TECHNOLOGY, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	Nine Months Ended March 31,	
	2021	2020
	(Dollars in Thousands)	
Cash flows from operating activities:		
Net income	$ 224,358	$ 135,141
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	7,545	7,028
Reduction in the carrying amount of right-of-use assets	7,037	6,518
Net foreign currency losses	2,027	183
Stock-based compensation	24,589	24,133
Deferred income taxes	7,029	(1,516)
Provision for bad debts	6,800	3,391
Other non-cash operating activities	718	423
Changes in assets and liabilities:		
Accounts receivable	4,115	(16,428)
Contract assets, net	(103,538)	2,329
Contract costs	198	(1,522)
Lease liabilities	(7,533)	(6,840)
Prepaid expenses, prepaid income taxes, and other assets	(6,959)	(2,201)
Accounts payable, accrued expenses, income taxes payable and other liabilities	(6,847)	(20,752)
Deferred revenue	13,410	13,701
Net cash provided by operating activities	172,949	143,588
Cash flows from investing activities:		
Purchases of property, equipment and leasehold improvements	(733)	(1,111)
Payments for business acquisitions, net of cash acquired	(16,272)	(74,460)
Payments for equity method investments	(926)	(319)
Payments for capitalized computer software development costs	(895)	(141)
Net cash used in investing activities	(18,826)	(76,031)
Cash flows from financing activities:		
Issuance of shares of common stock	12,508	5,364
Repurchases of common stock	—	(150,621)
Payments of tax withholding obligations related to restricted stock	(6,719)	(8,246)
Deferred business acquisition payments	—	(4,600)
Proceeds from revolving credit facility, net of repayments	(119,182)	219,163
Repayments of amounts borrowed under term loan	(12,000)	(4,000)
Payments of debt issuance costs	—	(3,533)
Net cash provided by (used in) financing activities	(125,393)	53,527
Effect of exchange rate changes on cash and cash equivalents	573	(838)
Increase in cash and cash equivalents	29,303	120,246
Cash and cash equivalents, beginning of period	287,796	71,926
Cash and cash equivalents, end of period	$ 317,099	$ 192,172
Supplemental disclosure of cash flow information:		
Income taxes paid, net	$ 49,349	$ 26,359
Interest paid	5,672	8,246
Supplemental disclosure of non-cash activities:		
Change in purchases of property, equipment and leasehold improvements included in accounts payable and accrued expenses	$ 77	$ (89)
Change in repurchases of common stock included in accounts payable and accrued expenses	—	(621)
Lease liabilities arising from obtaining right-of-use assets	1,488	11,626

See accompanying Notes to these unaudited consolidated financial statements.

ASPEN TECHNOLOGY, INC. AND SUBSIDIARIES
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS

1. Interim Unaudited Consolidated Financial Statements

The accompanying interim unaudited consolidated financial statements of Aspen Technology, Inc. and its subsidiaries have been prepared on the same basis as our annual consolidated financial statements. We have omitted certain information and footnote disclosures normally included in our annual consolidated financial statements. Such interim unaudited consolidated financial statements have been prepared in conformity with U.S. Generally Accepted Accounting Principles ("GAAP"), as defined in the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic 270, *Interim Reporting*, for interim financial information and with the instructions to Rule 10-01 of Regulation S-X. Accordingly, they do not include all of the information and footnotes required by GAAP for complete financial statements. It is suggested that these unaudited consolidated financial statements be read in conjunction with the audited consolidated financial statements for the year ended June 30, 2020, which are contained in our Annual Report on Form 10-K, as previously filed with the U.S. Securities and Exchange Commission ("SEC"). In the opinion of management, all adjustments, consisting of normal and recurring adjustments, considered necessary for a fair presentation of the financial position, results of operations, and cash flows at the dates and for the periods presented have been included and all intercompany accounts and transactions have been eliminated in consolidation. The results of operations for the three and nine months ended March 31, 2021 are not necessarily indicative of the results to be expected for the subsequent quarter or for the full fiscal year.

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions. These estimates and assumptions affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates.

Unless the context requires otherwise, references to we, our and us refer to Aspen Technology, Inc. and its subsidiaries.

2. Significant Accounting Policies

(a) Principles of Consolidation

The accompanying consolidated financial statements include the accounts of Aspen Technology, Inc. and our wholly owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

(b) Significant Accounting Policies

Our significant accounting policies are described in Note 2 to the consolidated financial statements included in our Annual Report on Form 10-K for the fiscal year ended June 30, 2020. We adopted Accounting Standards Update ("ASU") No. 2016-13, *Financial Instruments - Credit Losses ("Topic 326")* effective July 1, 2020. Refer to Note 2(h), "New Accounting Pronouncements Adopted in Fiscal 2021," for further information regarding the adoption of Topic 326. There were no other material changes to our significant accounting policies during the three and nine months ended March 31, 2021.

(c) Loss Contingencies

We accrue estimated liabilities for loss contingencies arising from claims, assessments, litigation and other sources when it is probable that a liability has been incurred and the amount of the claim, assessment or damages can be reasonably estimated. We believe that we have sufficient accruals to cover any obligations resulting from claims, assessments or litigation that have met these criteria.

(d) Foreign Currency Transactions

Foreign currency exchange gains and losses generated from the settlement and remeasurement of transactions denominated in currencies other than the functional currency of our subsidiaries are recognized in our results of operations as incurred as a component of other (expense), net. Net foreign currency exchange (losses) gains were $0.1 million and $(0.3) million during the three months ended March 31, 2021 and 2020, respectively, and $(2.0) million and $(0.2) million during the nine months ended March 31, 2021 and 2020, respectively.

(e) Research and Development Expense

We charge research and development expenditures to expense as the costs are incurred. Research and development expenses consist primarily of personnel expenses related to the creation of new products, enhancements and engineering changes to existing products and costs of acquired technology prior to establishing technological feasibility. There was less than $0.1 million of capitalized direct labor costs associated with our development of software for sale during the three months ended March 31, 2021 and 2020, respectively, and $0.7 million and less than $0.1 million during the nine months ended March 31, 2021 and 2020, respectively.

(f) Equity Method Investments

During fiscal 2020, we entered into a limited partnership investment fund agreement. The primary objective of this partnership is investing in equity and equity-related securities (including convertible debt) of venture growth- stage businesses. We account for the investment in accordance with Topic 323, *Investments - Equity Method and Joint Ventures*. Our total commitment under this partnership is 5.0 million CAD ($3.9 million). Under the conditions of the equity method investment, unfavorable future changes in market conditions could lead to a potential loss up to the full value of our 5.0 million CAD ($3.9 million) commitment. As of March 31, 2021, the fair value of this investment is $1.2 million CAD ($1.5 million), representing our payment towards the total commitment, and is recorded in non-current assets in our consolidated balance sheet.

(g) New Accounting Pronouncements Adopted in Fiscal 2021

In June 2016, the FASB issued Topic 326. The amendment changes the impairment model for most financial assets and certain other instruments. Under Topic 326, entities are required to use a model that will result in the earlier recognition of allowances for losses for trade and other receivables, contract assets, held-to-maturity debt securities, loans, and other instruments. Topic 326 is effective for annual periods, including interim periods within those annual periods, beginning after December 15, 2019. Early adoption is permitted. We adopted Topic 326 effective July 1, 2020 using the effective date method with a modified retrospective transition approach. The adoption of Topic 326 did not have a material impact on our balance sheet, operating results or cash flows, and there was no impact on our debt covenants.

In March 2020, the FASB issued ASU 2020-04, *Facilitation of the Effects of Reference Rate Reform on Financial Reporting (“Topic 848”)*. ASU 2020-04 provides practical expedients and exceptions for applying U.S. GAAP to contracts, hedging relationships, and other transactions affected by reference rate reform if certain criteria are met. The expedients and exceptions provided by ASU 2020-04 apply only to contracts, hedging relationships, and other transactions that reference the London Interbank Offered Rate (“LIBOR”) or another reference rate expected to be discontinued as a result of reference rate reform. These amendments are not applicable to contract modifications made and hedging relationships entered into or evaluated after December 31, 2022. ASU No. 2020-04 is effective as of March 12, 2020 through December 31, 2022, and may be applied to contract modifications and hedging relationships from the beginning of an interim period that includes or is subsequent to March 12, 2020. We adopted ASU 2020-04 effective July 1, 2020. The adoption of ASU No. 2020-04 did not have a material impact on our operating results or cash flows, and there was no impact on our debt covenants.

(h) Recently Issued Accounting Pronouncements

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes ("Topic 740") - Simplifying the Accounting for Income Taxes*. ASU 2019-12 is intended to simplify accounting for income taxes. It removes certain exceptions to the general principles in Topic 740 and amends existing guidance to improve consistent application. ASU 2019-12 is effective for annual periods, including interim periods within those annual periods, beginning after December 15, 2020. Early adoption of this standard update is permitted and the impact it will have to our consolidated financial statements is not expected to be material.

3. Revenue from Contracts with Customers

In accordance with ASU No. 2014-09, *Revenue from Contracts with Customers* ("Topic 606"), we account for a customer contract when both parties have approved the contract and are committed to perform their respective obligations, each party's rights can be identified, payment terms can be identified, the contract has commercial substance, and it is probable that we will collect substantially all of the consideration to which we are entitled. Revenue is recognized when, or as, performance obligations are satisfied by transferring control of a promised product or service to a customer.

Nature of Products and Services

We generate revenue from the following sources: (1) License revenue; (2) Maintenance revenue; and (3) Services and other revenue. We sell our software products to end users primarily under fixed-term licenses. We license our software products primarily through a subscription offering which we refer to as our aspenONE licensing model, which includes software maintenance and support, known as our Premier Plus SMS offering, for the entire term. Our aspenONE products are organized into three suites: 1) engineering; 2) manufacturing and supply chain; and 3) asset performance management. The aspenONE licensing model provides customers with access to all of the products within the aspenONE suite(s) they license. We refer to these arrangements as token arrangements. Tokens are fixed units of measure. The amount of software usage is limited by the number of tokens purchased by the customer.

We also license our software through point product term arrangements, which include our Premier Plus SMS offering for the entire term.

We determine 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; and
- Recognition of revenue when, or as, we satisfy a performance obligation.

Term-based Arrangements: Term-based arrangements consist of on-premise term licenses as well as maintenance.

License

License revenue consists primarily of product and related revenue from our aspenONE licensing model and point product arrangements.

When a customer elects to license our products under our aspenONE licensing model, the customer receives, for the term of the arrangement, the right to all software products in the licensed aspenONE software suite. When a customer elects to license point products, the customer receives, for the term of the arrangement, the right to license specified products in the licensed aspenONE software suite. Revenue from initial product licenses is recognized upfront upon delivery.

Maintenance

When a customer elects to license our products under our aspenONE licensing model, our Premier Plus SMS offering is included for the entire term of the arrangement and the customer receives, for the term of the arrangement, the right to any updates that may be introduced into the licensed aspenONE software suite. When a customer elects to license point products, our Premier Plus SMS offering is included for the entire term of the arrangement and the customer receives, for the term of the arrangement, the right to any updates that may be introduced related to the specified products licensed. Maintenance represents a stand-ready obligation and, due to our obligation to provide unspecified future software updates on a when-and-if available basis as well as telephone support services, we are required to recognize revenue ratably over the term of the arrangement.

Services and Other Revenue

Professional Services Revenue

Professional services are provided to customers on a time-and-materials ("T&M") or fixed-price basis. The obligation to provide professional services is generally satisfied over time, with the customer simultaneously receiving and consuming the benefits as we satisfy our performance obligation. For professional services, revenue is recognized by measuring progress toward the completion of our obligations. We recognize professional services fees for our T&M contracts based upon hours worked and contractually agreed-upon hourly rates. Revenue from fixed-price engagements is recognized using the proportional performance method based on the ratio of costs incurred to the total estimated project costs. The use of the proportional performance method is dependent upon our ability to reliably estimate the costs to complete a project. We use historical experience as a basis for future estimates to complete current projects. Additionally, we believe that costs are the best available measure of performance. Out-of-pocket expenses which are reimbursed by customers are recorded as revenue.

Training Revenue

We provide training services to our customers, including on-site, Internet-based, public and customized training. The obligation to provide training services is generally satisfied over time, with the customer simultaneously receiving and consuming the benefits as we satisfy our performance obligation. Revenue is recognized in the period in which the services are performed.

Contracts with Multiple Performance Obligations

Our contracts generally contain more than one of the products and services listed above, each of which is separately accounted for as a distinct performance obligation.

Allocation of consideration: We allocate total contract consideration to each distinct performance obligation in an arrangement on a relative standalone selling price basis. The standalone selling price reflects the price we would charge for a specific product or service if it was sold separately in similar circumstances and to similar customers.

If the arrangement contains professional services and other products or services, we allocate to the professional service obligation a portion of the total contract consideration based on the standalone selling price of professional services that is observed from consistently priced standalone sales.

The standalone selling price for term arrangements, which always include maintenance for the full term of the arrangement, is the price for the combined license and maintenance bundle. The amount assigned to the license and maintenance bundle is separated into license and maintenance amounts using the respective standalone selling prices represented by the value relationship between the software license and maintenance.

When two or more contracts are entered into at or near the same time with the same customer, we evaluate the facts and circumstances associated with the negotiation of those contracts. Where the contracts are negotiated as a package, we will account for them as a single arrangement and allocate the consideration for the combined contracts among the performance obligations accordingly.

Standalone selling price: When available, we use directly observable transactions to determine the standalone selling prices for performance obligations. Generally, directly observable data is not available for term licenses and maintenance. When term licenses are sold together with maintenance in a bundled arrangement, we estimate a standalone selling price for these distinct performance obligations using relevant information, including our overall pricing objectives and strategies and historical pricing data, and taking into consideration market conditions and other factors.

Other policies and judgments

Payment terms and conditions vary by contract type, although terms generally include a requirement of payment annually over the term of the license arrangement. Therefore, we generally receive payment from a customer after the performance obligation related to the license has been satisfied, and therefore, our contracts generally contain a significant financing component. The significant financing component is calculated utilizing an interest rate that derives the net present value of the performance obligations delivered on an upfront basis based on the allocation of consideration. We have instituted a customer portfolio approach in assigning interest rates. The rates are determined at contract inception and are based on the credit characteristics of the customers within each portfolio.

Contract modifications

We sometimes enter into agreements to modify previously executed contracts, which constitute contract modifications. We assess each of these contract modifications to determine (i) if the additional products and services are distinct from the products and services in the original arrangement; and (ii) if the amount of consideration expected for the added products and services reflects the stand-alone selling price of those products and services, as adjusted for contract-specific circumstances. A contract modification meeting both criteria is accounted for as a separate contract. A contract modification not meeting both criteria is considered a change to the original contract and is accounted for on either (i) a prospective basis as a termination of the existing contract and the creation of a new contract; or (ii) a cumulative catch-up basis. Generally, our contract modifications meet both criteria and are accounted for as a separate contract, as adjusted for contract-specific circumstances.

Disaggregation of Revenue

We disaggregate our revenue by region, type of performance obligation, and segment as follows:

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2021	2020	2021	2020
	(Dollars in Thousands)			
Revenue by region:				
North America	$ 66,786	$ 58,826	$ 225,620	$ 170,643
Europe	47,581	27,331	158,771	98,077
Other (1)	48,359	44,431	127,024	128,057
	$ 162,726	$ 130,588	$ 511,415	$ 396,777
Revenue by type of performance obligation:				
Term licenses	$ 110,104	$ 78,156	$ 352,133	$ 238,311
Maintenance	45,885	44,199	139,561	132,418
Professional services and other	6,737	8,233	19,721	26,048
	$ 162,726	$ 130,588	$ 511,415	$ 396,777
Revenue by segment:				
Subscription and software	$ 155,989	$ 122,355	$ 491,694	$ 370,729
Services and other	6,737	8,233	19,721	26,048
	$ 162,726	$ 130,588	$ 511,415	$ 396,777

(1) Other consists primarily of Asia Pacific, Latin America and the Middle East.

Contract Assets and Deferred Revenue

The difference in the opening and closing balances of our contract assets and deferred revenue primarily results from the timing difference between our performance and the customer’s payment. We fulfill our obligations under a contract with a customer by transferring products and services in exchange for consideration from the customer. We recognize a contract asset when we transfer products or services to a customer and the right to consideration is conditional on something other than the passage of time. Accounts receivable are recorded when the customer has been billed or the right to consideration is unconditional. We recognize deferred revenue when we have received consideration or an amount of consideration is due from the customer and we have a future obligation to transfer products or services.

Payment terms and conditions vary by contract type. Terms generally include a requirement of payment annually over the term of the license arrangement. During the majority of each customer contract term, the amount invoiced is generally less than the amount of revenue recognized to date, primarily because we transfer control of the performance obligation related to the software license at the inception of the contract term, and the allocation of contract consideration to the license performance obligation is a significant portion of the total contract consideration. Therefore, our contracts often result in the recording of a contract asset throughout the majority of the contract term. We record a contract asset when revenue recognized on a contract exceeds the billings.

The contract assets are subject to credit risk and reviewed in accordance with Topic 326. We monitor the credit quality of customer contract asset balances on an individual basis, at each reporting date, through credit characteristics, geographic location, and the industry in which they operate. We recognize an impairment on contract assets if, subsequent to contract inception, it becomes probable payment is not collectible. An allowance for expected credit loss reflects losses expected over the remaining term of the contract asset and is determined based upon historical losses, customer-specific factors, and current economic conditions.

The following table presents the change in the reserve for contract assets during the nine months ended March 31, 2021:

June 30, 2020	Provision	Write-Offs, Recoveries, and Billings	March 31, 2021
	(Dollars in Thousands)		
$ (2,947)	$ (7,091)	$ 4,812	$ (5,226)

Our total contract assets, net and deferred revenue were as follows as of March 31, 2021 and June 30, 2020:

	March 31, 2021	June 30, 2020
	(Dollars in Thousands)	
Contract assets, net	$ 707,845	$ 610,473
Deferred revenue	(66,265)	(57,081)
	$ 641,580	$ 553,392

Contract assets and deferred revenue are presented net at the contract level for each reporting period.

The change in deferred revenue in the nine months ended March 31, 2021 was primarily due to an increase in new billings in advance of revenue recognition, partially offset by $33.8 million of revenue recognized that was included in deferred revenue as of June 30, 2020.

Contract Costs

We pay commissions for new product sales as well as for renewals of existing contracts. Commissions paid to obtain renewal contracts are not commensurate with the commissions paid for new product sales and therefore, a portion of the commissions paid for new contracts relate to future renewals.

We account for new product sales commissions using a portfolio approach and allocate the cost of commissions in proportion to the allocation of transaction price of license and maintenance performance obligations, including assumed renewals. Commissions allocated to the license and license renewal components are expensed at the time the license revenue is recognized. Commissions allocated to maintenance are capitalized and amortized on a straight-line basis over a period of four years to eight years for new contracts, reflecting our estimate of the expected period that we will benefit from those commissions.

Amortization of capitalized contract costs is included in selling and marketing expenses in our statement of operations.

Transaction Price Allocated to Remaining Performance Obligations

The following table includes the aggregate amount of the transaction price allocated as of March 31, 2021 to the performance obligations that are unsatisfied (or partially unsatisfied) at the end of the reporting period:

	Year Ended June 30,					
	2021	2022	2023	2024	2025	Thereafter
	(Dollars in Thousands)					
License	$ 40,583	$ 24,011	$ 12,507	$ 5,338	$ 4,837	$ 1,314
Maintenance	46,934	161,498	124,719	92,787	60,672	28,175
Services and other	38,717	8,200	968	491	301	261

4. Leases

We have operating leases primarily for corporate offices, and other operating leases for data centers and certain equipment. We determine whether an arrangement is or contains a lease based on facts and circumstances present at the inception of the arrangement. We recognize lease expense on a straight-line basis over the lease term. Our leases have remaining lease terms of less than one year to approximately ten years, some of which include options to extend the leases for up to five years, and some of which include the option to terminate the leases upon advanced notice of 30 days or more. If we are reasonably certain we will exercise an option to extend or terminate the lease, the time period covered by the extension or termination option is included in the lease term.

Operating lease liabilities and their corresponding right-of-use assets are recorded based on the present value of lease payments over the expected lease term. The interest rate implicit in the lease contracts is typically not readily determinable. As such, we utilize the appropriate incremental borrowing rate, which is the rate incurred to borrow on a collateralized basis over a similar term at an amount equal to the lease payments in a similar economic environment. Certain adjustments to the right-of-use asset may be required for items such as incentives received. We have lease agreements with lease and non-lease components, which are accounted for separately.

Operating lease costs are recognized on a straight-line basis over the term of the lease. The components of lease expenses for the three and nine months ended March 31, 2021 and 2020 were as follows:

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2021	2020	2021	2020
	(Dollars in Thousands)		(Dollars in Thousands)	
Operating lease costs (1)	$ 2,514	$ 2,443	$ 7,411	$ 7,012
Total lease costs	$ 2,514	$ 2,443	$ 7,411	$ 7,012

(1) Operating lease costs include rent and fixed fees

The following table represents the weighted-average remaining lease term and discount rate information related to our operating leases as of March 31, 2021 and June 30, 2020:

	March 31, 2021	June 30, 2020
Weighted average remaining lease term	5.1 years	5.7 years
Weighted average discount rate	4.3 %	4.4 %

The following table represents the maturities of our operating lease liabilities as of March 31, 2021 and June 30, 2020:

	March 31, 2021	June 30, 2020
	(Dollars in Thousands)	
Year Ending June 30,		
2021	$ 1,462	$ 8,477
2022	9,597	8,784
2023	8,827	8,167
2024	7,648	7,516
2025	5,574	5,481
Thereafter	7,767	7,370
Total lease payments	40,875	45,795
Less: imputed interest	(4,767)	(5,883)
	$ 36,108	$ 39,912

5. Fair Value

We determine fair value by utilizing a fair value hierarchy that ranks the quality and reliability of the information used in its determination. Fair values determined using “Level 1 inputs” utilize unadjusted quoted prices in active markets for identical assets or liabilities that we have the ability to access. Fair values determined using “Level 2 inputs” utilize data points that are observable, such as quoted prices, interest rates and yield curves for similar assets and liabilities.

Cash equivalents are reported at fair value utilizing quoted market prices in identical markets, or "Level 1 Inputs." Our cash equivalents consist of short-term money market instruments.

Equity method investments are reported at fair value calculated in accordance with the market approach, utilizing market consensus pricing models with quoted prices that are directly or indirectly observable, or "Level 2 Inputs."

The following table summarizes financial assets and liabilities measured and recorded at fair value on a recurring basis in the accompanying consolidated balance sheets as of March 31, 2021 and June 30, 2020, segregated by the level of the valuation inputs within the fair value hierarchy utilized to measure fair value:

	Fair Value Measurements at Reporting Date Using,	
	Quoted Prices in Active Markets for Identical Assets (Level 1 Inputs)	Significant Other Observable Inputs (Level 2 Inputs)
	(Dollars in Thousands)	
March 31, 2021:		
Cash equivalents	$ 1,020	$ —
Equity method investments	—	1,207
June 30, 2020:		
Cash equivalents	$ 1,020	$ —
Equity method investments	—	342

Financial instruments not measured or recorded at fair value in the accompanying consolidated financial statements consist of accounts receivable, accounts payable and accrued liabilities. The estimated fair value of these financial instruments approximates their carrying value. The estimated fair value of the borrowings under the Amended and Restated Credit Agreement (described below in Note 12, "Credit Agreement") approximates its carrying value due to the floating interest rate.

6. Accounts Receivable, Net

Our accounts receivable, net of the related allowance for doubtful accounts, were as follows as of March 31, 2021 and June 30, 2020:

	March 31, 2021	June 30, 2020
	(Dollars in Thousands)	
Accounts receivable, gross	$ 56,922	$ 62,925
Allowance for doubtful accounts	(7,888)	(6,624)
Accounts receivable, net	$ 49,034	$ 56,301

As of March 31, 2021 and June 30, 2020, we had no customer receivable balances that individually represented 10% or more of our net accounts receivable.

7. Property and Equipment

Property, equipment and leasehold improvements consisted of the following as of March 31, 2021 and June 30, 2020:

	March 31, 2021	June 30, 2020
	(Dollars in Thousands)	
Property, equipment and leasehold improvements, at cost:		
Computer equipment	$ 7,163	$ 6,958
Purchased software	22,617	22,534
Furniture & fixtures	7,314	6,971
Leasehold improvements	12,790	12,424
Property, equipment and leasehold improvements, at cost	49,884	48,887
Accumulated depreciation	(44,378)	(42,924)
Property, equipment and leasehold improvements, net	$ 5,506	$ 5,963

8. Acquisitions

Camo Analytics AS

On November 17, 2020, we completed the acquisition of substantially all the outstanding shares of Camo Analytics AS (“Camo”), a leading provider of industrial analytics, for a total cash consideration of $12.7 million. The purchase price consisted of $10.0 million of cash paid at closing, a subsequent working capital adjustment of $(0.1) million, $0.3 million to be paid for the remaining undelivered shares as of the closing date, and $2.4 million to be held back as security for certain representations, warranties, and obligations of the sellers. The holdback amounts are recorded in accrued expenses and other current liabilities in our consolidated balance sheet. As of March 31, 2021, $0.2 million has been subsequently paid for the remaining undelivered shares.

An allocation of the purchase price is as follows:

	Amount
	(Dollars in Thousands)
Tangible assets acquired, net	$ 877
Identifiable intangible assets:	
Technology-related	2,533
Customer relationships	1,900
Goodwill	7,356
Total assets acquired, net	$ 12,666

The goodwill reflects the value of the assembled workforce and the company-specific synergies we expect to realize by selling Camo products and services to our existing customers and is reported under the subscription and software reporting unit. The results of operations of Camo have been included prospectively in our results of operations since the date of acquisition.

OptiPlant, Inc.

On December 8, 2020, we completed the acquisition of all the outstanding shares of OptiPlant, Inc. (“OptiPlant”), a leading provider of AI Driven 3D Conceptual Design and Engineering Automation software, for a total cash consideration of $8.2 million. The purchase price consisted of $6.8 million of cash paid at closing, $0.2 million to be held back for working capital adjustments, and $1.2 million to be held back as security for certain representations, warranties, and obligations of the sellers. The holdback amounts are recorded in other non-current liabilities in our consolidated balance sheet. The working capital adjustment holdback of $0.2 million was subsequently paid in March 2021.

An allocation of the purchase price is as follows:

	Amount
	(Dollars in Thousands)
Tangible assets acquired, net	$ 44
Identifiable intangible assets:	
Technology-related	1,485
Customer relationships	990
Goodwill	6,252
Deferred tax liabilities	(545)
Total assets acquired, net	$ 8,226

The goodwill reflects the value of the assembled workforce and the company-specific synergies we expect to realize by selling OptiPlant products and services to our existing customers and is reported under the subscription and software reporting unit. The results of operations of OptiPlant have been included prospectively in our results of operations since the date of acquisition.

9. Intangible Assets

We include in our amortizable intangible assets those intangible assets acquired in our business and asset acquisitions. We amortize acquired intangible assets with finite lives over their estimated economic lives, generally using the straight-line method. Each period, we evaluate the estimated remaining useful lives of acquired intangible assets to determine whether events or changes in circumstances warrant a revision to the remaining period of amortization. Acquired intangibles are removed from the accounts when fully amortized and no longer in use.

Intangible assets consisted of the following as of March 31, 2021 and June 30, 2020:

	Gross Carrying Amount	Accumulated Amortization	Effect of Currency Translation	Net Carrying Amount
	(Dollars in Thousands)			
March 31, 2021:				
Technology	$ 55,288	$ (17,786)	$ 614	$ 38,116
Customer relationships	12,038	(4,277)	119	7,880
Non-compete agreements	553	(553)	—	—
Total	$ 67,879	$ (22,616)	$ 733	$ 45,996
June 30, 2020:				
Technology	$ 51,269	$ (13,245)	$ (842)	$ 37,182
Customer relationships	9,148	(3,171)	(308)	5,669
Non-compete agreements	553	(553)	—	—
Total	$ 60,970	$ (16,969)	$ (1,150)	$ 42,851

Total amortization expense related to intangible assets is included in cost of license revenue (for technology) and general and administrative expense (for customer relationships and non-compete agreements) and amounted to approximately $2.1 million and $1.9 million during the three months ended March 31, 2021 and 2020, respectively, and $5.7 million and $4.7 million during the nine months ended March 31, 2021 and 2020, respectively.

Future amortization expense as of March 31, 2021 is expected to be as follows:

Year Ended June 30,	Amortization Expense
	(Dollars in Thousands)
2021	$ 2,005
2022	8,137
2023	8,118
2024	7,575
2025	7,490
Thereafter	12,671
Total	$ 45,996

10. Goodwill

The changes in the carrying amount of goodwill for our subscription and software reporting unit during the three months ended March 31, 2021 were as follows:

	Gross Carrying Amount	Accumulated Impairment Losses	Effect of Currency Translation	Net Carrying Amount
	(Dollars in Thousands)			
June 30, 2020:	$ 207,850	$ (65,569)	$ (5,226)	$ 137,055
Goodwill from acquisitions	13,608	—	—	13,608
Foreign currency translation	—	—	7,519	7,519
March 31, 2021:	$ 221,458	$ (65,569)	$ 2,293	$ 158,182

We test goodwill for impairment annually (or more often if impairment indicators arise), at the reporting unit level. We first assess qualitative factors to determine whether the existence of events or circumstances indicates that it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If we determine based on this assessment that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, we perform the goodwill impairment test. The first step requires us to determine the fair value of the reporting unit and compare it to the carrying amount, including goodwill, of such reporting unit. If the fair value exceeds the carrying amount, no impairment loss is recognized. However, if the carrying amount of the reporting unit exceeds its fair value, the goodwill of the unit is impaired.

Fair value of a reporting unit is determined using a combined weighted average of a market-based approach (utilizing fair value multiples of comparable publicly traded companies) and an income-based approach (utilizing discounted projected cash flows). In applying the income-based approach, we would be required to make assumptions about the amount and timing of future expected cash flows, growth rates and appropriate discount rates. The amount and timing of future cash flows would be based on our most recent long-term financial projections. The discount rate we would utilize would be determined using estimates of market participant risk-adjusted weighted-average costs of capital and reflect the risks associated with achieving future cash flows.

We have elected December 31st as the annual impairment assessment date. We performed our annual impairment test for the subscription and software reporting unit as of December 31, 2020 and, based upon the results of our qualitative assessment, determined that it was not likely that its fair value was less than its carrying amount. As such, we did not recognize impairment losses as a result of our analysis. If an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying value, goodwill will be evaluated for impairment between annual tests.

11. Accrued Expenses and Other Liabilities

Accrued expenses and other current liabilities consisted of the following as of March 31, 2021 and June 30, 2020:

	March 31, 2021	June 30, 2020
	(Dollars in Thousands)	
Compensation-related	$ 23,800	$ 27,591
Deferred acquisition payments	4,050	1,479
Uncertain tax positions	331	318
Royalties and external commissions	3,952	3,359
Professional fees	3,041	2,115
Other	7,889	8,694
Total accrued expenses and other current liabilities	$ 43,063	$ 43,556

Other non-current liabilities consisted of the following as of March 31, 2021 and June 30, 2020:

	March 31, 2021	June 30, 2020
	(Dollars in Thousands)	
Uncertain tax positions	$ 2,425	$ 2,027
Deferred acquisition payments	1,200	—
Asset retirement obligations	944	920
Other	273	160
Total other non-current liabilities	$ 4,842	$ 3,107

12. Credit Agreement

In December 2019, we entered into an Amended and Restated Credit Agreement with JPMorgan Chase Bank, N.A., as administrative agent, joint lead arranger and joint bookrunner, Silicon Valley Bank, as joint lead arranger, joint bookrunner and syndication agent, and the lenders and co-documentation agents named therein (the "Amended and Restated Credit Agreement"). The Amended and Restated Credit Agreement, which amends and restates the Credit Agreement we entered into as of February 26, 2016, provides for a $200.0 million secured revolving credit facility and a $320.0 million secured term loan facility.

Principal outstanding under the Amended and Restated Credit Agreement bears interest at a rate per annum equal to, at our option, either: (1) the sum of (a) the highest of (i) the rate of interest last quoted by The Wall Street Journal in the United States as the prime rate in effect, (ii) the NYFRB Rate (as defined in the Amended and Restated Credit Agreement) plus 0.5%, and (iii) the LIBO rate (as defined in the Amended and Restated Credit Agreement) multiplied by the Statutory Reserve Rate (as defined in the Amended and Restated Credit Agreement) plus 1.0%, plus (b) a margin initially of 0.5% for the first full fiscal quarter ending after the date of the Amended and Restated Credit Agreement and thereafter based on our leverage ratio (as defined in the Amended and Restated Credit Agreement); or (2) the sum of (a) the LIBO rate multiplied by the Statutory Reserve Rate, plus (b) a margin initially of 1.5% for the first full fiscal quarter ending after the date of the Amended and Restated Credit Agreement and thereafter based on our leverage ratio. The interest rate as of March 31, 2021 was 1.61% on $300.0 million in outstanding borrowings on our term loan facility.

All borrowings under the Amended and Restated Credit Agreement are secured by liens on substantially all of our assets and the assets of our subsidiary AspenTech Canada Holdings, LLC, which has guaranteed our obligations under the Amended and Restated Credit Agreement. Additional significant subsidiaries (as determined in the Amended and Restated Credit Agreement) may be required to guarantee our obligations and to grant liens on their assets in favor of the lenders.

As of March 31, 2021, our current borrowings of $18.0 million consist of the term loan facility. Our non-current borrowings of $279.0 million consist of $282.0 million of our term loan facility, net of $3.0 million in debt issuance costs. We had current borrowings of $135.2 million and non-current borrowings of $292.4 million as of June 30, 2020.

The indebtedness under the revolving credit facility matures on December 23, 2024. The following table summarizes the maturities of the term loan facility:

Year Ended June 30,	Amount (Dollars in Thousands)
2021	$ 4,000
2022	20,000
2023	28,000
2024	36,000
2025	212,000
Total	$ 300,000

The Amended and Restated Credit Agreement contains affirmative and negative covenants customary for facilities of this type, including restrictions on incurrence of additional debt, liens, fundamental changes, asset sales, restricted payments and transactions with affiliates. There are also financial covenants regarding maintenance as of the end of each fiscal quarter, commencing with the quarter ending March 31, 2021, of a maximum leverage ratio of 3.50 to 1.00 and a minimum interest coverage ratio of 2.50 to 1.00. As of March 31, 2021, we were in compliance with these covenants.

13. Stock-Based Compensation

Stock Compensation Accounting

The weighted average estimated fair value of option awards granted was $45.63 and $37.54 during the three months ended March 31, 2021 and 2020, respectively, and $38.76 and $33.15 during the nine months ended March 31, 2021 and 2020, respectively.

We utilized the Black-Scholes option valuation model with the following weighted average assumptions:

	Nine Months Ended March 31,	
	2021	2020
Risk-free interest rate	0.4 %	1.5 %
Expected dividend yield	0.0 %	0.0 %
Expected life (in years)	4.7	4.5
Expected volatility factor	34.1 %	26.8 %

The stock-based compensation expense under all equity plans and its classification in the unaudited consolidated statements of operations for the three and nine months ended March 31, 2021 and 2020 are as follows:

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2021	2020	2021	2020
	(Dollars in Thousands)			
Recorded as expenses:				
Cost of maintenance	$ 234	$ 343	$ 688	$ 1,104
Cost of services and other	412	450	1,198	1,477
Selling and marketing	1,869	1,472	4,655	4,228
Research and development	2,273	2,082	6,515	6,193
General and administrative	4,437	2,952	11,533	11,131
Total stock-based compensation	$ 9,225	$ 7,299	$ 24,589	$ 24,133

A summary of stock option and restricted stock unit ("RSU") activity under all equity plans for the nine months ended March 31, 2021 is as follows:

	Stock Options				Restricted Stock Units	
	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in 000's)	Shares	Weighted Average Grant Date Fair Value
Outstanding at June 30, 2020	1,410,139	$ 76.19	6.67	$ 49,705	352,921	$ 112.45
Granted	322,472	131.40			245,023	130.63
Settled (RSUs)	—				(148,386)	105.13
Exercised (Stock options)	(187,113)	62.05			—	
Cancelled / Forfeited	(36,779)	115.82			(33,060)	115.97
Outstanding at March 31, 2021	1,508,719	$ 88.77	6.67	$ 83,915	416,498	$ 125.49
Vested and exercisable at March 31, 2021	969,700	$ 67.80	5.43	$ 74,212		
Vested and expected to vest as of March 31, 2021	1,451,661	$ 87.34	6.58	$ 82,837	365,640	$ 125.51

As of March 31, 2021, common stock reserved for future issuance under equity compensation plans was 5.5 million shares.

Employee Stock Purchase Plan

On July 26, 2018, our Board of Directors approved the Aspen Technology, Inc. 2018 Employee Stock Purchase Plan (the "ESPP"), which provides for the issuance of up to 250,000 shares of common stock to participating employees. The ESPP is intended to be a qualified employee stock purchase plan under Section 423 of the Internal Revenue Code of 1986 (the "IRC"). The ESPP was approved at our Annual Meeting of Stockholders on December 7, 2018. The ESPP currently provides for a purchase price equal to 85% of the lower of (a) the fair market value of the common stock on the first trading day of each ESPP offering period and (b) the fair market value of the common stock on the last day of the offering period. Our initial offering period was January 1, 2019 through June 30, 2019, and our current offering period is January 1, 2021 through June 30, 2021.

We recorded stock-based compensation expense associated with the ESPP of $0.2 million and $0.2 million during the three months ended March 31, 2021 and 2020, respectively, and $0.5 million and $0.4 million during the nine months ended March 31, 2021 and 2020, respectively. As of March 31, 2021, there were 208,687 shares of common stock available for issuance under the ESPP.

14. Stockholders' Equity

Stock Repurchases

On January 22, 2015, our Board of Directors approved a share repurchase program (the "Share Repurchase Program") for up to $450.0 million of our common stock. The Share Repurchase Program was announced on January 28, 2015, and expires at the end of each fiscal year unless extended. On April 26, 2016, June 8, 2017, April 18, 2018, December 6, 2018, and April 17, 2019, the Board of Directors approved a $400.0 million, $200.0 million, $200.0 million, $100.0 million, and $200.0 million increase in the Share Repurchase Program, respectively. On July 22, 2020, our Board of Directors approved a new share repurchase program (the "New Share Repurchase Program") for up to $200.0 million of our common stock, and terminated the Share Repurchase Program. The timing and amount of any shares repurchased are based on market conditions and other factors. All shares of our common stock repurchased have been recorded as treasury stock under the cost method.

No shares of our common stock were repurchased in the open market under the New Share Repurchase Program during the three and nine months ended March 31, 2021. 451,991 and 1,252,289 shares of our common stock were repurchased in the open market for $50.0 million and $150.0 million under the Share Repurchase Program during the three and nine months ended March 31, 2020, respectively. As of March 31, 2021, the total remaining value under the New Share Repurchase Program was approximately $200.0 million.

Accumulated Other Comprehensive Income (Loss)

As of March 31, 2021 and June 30, 2020, accumulated other comprehensive income (loss) was comprised of foreign currency translation adjustments of $6.5 million and $(5.3) million, respectively.

15. Net Income Per Share

Basic income per share is determined by dividing net income by the weighted average common shares outstanding during the period. Diluted income per share is determined by dividing net income by diluted weighted average shares outstanding during the period. Diluted weighted average shares reflect the dilutive effect, if any, of potential common shares. To the extent their effect is dilutive, employee equity awards and other commitments to be settled in common stock are included in the calculation of diluted net income per share based on the treasury stock method.

The calculations of basic and diluted net income per share and basic and dilutive weighted average shares outstanding for the three and nine months ended March 31, 2021 and 2020 are as follows:

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2021	2020	2021	2020
	(Dollars and Shares in Thousands, Except per Share Data)			
Net income	$ 62,495	$ 41,826	$ 224,358	$ 135,141
Weighted average shares outstanding	67,920	67,806	67,809	68,122
Dilutive impact from:				
Employee equity awards	688	676	630	784
Dilutive weighted average shares outstanding	68,608	68,482	68,439	68,906
Income per share				
Basic	$ 0.92	$ 0.62	$ 3.31	$ 1.98
Dilutive	$ 0.91	$ 0.61	$ 3.28	$ 1.96

For the three and nine months ended March 31, 2021 and 2020, certain employee equity awards were anti-dilutive based on the treasury stock method. The following employee equity awards were excluded from the calculation of dilutive weighted average shares outstanding because their effect would be anti-dilutive as of March 31, 2021 and 2020:

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2021	2020	2021	2020
	(Shares in Thousands)			
Employee equity awards	507	688	869	678

Included in the table above are options to purchase 23,943 and 567,676 shares of our common stock during the three and nine months ended March 31, 2021, which were not included in the computation of dilutive weighted average shares outstanding, because their exercise prices ranged from $129.70 per share to $151.33 per share, during the nine months ended March 31, 2021, and were greater than the average market price of our common stock during the period then ended. These options were outstanding as of March 31, 2021 and expire at various dates through March 29, 2031.

16. Income Taxes

The effective tax rate for the periods presented is primarily the result of income earned in the U.S. taxed at U.S. federal and state statutory income tax rates, income earned in foreign tax jurisdictions taxed at the applicable rates, as well as the impact of permanent differences between book and tax income, primarily the Foreign Derived Intangible Income ("FDII") deduction.

Assuming certain requirements are met, the FDII deduction is a benefit for U.S. companies that sell their products or services to customers outside the U.S.

Our effective tax rate was 17.6% and 15.2% during the three months ended March 31, 2021 and 2020, respectively, and 17.3% and 13.4% during the nine months ended March 31, 2021 and 2020, respectively. Our effective tax rate was lower in the three months ended March 31, 2020 due to the higher FDII deduction taken last year compared to this year, and lower in the nine months ended March 31, 2020 as a result of the tax contingency reversal due to settling an IRS audit.

We recognized an income tax expense of $13.3 million and $7.5 million during the three months ended March 31, 2021 and 2020, respectively, and $47.1 million and $20.9 million during the nine months ended March 31, 2021 and 2020, respectively. Our income tax expense was driven primarily by pre-tax profitability in our domestic and foreign operations and the impact of permanent items. The permanent items are predominantly the FDII deduction, stock-based compensation expense and tax credits for research expenditures.

Deferred income taxes are recognized based on temporary differences between the financial statement and tax bases of assets and liabilities. Deferred tax assets and liabilities are measured using the statutory tax rates and laws expected to apply to taxable income in the years in which the temporary differences are expected to reverse. Valuation allowances are provided against net deferred tax assets if, based upon the available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income and the timing of the temporary differences becoming deductible. Management considers, among other available information, scheduled reversals of deferred tax liabilities, projected future taxable income, limitations of availability of net operating loss carryforwards, and other matters in making this assessment.

17. Commitments and Contingencies

Standby letters of credit for $2.3 million and $3.5 million secured our performance on professional services contracts, certain facility leases and potential liabilities as of March 31, 2021 and June 30, 2020, respectively. The letters of credit expire at various dates through fiscal 2026.

18. Segment Information

Operating segments are defined as components of an enterprise that engage in business activities for which discrete financial information is available and regularly reviewed by the chief operating decision maker in deciding how to allocate resources and to assess performance. Our chief operating decision maker is our President and Chief Executive Officer.

We have two operating and reportable segments, which are consistent with our reporting units: i) subscription and software and ii) services and other. The subscription and software segment is engaged in the licensing of process optimization and asset performance management software solutions and associated support services, and includes our license and maintenance revenue. The services and other segment includes professional services and training, and includes our services and other revenue. We do not track assets or capital expenditures by operating segments. Consequently, it is not practical to present assets, capital expenditures, depreciation or amortization by operating segments.

The following table presents a summary of our reportable segments' profits:

	Subscription and Software	Services and Other	Total
	(Dollars in Thousands)		
Three Months Ended March 31, 2021			
Segment revenue	$ 155,989	$ 6,737	$ 162,726
Segment expenses (1)	(63,878)	(8,396)	(72,274)
Segment profit (loss)	$ 92,111	$ (1,659)	$ 90,452
Three Months Ended March 31, 2020			
Segment revenue	$ 122,355	$ 8,233	$ 130,588
Segment expenses (1)	(58,589)	(9,046)	(67,635)
Segment profit (loss)	$ 63,766	$ (813)	$ 62,953
Nine Months Ended March 31, 2021			
Segment revenue	$ 491,694	$ 19,721	$ 511,415
Segment expenses (1)	(173,593)	(24,911)	(198,504)
Segment profit (loss)	$ 318,101	$ (5,190)	$ 312,911
Nine Months Ended March 31, 2020			
Segment revenue	$ 370,729	$ 26,048	$ 396,777
Segment expenses (1)	(174,629)	(26,560)	(201,189)
Segment profit (loss)	$ 196,100	$ (512)	$ 195,588

(1) Our reportable segments' operating expenses include expenses directly attributable to the segments. Segment expenses include selling and marketing and research and development expenses. Segment expenses do not include allocations of general and administrative expense; interest income; interest expense; and other (expense) income, net.

Reconciliation to Income before Income Taxes

The following table presents a reconciliation of total segment profit to income before income taxes for the three and nine months ended March 31, 2021 and 2020:

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2021	2020	2021	2020
	(Dollars in Thousands)			
Total segment profit for reportable segments	$ 90,452	$ 62,953	$ 312,911	$ 195,588
General and administrative expense	(21,553)	(18,219)	(60,389)	(54,525)
Interest income	8,410	8,173	26,383	24,577
Interest (expense)	(1,495)	(3,207)	(5,639)	(9,368)
Other (expense), net	(5)	(352)	(1,807)	(217)
Income before income taxes	$ 75,809	$ 49,348	$ 271,459	$ 156,055

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

You should read the following discussion in conjunction with our unaudited consolidated financial statements and related notes thereto contained in this report. In addition to historical information, this discussion contains forward-looking statements that involve risks and uncertainties. You should read “Item 1A. Risk Factors” of Part II for a discussion of important factors that could cause our actual results to differ materially from our expectations.

Our fiscal year ends on June 30th, and references in this Quarterly Report to a specific fiscal year are to the twelve months ended June 30th of such year (for example, “fiscal 2021” refers to the year ending on June 30, 2021).

Business Overview

We are a global leader in asset optimization software that optimizes asset design, operations and maintenance in complex, industrial environments. We combine decades of process modeling and operations expertise with big data, artificial intelligence, and advanced analytics. Our purpose-built software improves the competitiveness and profitability of our customers by increasing throughput, energy efficiency, and production levels, reducing unplanned downtime, plant emissions, and safety risks, enhancing capital efficiency, and decreasing working capital requirements over the entire asset lifecycle to support operational excellence.

Our software incorporates our proprietary mathematical and empirical models of manufacturing and planning processes and reflects the deep domain expertise we have amassed from focusing on solutions for the process and other capital-intensive industries for over 35 years. We have developed our applications to design and optimize processes across three principal business areas: engineering, manufacturing and supply chain, and asset performance management. We are a recognized market and technology leader in providing process optimization and asset performance management software for each of these business areas.

We have established sustainable competitive advantages based on the following strengths:

- Innovative products that can enhance our customers' profitability and productivity;
- Long-term customer relationships;
- Large installed base of users of our software; and
- Long-term license contracts.

We have approximately 2,400 customers globally. Our customers consist of companies engaged in the process and other capital-intensive industries such as energy, chemicals, engineering and construction, as well as pharmaceuticals, food and beverage, transportation, power, metals and mining, pulp and paper, and consumer packaged goods.

Business Segments

We have two operating and reportable segments, which are consistent with our reporting units: (i) subscription and software and (ii) services and other. The subscription and software segment is engaged in the licensing of process optimization and asset performance management software solutions and associated support services, and includes our license and maintenance revenue. The services and other segment includes professional services and training, and includes our services and other revenue.

Recent Events

In December 2019, the novel SARS-CoV-2 virus and associated COVID-19 disease (“COVID-19”) were reported in China, and in March 2020 the World Health Organization declared a pandemic. Since the beginning of March 2020, the sudden decrease in demand for oil due to the COVID-19 pandemic, compounded by the excess supply arising from producers’ failure to agree on production cuts, resulted in a drop in oil prices. During the three and nine months ended March 31, 2021, our business was negatively impacted by these factors. Specifically, we saw a slowdown in closing customer contracts, a slight increase in our customer attrition rate due to non-renewals and renewals at lower entitlement level and, to a lesser extent, a slowdown in customer payments. We are continuing to assess the impact of these items on global markets and the various industries of our customers. The extent of the impact on our operational and financial performance going forward will depend on developments such as the duration and spread of the pandemic and other factors affecting oil prices, the impact of these items on our customers and our sales cycles, as well as on our employees, all of which are uncertain and cannot be predicted. We are continuing to monitor the potential impacts related to the current disruption of COVID-19 and uncertainty in the global markets on the various industries of our customers. These factors could potentially impact the signing of new agreements, as well as the recoverability of assets, including accounts receivable and contract costs.

Key Components of Operations

Revenue

We generate revenue primarily from the following sources:

License Revenue. We sell our software products to end users, primarily under fixed-term licenses, through a subscription offering which we refer to as our aspenONE licensing model. The aspenONE licensing model includes software maintenance and support, known as our Premier Plus SMS offering, for the entire term. Our aspenONE products are organized into three suites: 1) engineering; 2) manufacturing and supply chain; and 3) asset performance management. The aspenONE licensing model provides customers with access to all of the products within the aspenONE suite(s) they license. Customers can change or alternate the use of multiple products in a licensed suite through the use of exchangeable units of measurement, called tokens, licensed in quantities determined by the customer. This licensing system enables customers to use products as needed and to experiment with different products to best solve whatever critical business challenges they face. Customers can increase their usage of our software by purchasing additional tokens as business needs evolve.

We also license our software through point product arrangements with our Premier Plus SMS offering included for the contract term.

Maintenance Revenue. We provide customers technical support, access to software fixes and updates and the right to any new unspecified future software products and updates that may be introduced into the licensed aspenONE software suite. Our technical support services are provided from our customer support centers throughout the world, as well as via email and through our support website.

Services and Other Revenue. We provide training and professional services to our customers. Our professional services are focused on implementing our technology in order to improve customers' plant performance and gain better operational data. Customers who use our professional services typically engage us to provide those services over periods of up to 24 months. We charge customers for professional services on a time-and-materials or fixed-price basis. We provide training services to our customers, including on-site, Internet-based and customized training.

Cost of Revenue

Cost of License. Our cost of license revenue consists of (i) royalties, (ii) amortization of capitalized software and intangibles, and (iii) distribution fees.

Cost of Maintenance. Our cost of maintenance revenue consists primarily of personnel-related costs of providing Premier Plus SMS bundled with our aspenONE licensing and point product arrangements.

Cost of Services and Other. Our cost of services and other revenue consists primarily of personnel-related and external consultant costs associated with providing customers professional services and training.

Operating Expenses

Selling and Marketing Expenses. Selling expenses consist primarily of the personnel and travel expenses related to the effort expended to license our products and services to current and potential customers, as well as for overall management of customer relationships. Marketing expenses include expenses needed to promote our company and our products and to conduct market research to help us better understand our customers and their business needs.

Research and Development Expenses. Research and development expenses consist primarily of personnel expenses related to the creation of new software products, enhancements and engineering changes to existing products.

General and Administrative Expenses. General and administrative expenses include the costs of corporate and support functions, such as executive leadership and administration groups, finance, legal, human resources and corporate communications, and other costs, such as outside professional and consultant fees, amortization of intangibles, and provision for bad debts.

Other Income and Expenses

Interest Income. Interest income is recorded for financing components under Accounting Standards Update ("ASU") No. 2014-09, *Revenue from Contracts with Customers* ("Topic 606"). When a contract includes a significant financing component, we generally receive the majority of the customer consideration after the recognition of a substantial portion of the arrangement fee as license revenue. As a result, we decrease the amount of revenue recognized and increase interest income by a corresponding amount. Interest income also includes the accretion of interest on investments in short-term money market instruments.

Interest Expense. Interest expense is primarily related to our Amended and Restated Credit Agreement.

Other (Expense), Net. Other (expense) income, net is comprised primarily of foreign currency exchange gains (losses) generated from the settlement and remeasurement of transactions denominated in currencies other than the functional currency of our operating units.

Provision for Income Taxes. Provision for income taxes is comprised of domestic and foreign taxes. We record interest and penalties related to income tax matters as a component of income tax expense. Our effective income tax rate may fluctuate between fiscal years and from quarter to quarter due to items arising from discrete events, such as tax benefits from the disposition of employee equity awards, settlements of tax audits and assessments and tax law changes. Our effective income tax rate is also impacted by, and may fluctuate in any given period because of, the composition of income in foreign jurisdictions where tax rates differ.

Key Business Metrics

Background

We utilize key business measures to track and assess the performance of our business. We have identified the following set of appropriate business metrics in the context of our evolving business:

- Annual spend
- Total contract value
- Bookings

We also use the following non-GAAP business metrics in addition to GAAP measures to track our business performance:

- Free cash flow
- Non-GAAP operating income

We make these measures available to investors and none of these metrics should be considered as an alternative to any measure of financial performance calculated in accordance with GAAP.

Annual Spend

Annual spend is an estimate of the annualized value of our portfolio of term license agreements, as of a specific date. Annual spend is calculated by summing the most recent annual invoice value of each of our active term license agreements. Annual spend also includes the annualized value of standalone SMS agreements purchased with certain legacy term license agreements, which have become an immaterial part of our business.

Comparing annual spend for different dates can provide insight into the growth and retention rates of our business, because annual spend represents the estimated annualized billings associated with our active term license agreements. Management utilizes the annual spend business metric to evaluate the growth and performance of our business as well as for planning and forecasting. In addition, our corporate and executive bonus programs are based in part on our success in meeting targets for growth in annual spend that are approved by our board. We believe that annual spend is a useful business metric to investors as it provides insight into the growth component of our term licenses and to how management evaluates and forecasts the business.

Annual spend increases as a result of new term license agreements with new or existing customers, renewals or modifications of existing term license agreements that result in higher license fees due to contractually-agreed price escalation or an increase in the number of tokens (units of software usage) or products licensed, and escalation of annual payments in our active term license agreements.

Annual spend is adversely affected by term license and standalone SMS agreements that are renewed at a lower entitlement level or not renewed and, to a lesser extent, by customer agreements that become inactive during the agreement's term because, in our determination, amounts due (or which will become due) under the agreement are not collectible. Because the annual spend calculation includes all of our active term license agreements, the reported balance may include agreements with customers that are delinquent in paying invoices, that are in bankruptcy proceedings, or where payment is otherwise in doubt.

As of March 31, 2021, approximately 87% of our term license agreements (by value) are denominated in U.S. dollars. For agreements denominated in other currencies, we use a fixed historical exchange rate to calculate annual spend in dollars rather than using current exchange rates, so that our calculation of growth in annual spend is not affected by fluctuations in foreign currencies.

Beginning in fiscal 2019 and for all future periods, for term license agreements that contain professional services or other products and services, we have included in the annual spend calculation the portion of the invoice allocable to the term license under Topic 606 rather than the portion of the invoice attributed to the license in the agreement. We believe that methodology more accurately allocates any discounts or premiums to the different elements of the agreement. We have not applied this methodology retroactively for agreements entered into in prior fiscal years.

We estimate that annual spend grew by approximately 1% during the third quarter of fiscal 2021, from $604.0 million at December 31, 2020 to $609.9 million at March 31, 2021, and by approximately 2.8% during the first nine months of fiscal 2021, from $593.1 million at June 30, 2020.

Total Contract Value

Total Contract Value ("TCV") is the aggregate value of all payments received or to be received under all active term license agreements, including maintenance and escalation. TCV was $2.8 billion as of June 30, 2020. TCV is an annual metric and will be included in our Annual Report on Form 10-K for the fiscal year ended June 30, 2021.

Bookings

Bookings is the total value of customer term license contracts signed in the current period, less the value of such contracts signed in the current period where the initial licenses are not yet deemed delivered, plus term license contracts signed in a previous period for which the initial licenses are deemed delivered in the current period.

Bookings increased from $126.7 million during the three months ended March 31, 2020 to $175.6 million during the three months ended March 31, 2021. Bookings increased from $373.9 million during the nine months ended March 31, 2020 to $548.8 million during the nine months ended March 31, 2021. The change in bookings is due to the timing of renewals.

Free Cash Flow

We use a non-GAAP measure of free cash flow to analyze cash flows generated from our operations. Management believes that this financial measure is useful to investors because it permits investors to view our performance using the same tools that management uses to gauge progress in achieving our goals. We believe this measure is also useful to investors because it is an indication of cash flow that may be available to fund investments in future growth initiatives or to repay borrowings under the Amended and Restated Credit Agreement, and it is a basis for comparing our performance with that of our competitors. The presentation of free cash flow is not meant to be considered in isolation or as an alternative to cash flows from operating activities as a measure of liquidity.

Free cash flow is calculated as net cash provided by operating activities adjusted for the net impact of (a) purchases of property, equipment and leasehold improvements, (b) payments for capitalized computer software costs, and (c) other nonrecurring items, such as acquisition related receipts and payments.

The following table provides a reconciliation of GAAP net cash provided by operating activities to free cash flow for the indicated periods:

	Nine Months Ended March 31, 2021	Nine Months Ended March 31, 2020
	(Dollars in Thousands)	
Net cash provided by operating activities (GAAP)	$ 172,949	$ 143,588
Purchases of property, equipment, and leasehold improvements	(733)	(1,111)
Payments for capitalized computer software development costs	(895)	(141)
Acquisition related payments	2,433	1,264
Free cash flow (non-GAAP)	$ 173,754	$ 143,600

Total free cash flow on a non-GAAP basis increased by $30.2 million during the nine months ended March 31, 2021 as compared to the same period of the prior fiscal year primarily due to changes in working capital. See additional commentary in the "Liquidity and Capital Resources" section below.

Non-GAAP Income from Operations

Non-GAAP income from operations excludes certain non-cash and non-recurring expenses, and is used as a supplement to income from operations presented on a GAAP basis. We believe that non-GAAP income from operations is a useful financial measure because removing certain non-cash and other items provides additional insight into recurring profitability and cash flow from operations.

The following table presents our income from operations, as adjusted for stock-based compensation expense, amortization of intangibles, and other items, such as the impact of acquisition related fees, for the indicated periods:

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
GAAP income from operations	$ 68,899	$ 44,734	$ 24,165	54.0 %	$ 252,522	$ 141,063	$ 111,459	79.0 %
Plus:								
Stock-based compensation	9,225	7,299	1,926	26.4 %	24,589	24,133	456	1.9 %
Amortization of intangibles	2,047	1,864	183	9.8 %	5,657	4,741	916	19.3 %
Acquisition related fees	749	—	749	100.0 %	3,133	78	3,055	3,916.7 %
Non-GAAP income from operations	$ 80,920	$ 53,897	$ 27,023	50.1 %	$ 285,901	$ 170,015	$ 115,886	68.2 %

Critical Accounting Estimates and Judgments

Note 2, "Significant Accounting Policies," to the audited consolidated financial statements in our Annual Report on Form 10-K for the fiscal year ended June 30, 2020 describes the significant accounting policies and methods used in the preparation of the consolidated financial statements appearing in this report. The accounting policies that reflect our critical estimates, judgments and assumptions in the preparation of our consolidated financial statements are described in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of our Annual Report on Form 10-K for the fiscal year ended June 30, 2020, and include the subsection captioned "Revenue Recognition."

See Note 3, "Revenue from Contracts with Customers," to our Unaudited Consolidated Financial Statements in Part 1, Item 1 of this Form 10-Q for more information on our accounting policies related to revenue recognition.

Results of Operations

Comparison of the Three and Nine Months Ended March 31, 2021 and 2020

The following table sets forth the results of operations and the period-over-period percentage change in certain financial data for the three and nine months ended March 31, 2021 and 2020:

	Three Months Ended March 31,		Increase / (Decrease) Change	Nine Months Ended March 31,		Increase / (Decrease) Change
	2021	2020	%	2021	2020	%
	(Dollars in Thousands)					
Revenue:						
License	$ 110,104	$ 78,156	40.9 %	$ 352,133	$ 238,311	47.8 %
Maintenance	45,885	44,199	3.8 %	139,561	132,418	5.4 %
Services and other	6,737	8,233	(18.2)%	19,721	26,048	(24.3)%
Total revenue	162,726	130,588	24.6 %	511,415	396,777	28.9 %
Cost of revenue:						
License	2,485	1,881	32.1 %	6,859	5,550	23.6 %
Maintenance	5,174	4,778	8.3 %	14,066	14,339	(1.9)%
Services and other	8,396	9,046	(7.2)%	24,911	26,560	(6.2)%
Total cost of revenue	16,055	15,705	2.2 %	45,836	46,449	(1.3)%
Gross profit	146,671	114,883	27.7 %	465,579	350,328	32.9 %
Operating expenses:						
Selling and marketing	30,345	28,354	7.0 %	82,092	86,046	(4.6)%
Research and development	25,874	23,576	9.7 %	70,576	68,694	2.7 %
General and administrative	21,553	18,219	18.3 %	60,389	54,525	10.8 %
Total operating expenses	77,772	70,149	10.9 %	213,057	209,265	1.8 %
Income from operations	68,899	44,734	54.0 %	252,522	141,063	79.0 %
Interest income	8,410	8,173	2.9 %	26,383	24,577	7.3 %
Interest (expense)	(1,495)	(3,207)	(53.4)%	(5,639)	(9,368)	(39.8)%
Other (expense), net	(5)	(352)	(98.6)%	(1,807)	(217)	732.7 %
Income before income taxes	75,809	49,348	53.6 %	271,459	156,055	74.0 %
Provision for income taxes	13,314	7,522	77.0 %	47,101	20,914	125.2 %
Net income	$ 62,495	$ 41,826	49.4 %	$ 224,358	$ 135,141	66.0 %

The following table sets forth the results of operations as a percentage of total revenue for certain financial data for the three and nine months ended March 31, 2021 and 2020:

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2021	2020	2021	2020
	(% of Revenue)			
Revenue:				
License	67.7 %	59.8 %	68.9 %	60.1 %
Maintenance	28.2	33.8	27.3	33.4
Services and other	4.1	6.4	3.9	6.5
Total revenue	100.0	100.0	100.1	100.0
Cost of revenue:				
License	1.5	1.4	1.3	1.4
Maintenance	3.2	3.7	2.8	3.6
Services and other	5.2	6.9	4.9	6.7
Total cost of revenue	9.9	12.0	9.0	11.7
Gross profit	90.1	88.0	91.0	88.3
Operating expenses:				
Selling and marketing	18.6	21.7	16.1	21.7
Research and development	15.9	18.1	13.8	17.3
General and administrative	13.2	14.0	11.8	13.7
Total operating expenses	47.8	53.7	41.7	52.7
Income from operations	42.3	34.3	49.4	35.6
Interest income	5.2	6.3	5.2	6.2
Interest (expense)	(0.9)	(2.5)	(1.1)	(2.4)
Other (expense), net	—	(0.3)	(0.4)	(0.1)
Income before income taxes	46.6	37.8	53.1	39.3
Provision for income taxes	8.2	5.8	9.2	5.3
Net income	38.4 %	32.0 %	43.9 %	34.1 %

Revenue

Total revenue increased by $32.1 million during the three months ended March 31, 2021 as compared to the corresponding period of the prior fiscal year. The increase of $32.1 million during the three months ended March 31, 2021 was comprised of an increase in license revenue of $31.9 million and an increase in maintenance revenue of $1.7 million, partially offset by a decrease in services and other revenue of $1.5 million, as compared to the corresponding period of the prior fiscal year.

Total revenue increased by $114.6 million during the nine months ended March 31, 2021 as compared to the corresponding period of the prior fiscal year. The increase of $114.6 million during the nine months ended March 31, 2021 was comprised of an increase in license revenue of $113.8 million and an increase in maintenance revenue of $7.1 million, partially offset by a decrease in services and other revenue of $6.3 million, as compared to the corresponding period of the prior fiscal year.

License Revenue

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
License revenue	$ 110,104	$ 78,156	$ 31,948	40.9 %	$ 352,133	$ 238,311	$ 113,822	47.8 %
As a percent of total revenue	67.7 %	59.8 %			68.9 %	60.1 %		

The period-over-period increase of $31.9 million and $113.8 million in license revenue during the three and nine months ended March 31, 2021, respectively, was primarily attributable to an increase in bookings related to the timing of renewals.

Maintenance Revenue

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Maintenance revenue	$ 45,885	$ 44,199	$ 1,686	3.8 %	$ 139,561	$ 132,418	$ 7,143	5.4 %
As a percent of total revenue	28.2 %	33.8 %			27.3 %	33.4 %		

We expect maintenance revenue to increase as a result of: (i) having a larger base of arrangements recognized on a ratable basis; (ii) increased customer usage of our software; (iii) adding new customers; and (iv) escalating annual payments.

The period-over-period increase of $1.7 million and $7.1 million in maintenance revenue during the three and nine months ended March 31, 2021, respectively, was primarily due to growth of our base of arrangements, which include maintenance, being recognized on a ratable basis.

Services and Other Revenue

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Services and other revenue	$ 6,737	$ 8,233	$ (1,496)	(18.2)%	$ 19,721	$ 26,048	$ (6,327)	(24.3)%
As a percent of total revenue	4.1 %	6.4 %			3.9 %	6.5 %		

We recognize professional services revenue for our time-and-materials ("T&M") contracts based upon hours worked and contractually agreed-upon hourly rates. Revenue from fixed-price engagements is recognized using the proportional performance method based on the ratio of costs incurred to the total estimated project costs.

Services and other revenue decreased $1.5 million and $6.3 million during the three and nine months ended March 31, 2021, respectively, as compared to the corresponding period of the prior fiscal year primarily due to the timing and volume of professional services engagements.

Cost of Revenue

Cost of License Revenue

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Cost of license revenue	$ 2,485	$ 1,881	$ 604	32.1 %	$ 6,859	$ 5,550	$ 1,309	23.6 %
As a percent of license revenue	2.3 %	2.4 %			1.9 %	2.3 %		

Cost of license revenue increased $0.6 million and $1.3 million for the three and nine months ended March 31, 2021, respectively, as compared to the corresponding period of the prior fiscal year primarily due to increased amortization of intangible assets from acquisitions. License gross profit margin remained consistent at 97.7% and 97.6% for the three months ended March 31, 2021 and 2020, respectively, and 98.1% and 97.7% for the nine months ended March 31, 2021 and 2020, respectively, due to the low cost of license revenue.

Cost of Maintenance Revenue

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Cost of maintenance revenue	$ 5,174	$ 4,778	$ 396	8.3 %	$ 14,066	$ 14,339	$ (273)	(1.9)%
As a percent of maintenance revenue	11.3 %	10.8 %			10.1 %	10.8 %		

Cost of maintenance revenue increased $0.4 million and decreased $(0.3) million for the three and nine months ended March 31, 2021, respectively, as compared to the corresponding period of the prior fiscal year. Maintenance gross profit margin remained consistent at 88.7% and 89.2% for the three months ended March 31, 2021 and 2020, respectively, and 89.9% and 89.2% for the nine months ended March 31, 2021 and 2020, respectively.

Cost of Services and Other Revenue

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Cost of services and other revenue	$ 8,396	$ 9,046	$ (650)	(7.2)%	$ 24,911	$ 26,560	$ (1,649)	(6.2)%
As a percent of services and other revenue	124.6 %	109.9 %			126.3 %	102.0 %		

The timing of revenue and expense recognition on professional service arrangements can impact the comparability of cost and gross profit margin of professional services revenue from year to year. For example, revenue from fixed-price engagements is recognized using the proportional performance method based on the ratio of costs incurred to the total estimated project costs.

Cost of services and other revenue decreased $0.7 million and $1.6 million for the three and nine months ended March 31, 2021, respectively, as compared to the corresponding period of the prior fiscal year. Gross profit margin on services and other revenue was (24.6)% and (9.9)% for the three months ended March 31, 2021 and 2020, respectively, and (26.3)% and (2.0)% for the nine months ended March 31, 2021 and 2020, respectively.

Gross Profit

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Gross profit	$ 146,671	$ 114,883	$ 31,788	27.7 %	$ 465,579	$ 350,328	$ 115,251	32.9 %
As a percent of revenue	90.1 %	88.0 %			91.0 %	88.3 %		

For further discussion of subscription and software gross profit and services and other gross profit, please refer to the “Cost of License Revenue," "Cost of Maintenance Revenue," and “Cost of Services and Other Revenue” sections above.

Gross profit increased by $31.8 million and $115.3 million for the three and nine months ended March 31, 2021, respectively, as compared to the corresponding period of the prior fiscal year. Gross profit margin remained consistent at 90.1% and 88.0% for the three months ended March 31, 2021 and 2020, respectively, and 91.0% and 88.3% for the nine months ended March 31, 2021 and 2020, respectively.

Operating Expenses

Selling and Marketing Expense

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Selling and marketing expense	$ 30,345	$ 28,354	$ 1,991	7.0 %	$ 82,092	$ 86,046	$ (3,954)	(4.6)%
As a percent of total revenue	18.6 %	21.7 %			16.1 %	21.7 %		

The period-over-period increase of $2.0 million in selling and marketing expense during the three months ended March 31, 2021 was primarily attributable higher compensation costs of $2.3 million related to an increase in headcount and higher expenses associated with events in the period of $0.7 million, partially offset by lower travel-related costs of $1.5 million

The period-over-period decrease of $4.0 million in selling and marketing expense during the nine months ended March 31, 2021 was primarily attributable to lower travel and event related costs of $7.0 million, partially offset by increases in compensation cost of $1.7 million due to increase in headcounts and higher consulting costs of $0.7 million mainly attributable to a market survey.

Research and Development Expense

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Research and development expense	$ 25,874	$ 23,576	$ 2,298	9.7 %	$ 70,576	$ 68,694	$ 1,882	2.7 %
As a percent of total revenue	15.9 %	18.1 %			13.8 %	17.3 %		

The period-over-period increase of $2.3 million in research and development expense during the three months ended March 31, 2021 was primarily attributable to higher compensation costs of $2.4 million related to an increase in headcount.

The period-over-period increase of $1.9 million in research and development expense during the nine months ended March 31, 2021 was primarily attributable to higher compensation costs of $2.9 million due to increase in headcounts, partially offset by lower travel and event related costs of $1.2 million.

General and Administrative Expense

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
General and administrative expense	$ 21,553	$ 18,219	$ 3,334	18.3 %	$ 60,389	$ 54,525	$ 5,864	10.8 %
As a percent of total revenue	13.2 %	14.0 %			11.8 %	13.7 %		

The period-over-period increase of $3.3 million in general and administrative expense during the three months ended March 31, 2021 was primarily attributable to higher compensation costs of $2.0 million related to an increase in headcount and higher acquisition costs of $0.8 million.

The period-over-period increase of $5.9 million in general and administrative expense during the nine months ended March 31, 2021 was primarily attributable to higher bad debt expense of $3.5 million, higher acquisition costs of $3.1 million, and increases in talent acquisition costs of $1.0 million related to executive management retained searches, partially offset by lower professional fees of $3.7 million.

Non-Operating Income (Expense)

Interest Income

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Interest income	$ 8,410	$ 8,173	$ 237	2.9 %	$ 26,383	$ 24,577	$ 1,806	7.3 %
As a percent of total revenue	5.2 %	6.3 %			5.2 %	6.2 %		

The period-over-period increase of $0.2 million and $1.8 million in interest income during the three and nine months ended March 31, 2021, respectively, was a result of: (i) increased customer usage of our software; (ii) adding new customers; and (iii) escalating annual payments.

Interest (Expense)

	Three Months Ended March 31,		(Increase) / Decrease Change		Nine Months Ended March 31,		(Increase) / Decrease Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Interest (expense)	$ (1,495)	$ (3,207)	$ 1,712	(53.4)%	$ (5,639)	$ (9,368)	$ 3,729	(39.8)%
As a percent of total revenue	(0.9)%	(2.5)%			(1.1)%	(2.4)%		

The period-over-period decrease of $1.7 million and $3.7 million in interest (expense) during the three and nine months ended March 31, 2021, respectively, was primarily due to lower interest expenses related to our Amended and Restated Credit Agreement and lower outstanding borrowing balance after we paid off our revolving credit facility in December 2020.

Other (Expense), Net

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Other (expense), net	$ (5)	$ (352)	$ 347	(98.6)%	$ (1,807)	$ (217)	$ (1,590)	732.7 %
As a percent of total revenue	— %	(0.3)%			(0.4)%	(0.1)%		

Other (expense), net is comprised primarily of unrealized and realized foreign currency exchange gains and losses generated from the settlement and remeasurement of transactions denominated in currencies other than the functional currency of our entities.

During the three months ended March 31, 2021 and 2020, other (expense), net was primarily comprised of $0.1 million and $(0.3) million of currency gains and (losses), respectively.

During the nine months ended March 31, 2021 and 2020, other (expense), net was primarily comprised of $(2.0) million and $(0.2) million of currency losses, respectively.

Provision for Income Taxes

	Three Months Ended March 31,		Increase / (Decrease) Change		Nine Months Ended March 31,		Increase / (Decrease) Change	
	2021	2020	$	%	2021	2020	$	%
	(Dollars in Thousands)							
Provision for income taxes	$ 13,314	$ 7,522	$ 5,792	77.0 %	$ 47,101	$ 20,914	$ 26,187	125.2 %
Effective tax rate	17.6 %	15.2 %			17.3 %	13.4 %		

The effective tax rate for the periods presented is primarily the result of income earned in the U.S. taxed at U.S. federal and state statutory income tax rates, income earned in foreign tax jurisdictions taxed at the applicable rates, as well as the impact of permanent differences between book and tax income, primarily the Foreign Derived Intangible Income (“FDII”) deduction. Assuming certain requirements are met, the FDII deduction is a benefit for U.S. companies that sell their products or services to customers outside the U.S.

Our effective tax rate was 17.6% and 15.2% during the three months ended March 31, 2021 and 2020, respectively, and 17.3% and 13.4% during the nine months ended March 31, 2021 and 2020, respectively. Our effective tax rate was lower in the three months ended March 31, 2020 due to the higher FDII deduction taken last year compared to this year, and lower in the nine months ended March 31, 2020 as a result of the tax contingency reversal due to settling an IRS audit.

We recognized an income tax expense of $13.3 million and $7.5 million during the three months ended March 31, 2021 and 2020, respectively, and $47.1 million and $20.9 million during the nine months ended March 31, 2021 and 2020, respectively. Our income tax expense was driven primarily by pre-tax profitability in our domestic and foreign operations and the impact of permanent items. The permanent items are predominantly the FDII deduction, stock-based compensation expense and tax credits for research expenditures.

Liquidity and Capital Resources

Resources

In recent years, we have financed our operations with cash generated from operating activities. As of March 31, 2021, our principal capital resources consisted of $317.1 million in cash and cash equivalents.

We believe our existing cash and cash equivalents, together with our cash flows from operating activities, will be sufficient to meet our anticipated cash needs for at least the next twelve months. We may need to raise additional funds if we decide to make one or more acquisitions of businesses, technologies or products. If additional funding for such purposes is required beyond existing resources and our Amended and Restated Credit Agreement described below, we may not be able to effect a receivable, equity or debt financing on terms acceptable to us or at all.

Credit Agreement

In December 2019, we entered into an Amended and Restated Credit Agreement with JPMorgan Chase Bank, N.A., as administrative agent, joint lead arranger and joint bookrunner, Silicon Valley Bank, as joint lead arranger, joint bookrunner and syndication agent, and the lenders and co-documentation agents named therein (the "Amended and Restated Credit Agreement"). The Amended and Restated Credit Agreement, which amends and restates the Credit Agreement we entered into as of February 26, 2016 with the same lenders (the “Prior Credit Agreement”), provides for a $200.0 million secured revolving credit facility and a $320.0 million secured term loan facility. The indebtedness under the revolving credit facility matures on December 23, 2024. Prior to the maturity of the Amended and Restated Credit Agreement, any amounts borrowed under the revolving credit facility may be repaid and, subject to the terms and conditions of the Amended and Restated Credit Agreement, borrowed again in whole or in part without penalty.

As of March 31, 2021, our current borrowings of $18.0 million consist of the term loan facility. Our non-current borrowings of $279.0 million consist of $282.0 million of our term loan facility, net of $3.0 million in debt issuance costs. We had current borrowings of $135.2 million and non-current borrowings of $292.4 million as of June 30, 2020.

For a more detailed description of the Amended and Restated Credit Agreement, see Note 12, "Credit Agreement," to our Unaudited Consolidated Financial Statements in Part 1, Item 1 of this Form 10-Q.

Cash Equivalents and Cash Flows

Our cash equivalents of $1.0 million and $1.0 million as of March 31, 2021 and June 30, 2020, respectively, consisted of money market funds. The objective of our investment policy is to manage our cash and investments to preserve principal and maintain liquidity.

The following table summarizes our cash flow activities for the periods indicated:

	Nine Months Ended March 31,	
	2021	2020
	(Dollars in Thousands)	
Cash flow provided by (used in):		
Operating activities	$ 172,949	$ 143,588
Investing activities	(18,826)	(76,031)
Financing activities	(125,393)	53,527
Effect of exchange rates on cash balances	573	(838)
Increase in cash and cash equivalents	$ 29,303	$ 120,246

Operating Activities

Our primary source of cash is from the annual installments associated with our software license arrangements and related software support services, and to a lesser extent from professional services and training. We believe that cash inflows from our term license business will grow as we benefit from the continued growth of our portfolio of term license contracts.

Cash from operating activities provided $172.9 million during the nine months ended March 31, 2021. This amount resulted from net income of $224.4 million, adjusted for non-cash items of $55.7 million and net uses of cash of $(107.2) million related to changes in working capital.

Non-cash items during the nine months ended March 31, 2021 consisted primarily of stock-based compensation expense of $24.6 million, depreciation and amortization expense of $7.5 million, reduction in the carrying amount of right-of-use assets of $7.0 million, reduction in deferred income taxes of $7.0 million, provision for bad debts of $6.8 million, and net foreign currency losses of $2.0 million.

Cash used by working capital of $107.2 million during the nine months ended March 31, 2021 was primarily attributable to cash used by increases in contract assets of $103.5 million, decreases in lease liabilities of $7.5 million, increases in prepaid expenses, taxes and other assets of $7.0 million and decreases in accounts payable, accrued expenses and other current liabilities of $6.8 million and partially offset by increases in deferred revenue of $13.4 million, and decreases in accounts receivable of $4.1 million.

Investing Activities

During the nine months ended March 31, 2021, we used $18.8 million of cash for investing activities. We used $16.3 million for payments for business acquisitions, net of cash acquired, $0.9 million for equity method investments, $0.9 million for capitalized computer software costs and $0.7 million for capital expenditures.

Financing Activities

During the nine months ended March 31, 2021, we used $125.4 million of cash for financing activities. This amount resulted from $119.2 million of cash used for the repayment of the outstanding balance under our revolving credit facility, $12.0 million of cash used for maturities of amounts borrowed under our term loan facility, and $6.7 million of cash used for withholding taxes on vested and settled restricted stock units, offset by $12.5 million for cash provided by the exercise of employee stock options.

Contractual Obligations

Standby letters of credit for $2.3 million and $3.5 million secured our performance on professional services contracts, certain facility leases and potential liabilities as of March 31, 2021 and June 30, 2020, respectively. The letters of credit expire at various dates through fiscal 2026.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

In the ordinary course of conducting business, we are exposed to certain risks associated with potential changes in market conditions. These market risks include changes in currency exchange rates and interest rates which could affect operating results, financial position and cash flows. We manage our exposure to these market risks through our regular operating and financing activities and, if considered appropriate, we may enter into derivative financial instruments such as forward currency exchange contracts.

Foreign Currency Risk

During the three months ended March 31, 2021 and 2020, 14.6% and 8.2% of our total revenue was denominated in a currency other than the U.S. dollar, respectively. During the nine months ended March 31, 2021 and 2020, 11.4% and 7.4% of our total revenue was denominated in a currency other than the U.S. dollar, respectively. In addition, certain of our operating costs incurred outside the United States are denominated in currencies other than the U.S. dollar. We conduct business on a worldwide basis and as a result, a portion of our revenue, earnings, net assets, and net investments in foreign affiliates is exposed to changes in foreign currency exchange rates. We measure our net exposure for cash balance positions and for cash inflows and outflows in order to evaluate the need to mitigate our foreign exchange risk. We may enter into foreign currency forward contracts to minimize the impact related to unfavorable exchange rate movements, although we have not done so during the three and nine months ended March 31, 2021 and 2020. Currently, our largest exposures to foreign exchange rates exist primarily with the Euro, Pound Sterling, Canadian Dollar, Japanese Yen, and Russian Ruble against the U.S. dollar.

We recorded $0.1 million and $(0.3) million of net foreign currency exchange gains (losses) during the three months ended March 31, 2021 and 2020, respectively, and $(2.0) million and $(0.2) million of net foreign currency exchange (losses) during the nine months ended March 31, 2021 and 2020, respectively, related to the settlement and remeasurement of transactions denominated in currencies other than the functional currency of our entities. Our analysis of operating results transacted in various foreign currencies indicated that a hypothetical 10% change in the foreign currency exchange rates could have increased or decreased the consolidated results of operations by approximately $2.5 million and $1.0 million for the three months ended March 31, 2021 and 2020, respectively, and by approximately $5.2 million and $1.7 million during the nine months ended March 31, 2021 and 2020, respectively.

Interest Rate Risk

We place our investments in money market instruments. Our analysis of our investment portfolio and interest rates at March 31, 2021 indicated that a hypothetical 100 basis point increase or decrease in interest rates would not have a material impact on the fair value of our investment portfolio determined in accordance with an income-based approach utilizing portfolio future cash flows discounted at the appropriate rates.

As of March 31, 2021, we had current borrowings of $18.0 million and non-current borrowings of $279.0 million on our term loan facility. Our non-current borrowings of $279.0 million consist of $282.0 million of our term loan facility, net of $3.0 million in unamortized debt issuance costs.

As of June 30, 2020, we had $119.2 million and $312.0 million in outstanding borrowings on our revolving credit facility and term loan facility, respectively. Our current borrowings of $135.2 million at June 30, 2020 consist of $119.2 million of the revolving credit facility and $16.0 million of the term loan facility. Our non-current borrowings of $292.4 million at June 30, 2020 consist of $296.0 million of our term loan facility, net of $3.6 million in unamortized debt issuance costs. A hypothetical 100 basis point increase or decrease in interest rates paid on outstanding borrowings under the Amended and Restated Credit Agreement would not have a material impact on our financial position, results of operations or cash flows.

Investment Risk

During fiscal 2020, we entered into a limited partnership investment fund agreement. The primary objective of this partnership is investing in equity and equity-related securities (including convertible debt) of venture growth- stage businesses. We account for the investment in accordance with Topic 323, *Investments - Equity Method and Joint Ventures*. Our total commitment under this partnership is $5.0 million CAD ($3.9 million). Under the conditions of the equity method investment, unfavorable future changes in market conditions could lead to a potential loss up to the full value of our 5.0 million CAD ($3.9 million) commitment. As of March 31, 2021, the fair value of this investment is $1.2 million CAD ($1.5 million), representing our payment towards the total commitment, and is recorded in non-current assets in our consolidated balance sheet.

Item 4. Controls and Procedures.

a) Disclosure Controls and Procedures

Our management, with the participation of our chief executive officer and chief financial officer, evaluated the effectiveness of our disclosure controls and procedures as of March 31, 2021. The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Securities Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Securities Exchange Act is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of March 31, 2021, our chief executive officer and chief financial officer concluded that, as of such date, our disclosure controls and procedures were not effective due to a material weakness in internal control over financial reporting that was disclosed in our Annual Report on Form 10-K for the fiscal year ended June 30, 2020.

b) Management's Plan to Remediate the Material Weakness

As previously described in Part II, Item 9A of our Annual Report on Form 10-K for the fiscal year ended June 30, 2020, we implemented a remediation plan to address the material weakness mentioned above. Management enhanced our risk assessment process over the design and implementation of internal controls over new and emerging financial reporting matters such as the adoption of ASU No. 2016-02, *Leases* ("Topic 842"). We also performed an updated risk assessment of revenue and associated contract balances controls and identified and designed enhanced review controls over the accounting for revenue contracts under Topic 606, including the use of additional reporting tools and additional reconciliation controls. The COVID-19 pandemic and resulting remote working environment made timely completion of these remediation procedures more challenging, and all remediation efforts were not fully completed as of June 30, 2020. As a result, management concluded that the material weakness in our internal control over the financial reporting had not been fully remediated as of June 30, 2020. The weakness will be considered remediated when the applicable controls operate for a sufficient period of time and management has concluded, through testing, that these controls are operating effectively. Our intention is that the remediation of this material weakness will be completed prior to the end of fiscal 2021. The remediation effort involves designing and implementing additional controls, testing those controls and concluding upon their effectiveness.

c) Changes in Internal Controls Over Financial Reporting

There was no change in our internal control over financial reporting that occurred during the nine months ended March 31, 2021, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting, with the exception of the change in our controls resulting from the adoption of Topic 326 as described in Note 2, "Significant Accounting Policies," to our Unaudited Consolidated Financial Statements. We performed a risk assessment and implemented changes to our processes and control activities. We will continue to review and document our disclosure controls and procedures, including our internal control over financial reporting, and may from time to time make changes aimed at enhancing their effectiveness and to ensure that our systems evolve with our business.

PART II - OTHER INFORMATION

Item 1. Legal Proceedings.

None.

Item 1A. Risk Factors.

The risks described in "Item 1A. Risk Factors" in our Annual Report on Form 10-K for the fiscal year ended June 30, 2020 and our Quarterly Report on Form 10-Q for the three and six months ended December 31, 2020, could materially and adversely affect our business, financial condition and results of operations. These risk factors do not identify all risks that we face—our operations could also be affected by factors that are not presently known to us or that we currently consider to be immaterial to our operations. The Risk Factors section of our 2020 Annual Report on Form 10-K remains current in all material respects, with the exception of the revised risk factors below.

Our customers' business operations have been, and continue to be, subject to business interruptions arising from the COVID-19 pandemic. We continue to monitor the situation, but there can be no assurance that the pandemic will not result in delays or possibly reductions in demand for our solutions that could have a serious adverse effect on our business.

Many countries have imposed restrictions on travel and public assembly and closed schools and businesses in order to slow the spread of COVID-19. These governmental restrictions and related private sector responses have adversely affected the business operations of some of our customers and resulted in a slowdown in closing some customer contracts and, to a lesser extent, a delay in customer payments during the three and nine months ended March 31, 2021. While the measures instituted in response to COVID-19 are expected to be temporary, the duration of the business disruptions and related operational and financial impact on our customers and us cannot be estimated with certainty at this time. The adverse effects on the economies and financial markets of many countries and markets may result in an economic downturn and changes in global economic policy that could reduce demand for our products and have a material adverse impact on our business, operating results and financial condition, including on our ability to collect accounts receivable. Our business may also be harmed if our employees are not able to perform services for customers on-site due to travel restrictions or facility closings.

Fluctuations in foreign currency exchange rates could result in declines in our reported revenue and operating results.

During the three months ended March 31, 2021 and 2020, 14.6% and 8.2% of our total revenue was denominated in a currency other than the U.S. dollar, respectively. During the nine months ended March 31, 2021 and 2020, 11.4% and 7.4% of our total revenue was denominated in a currency other than the U.S. dollar, respectively. In addition, certain of our operating expenses incurred outside the United States are denominated in currencies other than the U.S. dollar. Our reported revenue and operating results are subject to fluctuations in foreign exchange rates. Foreign currency risk arises primarily from the net difference between non-U.S. dollar receipts from customers outside the United States and non-U.S. dollar operating expenses for subsidiaries in foreign countries. Currently, our largest exposures to foreign exchange rates exist primarily with the Euro, Pound Sterling, Canadian Dollar, Japanese Yen, and Russian Ruble against the U.S. dollar. During the three and nine months ended March 31, 2021 and 2020, we did not enter into, and were not a party to any, derivative financial instruments, such as forward currency exchange contracts, intended to manage the volatility of these market risks. We cannot predict the impact of foreign currency fluctuations, and foreign currency fluctuations in the future may adversely affect our revenue and operating results. Any hedging policies we may implement in the future may not be successful, and the cost of those hedging techniques may have a significant negative impact on our operating results.

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

The following table provides information about purchases by us during the three months ended March 31, 2021 of shares of our common stock:

Period	Total Number of Shares Purchased (2)	Average Price Paid per Share (3)	Total Number of Shares Purchased as Part of Publicly Announced Program (1)	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Program (4)
January 1 to 31, 2021	—	$ —	—	
February 1 to 28, 2021	—	$ —	—	
March 1 to 31, 2021	—	$ —	—	
Total	—	$ —	—	$ 200,000,000

(1) On January 22, 2015, our Board of Directors approved a share repurchase program (the "Share Repurchase Program") for up to $450.0 million worth of our common stock. On April 26, 2016, June 8, 2017, April 18, 2018, December 6, 2018, and April 17, 2019, the Board of Directors approved a $400.0 million, $200.0 million, $200.0 million, $100.0 million, and $200.0 million increase in the Share Repurchase Program, respectively. On July 22, 2020, our Board of Directors approved a new share repurchase program (the "New Share Repurchase Program") for up to $200.0 million worth of our common stock, and terminated the Share Repurchase Program.

(2) As of March 31, 2021, the total number of shares of common stock repurchased under all programs approved by the Board of Directors was 36,270,015.

(3) The total average price paid per share is calculated as the total amount paid for the repurchase of our common stock during the period divided by the total number of shares repurchased.

(4) As of March 31, 2021, the total remaining value under the New Share Repurchase Program was approximately $200.0 million.

Item 6. Exhibits.

Exhibit Number	Description
10.1	Transition Agreement dated February 10, 2021 entered into by Aspen Technology, Inc. and Karl E. Johnsen^
10.2	Executive Retention Agreement dated March 22, 2021 entered into by Aspen Technology, Inc. and Chantelle Breithaupt^
31.1	Certification of Principal Executive Officer pursuant to Exchange Act Rules 13a-14 and 15d-14, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Principal Financial Officer pursuant to Exchange Act Rules 13a-14 and 15d-14, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of President and Chief Executive Officer and Senior Vice President 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
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)
	^ Management contract or compensatory plan or arrangement

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Aspen Technology, Inc.

Date: April 28, 2021	By:	**/s/ ANTONIO J. PIETRI**
		Antonio J. Pietri
		President and Chief Executive Officer
		(Principal Executive Officer)
Date: April 28, 2021	By:	**/s/ CHANTELLE BREITHAUPT**
		Chantelle Breithaupt
		Senior Vice President and Chief Financial Officer
		(Principal Financial Officer)

Exhibit 10.1

Aspen Technology, Inc. [phone] 781-221-5400 **[world wide web]** www.aspentech.com
20 Crosby Drive **[fax]** 781-221-5213 **[e-mail]** info@aspentech.com
Bedford, MA 01730 USA

aspentech

February 10, 2021

Mr. Karl E. Johnsen
47 Whitney Avenue
Westwood, MA 02090

Dear Karl:

Thank you for your willingness to provide a transition from your employment as Senior Vice President and Chief Financial Officer of Aspen Technology, Inc. (the "Company"). This letter agreement sets forth our agreement with respect to this transition and amends your Amended and Restated Executive Retention Agreement dated as of January 31, 2019 (the "ERA"). Capitalized terms used but not defined in this letter agreement and defined in the ERA shall have the respective meanings ascribed to them in the ERA.

We mutually agree to a transition period through June 30, 2021 (the "Transition Period"). Your employment with the Company and its affiliates will terminate automatically immediately following the end of the Transition Period and you shall be deemed to have resigned from all positions with the Company and its affiliates at such time; provided, that the Company may require you to resign prior to the end of the Transition Period from certain positions with affiliates of the Company (e.g., director of a subsidiary). The Transition Period may be extended by mutual agreement. During the Transition Period, for so long as you retain your current role/title as required by the Company, you will continue to perform your current obligations as Chief Financial Officer.

At the Company's option, your current role/title may be modified prior to conclusion of the Transition Period to be a senior advisor on financial matters (or other role mutually agreed on). In any case, you will continue to report to the Chief Executive Officer. Following any such modification, you may also be placed on garden leave. Neither such changes nor the other terms and conditions of this letter agreement shall constitute Good Reason for purposes of the ERA.

During your employment through the Transition Period, you will continue to be entitled to the following:

(a) continued base salary at the level currently in effect.
(b) continued participation in Company benefits; and
(c) continued vesting of your outstanding equity awards in accordance with their terms (including, for avoidance of doubt, your equity awards scheduled to vest on the last day of the Transition Period).

In addition, upon completion of the Transition Period on June 30, 2021, or upon a termination of employment due to your death or Disability, a termination by the Company without Cause or a resignation by you for Good Reason (as modified hereby), but excluding in the case of a resignation by you without Good Reason or a termination of your employment by the Company for Cause, you will receive the following additional compensation:

(d) the compensation and benefits that would apply under the ERA had the Company terminated your employment as of June 30, 2021 other than for Cause, as described in Section 4.1 of the ERA;

(e) immediately vested RSUs with a value of $250,000 granted as of June 30, 2021 (with customary portion withheld on account of taxes);

In addition to (d) and (e) above, in the case of termination by the Company without Cause or a resignation by you for Good Reason (as modified hereby) prior to June 30, 2021, you will also receive:

(f) an amount equal to your base salary at the level currently in effect as if your employment continued from the date of termination through June 30, 2021.

(g) continued participation in Company benefits as if your employment continued from the date of termination through June 30, 2021; provided, that if the relevant benefit plans do not permit such participation by former employees, you would receive an amount equal to your cost in providing such benefits for such period ; and

(h) immediate vesting of your outstanding equity awards as if your employment continued from the date of the termination through June 30, 2021 (including, for avoidance of doubt, your equity awards scheduled to vest on June 30, 2021.

The payments and benefits described in clauses (d) through (h)) above shall be subject to your execution of the Release.

If the Transition Period is extended beyond June 30, 2021 by mutual agreement, your ERA shall continue in effect for the duration thereof; in addition, if the Transition Period is extended beyond July 31, 2021 by mutual agreement, your ERA shall renew as provided therein. However, in any such case, you will be eligible only for the severance payments and benefits described in Section 4.1.(d) of the ERA (which shall be paid upon any termination of employment, including following the end of the Transition Period) and the benefits described in Section 4.2 (a) (iv) of the ERA (which shall be paid only if the Transition Period ends following a Change in Control and under circumstances which would entitle you to such payments and benefits).

Notwithstanding the foregoing, and for the avoidance of doubt, this letter agreement does not constitute an employment contract, and you remain an "at will" employee of the Company. Should you no longer be employed by the Company prior to the conclusion of the Transition Period as a result of your voluntary resignation without Good Reason (as modified hereby) or your termination for Cause, you will be entitled only to the compensation and benefits specified in clauses (a) through (c) above through the last day of your employment and the payments and benefits described in Section 4.1(d) of the ERA.

You agree that you will not, and you will take reasonable steps to seek to ensure that none of your affiliates, representatives, attorneys or agents will, at any time, either directly or indirectly, (a) defame, disparage, denigrate, criticize or speak poorly about the Company or any of the Company's successors, assigns, subsidiaries, affiliates, directors, officers, employees, representatives, attorneys and agents (collectively, "Company Affiliates") or (b) disclose, disseminate or provide to any third party any information or material that may harm, disparage, demean or reflect poorly upon or cause injury to the image, reputation or character of the Company or any of the Company Affiliates (subject to applicable law).

The Company agrees to take reasonable steps to seek to ensure that none of the Company's employees, representatives, attorneys or agents will, at any time, either directly or indirectly, (a) defame, disparage, denigrate, criticize or speak poorly about Karl Johnsen or (b) disclose, disseminate or provide to any third party any information or material that may harm, disparage, demean or reflect poorly upon or cause injury to the image, reputation or character of Karl Johnsen (subject to applicable law).

Both parties understand and agree that truthful information and/or testimony may be provided in response to a court order, subpoena, deposition, testimony under oath, or any legally required process, even if such information would otherwise be in violation of the immediately preceding paragraph.

You and the Company agree that this letter agreement satisfies in full all notice requirements of the Company set forth in Section 3.1 of your ERA. This letter agreement, your ERA, the most recent Proprietary and Confidential Information and Non-competition and Non-solicitation Agreement between you and the Company and your equity award agreements from the Company collectively set forth the complete and sole agreement between you and the Company and supersede and replace any and all other agreements or understandings, whether oral or written, between the parties concerning the subject matter hereof. Any and all payments due to you under this letter agreement shall be conditioned on your compliance with your obligations to the Company, including your obligation to execute and deliver a Release to the Company as provided in the ERA. This letter agreement shall be governed by the laws of the Commonwealth of Massachusetts. If the terms of this letter agreement are acceptable, please sign this letter agreement and return it to me.

We look forward to a mutually satisfactory Transition Period and wish you the best in your future endeavors.

ASPEN TECHNOLOGY, INC.
/s/ ANTONIO. J. PIETRI
Antonio J. Pietri
President and Chief Executive Officer

ACCEPTED AND AGREED:
/s/ Karl E. Johnsen
Karl E. Johnsen

Exhibit 10.2

ASPEN TECHNOLOGY, INC.

Executive Retention Agreement

Aspen Technology, Inc., a Delaware corporation (the "Company"), and Chantelle Breithaupt (the "Executive") enter into this Executive Retention Agreement (the "Agreement") dated as of March 22, 2021 (the "Effective Date").

WHEREAS, the Company considers the establishment and maintenance of a sound and vital management team to be essential to protecting and enhancing the best interests of the Company and its stockholders;

WHEREAS, the Company recognizes that, as is the case with many publicly-held corporations, the possibility of a change in control of the Company exists and that such possibility, and the uncertainty and questions which it may raise among key personnel, may result in the departure or distraction of key personnel to the detriment of the Company and its stockholders, and

WHEREAS, the Compensation Committee of the Board of Directors of the Company (the "Board") has determined that it is in the best interests of the Company that appropriate steps should be taken to reinforce and encourage the continued employment and dedication of the Company's key executives without distraction, including distraction from the possibility of a change in control of the Company and related events and circumstances.

NOW, THEREFORE, as an inducement for and in consideration of the Executive remaining in its employ and for other good and valuable consideration, the parties agree that the Executive shall receive the severance benefits set forth set forth below in the event the Executive's employment with the Company is terminated.

1. Key Definitions. As used herein, the following terms shall have the following respective meanings:

1.1 "Change in Control" means an event or occurrence set forth in any one or more of subsections (a) through (d) below (including an event or occurrence that constitutes a Change in Control under one of such subsections but is specifically exempted from another such subsection) and that is (i) a change in the ownership of the Company (as defined in Treasury Regulation Section 1.409A-3(i)(5)(v)), (ii) a change in effective control of the Company (as defined in Treasury Regulation Section 1.409A-3(i)(5)(vi)), or (iii) a change in the ownership of a substantial portion of the assets of the Company (as defined in Treasury Regulation Section 1.409A-3(i)(5)(vii)):

(a) the acquisition by an individual, entity or group (within the meaning of Section 13(d)(3) or 14(d)(2) of the Securities Exchange Act of 1934) (a "Person") of beneficial ownership of any capital stock of the Company if, after such acquisition, such Person beneficially owns (within the meaning of Rule 13d-3 promulgated under the Securities Exchange Act of 1934) 50% or more of either (x) the then outstanding shares of common stock of the Company (the "Outstanding Company Common Stock") or (y) the combined voting power of the then outstanding securities of the Company entitled to vote generally in the election of directors (the "Outstanding Company Voting Securities"); provided that for purposes of this subsection (1), the following acquisitions shall not constitute a Change in Control: (I) any acquisition directly from the Company (excluding an acquisition pursuant to the exercise, conversion or exchange of any security exercisable for, convertible into or exchangeable for common stock or voting securities of the Company, unless the Person exercising, converting or exchanging such security acquired such security directly from the Company or an underwriter or agent of the Company), (II) any acquisition by any employee benefit plan (or related trust) sponsored or maintained by the Company or any corporation controlled by the Company, (III) any acquisition by any corporation pursuant to a Business Combination (as defined below) that complies with clauses (x) and (y) of Section 1.1(c) or (IV) any acquisition by the Company; or

(b) such time as the Continuing Directors (as defined below) do not constitute a majority of the Board (or, if applicable, the Board of Directors of a successor corporation to the Company), where the term “Continuing Director” means at any date a member of the Board (x) who was a member of the Board on the date of the execution of this Agreement or (y) who was nominated or elected subsequent to such date by at least a majority of the directors who were Continuing Directors at the time of such nomination or election or whose election to the Board was recommended or endorsed by at least a majority of the directors who were Continuing Directors at the time of such nomination or election, provided that there shall be excluded from this clause (y) any individual whose initial assumption of office occurred as a result of an actual or threatened election contest with respect to the election or removal of directors or other actual or threatened solicitation of proxies or consents, by or on behalf of a person other than the Board; or

(c) the consummation of a merger, consolidation, reorganization, recapitalization or share exchange involving the Company or a sale or other disposition of all or substantially all of the assets of the Company in one or a series of transactions (a “Business Combination”), unless, immediately following such Business Combination, each of the following two conditions is satisfied: (x) all or substantially all of the individuals and entities who were the beneficial owners of the Outstanding Company Common Stock and Outstanding Company Voting Securities immediately prior to such Business Combination beneficially own, directly or indirectly, more than 50% of the then-outstanding shares of common stock and the combined voting power of the then-outstanding securities entitled to vote generally in the election of directors, respectively, of the resulting or acquiring corporation in such Business Combination (which shall include a corporation that as a result of such transaction owns the Company or substantially all of the Company’s assets either directly or through one or more subsidiaries) (such resulting or acquiring corporation is referred to herein as the “Acquiring Corporation”) in substantially the same proportions as their ownership of the Outstanding Company Common Stock and Outstanding Company Voting Securities, respectively, immediately prior to such Business Combination, excluding for all purposes of this clause (x) any shares of common stock or other securities of the Acquiring Corporation attributable to any such individual’s or entity’s ownership of securities other than Outstanding Company Common Stock or Outstanding Company Voting Securities immediately prior to the Business Combination); and (y) no Person (excluding the Acquiring Corporation or any employee benefit plan (or related trust) maintained or sponsored by the Company or by the Acquiring Corporation) beneficially owns, directly or indirectly, 50% or more of the then-outstanding shares of common stock of the Acquiring Corporation, or of the combined voting power of the then-outstanding securities of such corporation entitled to vote generally in the election of directors (except to the extent that such ownership existed prior to the Business Combination); or

(d) approval by the stockholders of the Company of a complete liquidation or dissolution of the Company.

1.2 “Change in Control Date” means the first date during the Term (as defined in Section 2) on which a Change in Control occurs. Anything in this Agreement to the contrary notwithstanding, if (a) a Change in Control occurs, or shall have been announced or agreed to, (b) the Executive’s employment with the Company is subsequently terminated, and (c) if the date of termination is prior to the date of the actual or scheduled Change of Control and it is reasonably demonstrated by the Executive that such termination of employment (i) was at the request of a third party who has taken steps reasonably designed to effect a Change in Control or (ii) otherwise arose in connection with or in anticipation of a Change in Control, such as, for example, as a condition thereto or in connection with cost reduction or elimination of duplicate positions, then for all purposes of this Agreement the “Change in Control Date” shall mean the date immediately prior to the date of such termination of employment.

1.3 “Cause” means:

(a) the Executive’s willful and continued failure to substantially perform the Executive’s reasonable assigned duties (other than any such failure resulting from incapacity due to physical or mental illness, approved leave of absence or any failure after the Executive gives notice of resignation for Good Reason), where such failure is not cured within 30 days after a written notice and demand for substantial performance is received by the Executive from the Board of Directors of the Company which specifically identifies the manner in which the Board of Directors believes the Executive has not substantially performed the Executive’s duties;

(b) the Executive’s willful engagement in illegal conduct or gross misconduct which is materially and demonstrably injurious to the Company’s business or reputation;

(c) the Executive materially breaches any written policy applicable to the Executive, including, but not limited to, the Company’s Code of Business Ethics and Conduct or Insider Trading Policy; or

(d) the Executive’s conviction of, or plea of guilty or no contest to, a felony under the laws of the United States or any State of the United States.

For purposes of this Section 1.3, no act or failure to act by the Executive shall be considered “willful” unless it is done, or omitted to be done, in bad faith and without reasonable belief that the Executive’s action or omission was in the best interests of the Company.

1.4 “Good Reason means the following:

(a) Prior to a Change in Control Date, the occurrence, without the Executive’s prior written consent, of any of the events or circumstances set forth in clauses (i) through (iii) below:

(i) a reduction in the Executive’s annual base salary as in effect on the Effective Date or as the same was or may be increased thereafter from time to time, other than a general reduction in annual base salary that affects all similarly situated executives in substantially the same proportions;

(ii) a change by the Company in the location at which the Executive performs the Executive’s principal duties for the Company to a new location that is both (A) outside a radius of 40 miles from the Executive’s principal residence immediately prior to the Effective Date and (B) more than 30 miles from the location at which the Executive performed the Executive’s principal duties for the Company immediately prior to the Effective Date; provided, however, that a requirement that the Executive move to a Massachusetts location within a certain time period from commencement of employment as set forth in an accepted offer letter shall not be deemed to constitute grounds for Good Reason as contemplated by this paragraph; or

(iii) a material diminution in the Executive's authority, duties, responsibilities or reporting relationship in effect immediately prior to the Effective Date.

(b) From and after a Change in Control Date, the occurrence, without the Executive's prior written consent, of any of the events or circumstances set forth in clauses (i) through (viii) below:

(i) a material diminution in the Executive's authority, duties, responsibilities or reporting relationship in effect immediately prior to the earliest to occur of (A) the Change in Control Date, (B) the date of the execution by the Company of the initial written agreement or instrument providing for the Change in Control or (C) the date of the adoption by the Board of Directors of a resolution providing for the Change in Control (with the earliest to occur of such dates referred to herein as the "Measurement Date"), or any other action or omission by the Company which results in a material diminution in such position, authority or responsibilities;

(ii) a reduction in the Executive's annual base salary as in effect on the Measurement Date or as the same was or may be increased thereafter from time to time;

(iii) the failure by the Company to (A) continue in effect any material compensation or benefit plan or program (including without limitation any life insurance, medical, health and accident or disability plan and any vacation program or policy) (a "Benefit Plan") in which the Executive participates or which is applicable to the Executive immediately prior to the Measurement Date, unless an equitable arrangement (embodied in an ongoing substitute or alternative plan) has been made with respect to such plan or program, (B) continue the Executive's participation therein (or in such substitute or alternative plan) on a basis not materially less favorable, both in terms of the amount of benefits provided and the level of the Executive's participation relative to other participants, than the basis existing immediately prior to the Measurement Date or (C) award cash bonuses to the Executive in amounts and in a manner substantially consistent with past practice in light of the Company's financial performance;

(iv) a change by the Company in the location at which the Executive performs the Executive's principal duties for the Company to a new location that is both (A) outside a radius of 40 miles from the Executive's principal residence immediately prior to the Measurement Date and (B) more than 30 miles from the location at which the Executive performed the Executive's principal duties for the Company immediately prior to the Measurement Date; or a requirement by the Company that the Executive travel on Company business to a substantially greater extent than required immediately prior to the Measurement Date; provided, however, that a requirement that the Executive move to a Massachusetts location within a certain time period from commencement of employment as set forth in an accepted offer letter shall not be deemed to constitute grounds for Good Reason as contemplated by this paragraph;

(v) the failure of the Company to obtain the agreement from any successor to the Company to assume and agree to perform this Agreement, as required by Section 6.1;

(vi) a purported termination of the Executive's employment which is not effected pursuant to a Notice of Termination satisfying the requirements of Section 3;

(vii) any failure of the Company to pay or provide to the Executive any portion of the Executive's compensation or benefits due under any Benefit Plan within seven days of the date such compensation or benefits are due, or any material breach by the Company of this Agreement or any employment agreement with the Executive; or

(viii) any other material breach by the Company of any of its obligations under this Agreement.

1.5 “Disability” means the Executive’s absence from the full-time performance of the Executive’s duties with the Company for 180 consecutive calendar days as a result of incapacity due to mental or physical illness which is determined to be total and permanent by a physician selected by the Company or its insurers and acceptable to the Executive or the Executive’s legal representative.

2. Term of Agreement. This Agreement shall take effect upon the Effective Date and shall expire upon the first to occur of (a) the expiration of the Term (as defined below) if a Change in Control has not occurred during the Term, (b) the date 12 months after the Change in Control Date, if the Executive is still employed by the Company as of such later date, or (c) the fulfillment by the Company of all of its obligations under Sections 4, 5.2 and 5.3 if the Executive’s employment with the Company terminates during the Term or within 12 months following the Change in Control Date. “Term” shall mean the period commencing as of the Effective Date and continuing in effect through July 31, 2021; provided, however, that commencing on August 1, 2021 and each August 1 thereafter, the Term shall be automatically extended for one additional year unless, not later than six months prior to the scheduled expiration of the Term (or any extension thereof), the Company shall have given the Executive written notice that the Term will not be extended.

3. Notice of Termination.

3.1 Any termination of the Executive’s employment by the Company or by the Executive (other than due to the death of the Executive) shall be communicated by a written notice to the other party hereto (the “Notice of Termination”), given in accordance with Section 7. Any Notice of Termination shall: (i) indicate the specific termination provision (if any) of this Agreement relied upon by the party giving such notice, (ii) to the extent applicable, set forth in reasonable detail the facts and circumstances claimed to provide a basis for termination of the Executive’s employment under the provision so indicated and (iii) specify the Date of Termination (as defined below). The effective date of an employment termination (the “Date of Termination”) shall be the close of business on the date specified in the Notice of Termination (which date may not be less than 30 days or more than 120 days after the date of delivery of such Notice of Termination), in the case of a termination other than one due to the Executive’s death, or the date of the Executive’s death, as the case may be. In the event the Company fails to satisfy the requirements of Section 3 regarding delivery of a Notice of Termination, the purported termination of the Executive’s employment pursuant to such Notice of Termination shall not be effective for purposes of this Agreement.

3.2 The failure by the Executive or the Company to set forth in the Notice of Termination any fact or circumstance which contributes to a showing of Good Reason or Cause shall not waive any right of the Executive or the Company, respectively, hereunder or preclude the Executive or the Company, respectively, from asserting any such fact or circumstance in enforcing the Executive’s or the Company’s rights hereunder.

3.3 Any Notice of Termination for Cause given by the Company must be given within 30 days of the occurrence of the event(s) or circumstance(s) which constitute(s) Cause. Prior to any Notice of Termination for Cause being given (and prior to any termination for Cause being effective), the Executive shall be entitled to a hearing before the Board of Directors of the Company at which the Executive may, at the Executive's election, be represented by counsel and at which the Executive shall have a reasonable opportunity to be heard. Such hearing shall be held on not less than 15 days' prior written notice to the Executive stating the Board of Directors' intention to terminate the Executive for Cause and stating in detail the particular event(s) or circumstance(s) which the Board of Directors believes constitutes Cause for termination. Any such Notice of Termination for Cause must be approved by an affirmative vote of at least two-thirds of the members of the Board of Directors.

3.4 Any Notice of Termination of a resignation for Good Reason given by the Executive must be given within 30 days of notice by the Company to the Executive of the occurrence of the event(s) or circumstance(s) that constitute(s) Good Reason. The Executive shall cooperate in good faith with the Company, during the period from the date of delivery of such Notice of Termination to the Date of Termination specified in such Notice of Termination, to correct each of such events and circumstances. Notwithstanding the occurrence of any such event or circumstance, such occurrence shall not be deemed to constitute Good Reason if, prior to the Date of Termination specified in such Notice of Termination, each such event or circumstance has been fully corrected and the Executive has been reasonably compensated for any losses or damages resulting therefrom. The Executive's right to terminate the Executive's employment for Good Reason shall not be affected by the Executive's incapacity due to physical or mental illness.

4. Termination; Benefits to Executive.

4.1 Termination Not Related to a Change in Control. Subject to Sections 4.5 and 8.1, if the Executive's employment with the Company is terminated by the Company without Cause or the Executive resigns for Good Reason, and in either case a Change in Control Date has not occurred, then, provided that the Executive has delivered to the Company (and the applicable revocation period has expired with respect to) a signed general release substantially in the form attached hereto as Exhibit A (the "Release") during the 60 days following the Date of Termination, the Executive shall be entitled to payments and benefits set forth below. Unless delayed by Section 4.5 or not payable under Section 8.1, the payments will begin (or for lump sums will be made) in the first payroll period after the Release becomes irrevocable, provided that if the sixtieth day falls in the calendar year following the year of the Date of Termination, the payments will begin (or be made) no earlier than the first payroll period of such later calendar year. The first payroll payment will include a make-up payment for the period that elapsed between the Date of Termination and the payroll period in which payments begin.

(a) For the 12 months following the Date of Termination (the "Severance Period"), the Company shall pay to the Executive (i) an amount equal to Executive's then-current base salary, to be paid on the Company's normal payroll cycle during the Severance Period and (ii) an amount equal to the pro rata portion of the Executive's target bonus for the then-current fiscal year, to be paid in equal installments (subject to rounding) with the amounts paid pursuant to the preceding clause (i); provided that if any payments would otherwise be due on or after March 15 of the calendar year next succeeding the year in which termination occurs, then all payments that would otherwise be due after March 15 shall be paid to the Executive in a lump sum in the payroll period on or immediately prior to March 15 of such next succeeding year.

(b) The Company shall pay to the Executive in a lump sum, in cash, an amount equal to 12 times the excess of (i) the monthly premium payable by former employees for continued coverage under COBRA for the same level of coverage, including dependents, provided to the Executive under the Company's group health benefit plans in which the Executive participates immediately prior to the Notice of

Termination over (ii) the monthly premium paid by active employees for the same coverage immediately prior to the Notice of Termination.

(c) The Company shall pay to the Executive in a lump sum, in cash, in lieu of any further life, disability, and accident insurance benefits (not including medical, dental or vision insurance) (the “Other Plans”), an amount equal to the cost to the Executive of providing such benefits (based on the applicable premiums charged to the Company for such coverage under the Other Plans), to the extent that the Executive is eligible to receive such benefits immediately prior to the Notice of Termination, for the Severance Period.

(d) To the extent not previously paid or provided, the Company shall timely pay or provide to the Executive any other amounts or benefits required to be paid or provided or which the Executive is eligible to receive following the Executive’s termination of employment under any plan, program, policy, practice, contract or agreement of the Company and its affiliated companies, including any compensation previously deferred by the Executive (together with any accrued interest or earnings thereon) and any accrued vacation pay.

(e) [INTENTIONALLY OMITTED]

(f) The Company shall provide outplacement services through one or more outside firms of the Executive’s choosing and reasonably acceptable to the Company up to an aggregate of $45,000, with such services to extend until the earlier of (i) 12 months following the termination of Executive’s employment or (ii) the date the Executive secures full time employment.

4.2 Termination Related to a Change in Control. Subject to Sections 4.5 and 8.1, if a Change in Control Date occurs and the Executive’s employment with the Company terminates within 12 months following the Change in Control Date, the following provisions shall apply:

(a) Termination Without Cause or for Good Reason. If the Executive’s employment with the Company is terminated by the Company (other than for Cause, Disability or death) or the Executive resigns for Good Reason, in either case within 12 months following the Change in Control Date, then, provided that Executive has delivered to the Company (and the applicable revocation period has expired with respect to) the Release within 60 days of the Date of Termination, the Executive shall be entitled to the following payments and benefits paid on the same timing described in Section 4.1:

(i) The Company shall pay to the Executive in a lump sum, in cash, the aggregate of the following amounts:

(A) the sum of (1) the Executive’s base salary through the Date of Termination, and (2) any accrued vacation pay, in each case to the extent not previously paid;

(B) the sum of (1) 1.0 multiplied by the Executive’s annual base salary, and (2) the higher of the Executive’s target bonus for the then-prior fiscal year or the Executive’s target bonus for the then-current fiscal year; and

(C) an amount equal to 12 times the excess of (1) the monthly premium payable by former employees for continued coverage under COBRA for the same level of coverage, including dependents, provided to the Executive under the Company’s group health benefit plans in which the Executive participates immediately prior to the Notice of Termination over (2) the monthly premium paid by active employees for the same coverage immediately prior to the Notice of Termination; and

(D) in lieu of any further benefits under Other Plans, an amount equal to the cost to the Executive of providing such benefits (based on the applicable premiums charged to the Company for such coverage under the Other Plans), to the extent that the Executive is eligible to receive such benefits immediately prior to the Notice of Termination, for the Severance Period.

(ii) To the extent not previously paid or provided, the Company shall timely pay or provide to the Executive any other amounts or benefits required to be paid or provided or which the Executive is eligible to receive following the Executive’s termination of employment under any plan, program, policy, practice, contract or agreement of the Company and its affiliated companies.

(iii) [INTENTIONALLY OMITTED]

(iv) With respect to all of the Executive’s equity-based awards (including any awards granted from and after the Change in Control Date), and only to the extent the following are not less favorable to the Executive than the relevant provisions of the equity plan or award agreement: (1) all of the then-unvested options to purchase shares of stock of the Company and/or its successor held by the Executive shall become fully vested and immediately exercisable in full , and shares of the Company received upon exercise of any options will no longer be subject to any right of repurchase by the Company, (2) all of the restricted stock then otherwise subject to repurchase by the issuer shall be deemed to be fully vested (i.e., no longer subject to a right of repurchase or restriction by the issuer or otherwise subject to a risk of forfeiture), (3) all of the shares underlying restricted stock units then otherwise subject to future grant or award shall be fully granted, vested and distributed and no longer subject to a right of repurchase by the issuer or to any other risk of forfeiture, including performance conditions, and (4) all then-vested and exercisable options (including for the avoidance of doubt the options becoming exercisable pursuant to this paragraph) shall continue to be exercisable by the Executive for the Severance Period (but not later than the original expiration date of such options). For the avoidance of doubt, for any such award subject to a performance condition, subject to the adjustments to the award and its performance conditions in connection with the Change in Control in accordance with the terms of the equity plan or award agreement (if applicable), vesting upon termination of employment under this clause (iv) shall be based on assumed performance at the greater of target or the level of performance achieved immediately prior to the date of termination of employment, as determined by the Board.
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(v) The Company shall provide outplacement services through one or more outside firms of the Executive’s choosing and reasonably acceptable to the Company up to an aggregate of $45,000, with such services to extend until the earlier of (A) 12 months following the termination of Executive’s employment or (B) the date the Executive secures full time employment.

(b) Resignation without Good Reason; Termination for Death or Disability. If the Executive voluntarily terminates the Executive’s employment with the Company within 12 months following the Change in Control Date, excluding a resignation for Good Reason, or if the Executive’s employment with the Company is terminated by reason of the Executive’s death or Disability within 12 months following the Change in Control Date, then the Executive (or the Executive’s estate, if applicable) shall be entitled to the following payments and benefits:

(i) The Company shall pay the Executive (or the Executive’s estate, if applicable), in a lump sum, in cash, within 60 days after the Date of Termination, the sum of (A) the Executive’s base salary through the Date of Termination, and (B) any accrued vacation pay, in each case to the extent not previously paid; and

(ii) To the extent not previously paid or provided, the Company shall timely pay or provide to the Executive (or the Executive’s estate, if applicable) any other amounts or benefits required to be paid or provided or which the Executive is eligible to receive following the Executive’s termination of employment under any plan, program, policy, practice, contract or agreement of the Company and its affiliated companies, including any compensation previously deferred by the Executive (together with any accrued interest or earnings thereon).

(c) Termination for Cause. If the Company terminates the Executive’s employment with the Company for Cause within 12 months following the Change in Control Date, then the Executive shall be entitled to the following payments and benefits:

(i) the Company shall pay the Executive, in a lump sum, in cash, within 60 days after the Date of Termination, the Executive’s base salary through the Date of Termination, to the extent not previously paid; and

(ii) to the extent not previously paid or provided, the Company shall timely pay or provide to the Executive any other amounts or benefits required to be paid or provided or which the Executive is eligible to receive following the Executive’s termination of employment under any plan, program, policy, practice, contract or agreement of the Company and its affiliated companies.

4.3 Taxes.

(a) Anything in this Agreement to the contrary notwithstanding, in the event it shall be determined that any payment or distribution by the Company to the Executive or for the Executive's benefit (whether paid or payable or distributed or distributable pursuant to the terms of this Agreement or otherwise) (the “Payments”) would be subject to the excise tax imposed by Section 4999 (or any successor provisions) of the Internal Revenue Code of 1986, as amended (the “Code”), or any interest or penalty is incurred by the Executive with respect to such excise tax (such excise tax, together with any such interest and penalties, is hereinafter collectively referred to as the “Excise Tax”), then the Payments shall be reduced (but not below zero) if and to the extent that such reduction would result in the Executive retaining a larger amount, on an after-tax basis (taking into account federal, state and local income taxes and the imposition of the Excise Tax), than if Executive received all of the Payments. The Company shall reduce or eliminate the Payments, by first reducing or eliminating the portion of the Payments which are not payable in cash and then by reducing or eliminating cash payments, in each case in reverse order beginning with payments or benefits which are to be paid the farthest in time from the determination.

(b) All determinations required to be made under this Section, including whether and when an adjustment to any Payments is required and, if applicable, which Payments are to be so adjusted, shall be made by an independent accounting firm selected by the Company from among the four (4) largest accounting firms in the United States or any nationally recognized financial planning and benefits consulting company (the “Accounting Firm”) which shall provide detailed supporting calculations both to the Company and to the Executive within fifteen (15) business days of the receipt of notice from the Executive that there has been a Payment, or such earlier time as is requested by the Company. In the event that the Accounting Firm is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, the Executive shall appoint another nationally recognized accounting firm or financial planning and benefits consulting company to make the determinations required hereunder (which firm shall then be referred to as the Accounting Firm hereunder). All fees and expenses of the Accounting Firm shall be borne solely by the Company. If the Accounting Firm determines that no Excise Tax is payable by the Executive, it shall furnish the Executive with a written opinion that failure to report the Excise Tax on the Executive's applicable federal income tax return would not result in the imposition of a negligence or similar penalty. Any determination of payment amounts by the Accounting Firm shall be binding upon the Company and the Executive.

4.4 Mitigation. For the avoidance of doubt, the Executive shall not be required to mitigate the amount of any payment or benefits provided for in this Section 4 by seeking other employment or otherwise. Further, subject to Section 8.1, the amount of any payment or benefits provided for in this Section 4 shall not be reduced by any compensation earned by the Executive as a result of employment by another employer, by retirement benefits, by offset against any amount claimed to be owed by the Executive to the Company or otherwise.

4.5 Distributions.

(a) Subject to this Section 4.5 and Section 8.1, payments or benefits under Section 4.1 or 4.2 shall begin only upon the date of Executive's "separation from service" (determined as set forth below) which occurs on or after the Date of Termination. The following rules shall apply with respect to distribution of the payments and benefits, if any, to be provided to Executive under Section 4.1 or 4.2, as applicable:

(i) It is intended that each installment of the payments and benefits provided under Section 4.1 or 4.2 shall be treated as a separate "payment" for purposes of Section 409A of the Code and the final Treasury regulations and guidance issued thereunder ("Section 409A"). Neither the Company nor Executive shall have the right to accelerate or defer the delivery of any such payments or benefits except to the extent specifically permitted or required by Section 409A.

(ii) If, as of the date of Executive's "separation from service" from the Company, Executive is not a "specified employee" (each, for purposes of the Agreement, within the meaning of Section 409A), then each installment of the payments and benefits shall be made on the dates and terms set forth in Section 4.1 or 4.2.

(iii) If, as of the date of Executive's separation from service from the Company, Executive is a specified employee, then:

(A) Each installment of the payments and benefits due under Section 4.1 or 4.2 that, in accordance with the dates and terms set forth herein, will in all circumstances, regardless of when Executive's separation from service occurs, be paid within the short-term deferral period (as defined under Section 409A) and shall be treated as a short-term deferral within the meaning of Treasury Regulation Section 1.409A-1(b)(4) to the maximum extent permissible under Section 409A.

(B) Each installment of the payments and benefits due under Section 4.1 or 4.2 that is not described in Section 4.5(a)(iii)(A) and that would, absent Section 4.5(a)(iii)(A), be paid within the six-month period following the Executive's separation from service from the Company shall not be paid until the date that is six months and one day after such separation from service (or, if earlier, the Executive's death), with any such installments that are required to be delayed being accumulated during the six-month period and paid in a lump sum on the date that is six months and one day following the Executive's separation from service and any subsequent installments, if any, being paid in accordance with the dates and terms set forth herein; provided, however, that the preceding provisions of this Section 4.5(a)(iii)(B) shall not apply to any installment of payments and benefits if and to the maximum extent that that such installment is deemed to be paid under a separation pay plan that does not provide for a deferral of compensation by reason of the application of Treasury Regulation Section 1.409A-1(b)(9)(iii) (relating to separation pay upon an involuntary separation from service). Any installments that qualify for the exception under Treasury Regulation Section 1.409A-1(b)(9)(iii) must be paid no later than the last day of the Executive's second taxable year following the taxable year in which the separation from service occurs.

(b) The determination of whether and when Executive's separation from service from the Company has occurred shall be made and in a manner consistent with, and based on the presumptions set forth in, Treasury Regulation Section 1.409A-1(h). Solely for purposes of this Section 4.5(b), "Company" shall include all persons with whom the Company would be considered a single employer under Section 414(b) and 414(c) of the Code.

(c) All reimbursements and in-kind benefits provided under the Agreement shall be made or provided in accordance with the requirements of Section 409A to the extent that such reimbursements or in-kind benefits are subject to Section 409A, including, where applicable, the requirements that (i) any reimbursement is for expenses incurred during the Executive's lifetime (or during a shorter period of time specified in the Agreement), (ii) the amount of expenses eligible for reimbursement during a calendar year may not affect the expenses eligible for reimbursement in any other calendar year, (iii) the reimbursement of an eligible expense will be made on or before the last day of the calendar year following the year in which the expense is incurred and (iv) the right to reimbursement is not subject to set off or liquidation or exchange for any other benefit.

5. Disputes; Expenses.

5.1 Disputes. All claims by the Executive for benefits under this Agreement shall be directed to and determined by the Board of Directors of the Company and shall be in writing. Any rejection by the Board of Directors of a claim for benefits under this Agreement shall be delivered to the Executive in writing and shall set forth the specific reasons for the rejection and the specific provisions of this Agreement relied upon.

5.2 Expenses. If a Change in Control Date shall not have occurred, all legal, accounting and other fees and expenses which a party may reasonably incur as a result of any claim or contest (regardless of the outcome thereof) by the Company, the Executive or others regarding the validity or enforceability of, or liability under, any provision of this Agreement or any guarantee of performance thereof (including as a result of any contest by the Executive regarding the amount of any payment or benefits pursuant to this Agreement), shall be the responsibility of the non-prevailing party. If a Change in Control Date shall have occurred, the Company agrees to pay as incurred all legal, accounting and other fees and expenses which the Executive may reasonably incur as a result of any claim or contest (regardless of the outcome thereof) by the Company, the Executive or others regarding the validity or enforceability of, or liability under, any provision of this Agreement or any guarantee of performance thereof (including as a result of any contest by the Executive regarding the amount of any payment or benefits pursuant to this Agreement), plus in each case interest on any delayed payment at the applicable rate for prejudgment interest then in effect in the Commonwealth of Massachusetts.

5.3 Compensation During a Dispute. Subject to Sections 4.5 and 8.1, if rights of the Executive to receive benefits under Section 4 (or the amount or nature of the benefits to which the Executive is entitled to receive) are the subject of a dispute between the Company and the Executive, the Company shall continue (a) to pay to the Executive the Executive's base salary in effect as of the Measurement Date and (b) to provide benefits to the Executive and the Executive's family at least equal to those which would have been provided to them, if the Executive's employment had not been terminated, in accordance with the applicable Benefit Plans in effect on the Measurement Date, until such dispute is resolved. Following the resolution of such dispute, the sum of the payments made to the Executive under clause (a) of this Section 5.3 shall be deducted from any cash payment which the Executive is entitled to receive pursuant to Section 4; and if such sum exceeds the amount of the cash payment which the Executive is entitled to receive pursuant to Section 4, the excess of such sum over the amount of such payment shall be repaid (without interest) by the Executive to the Company within 120 days of the resolution of such dispute.

6. Successors.

6.1 Successor to Company. The Company shall require any successor (whether direct or indirect, by purchase, merger, consolidation or otherwise) to all or substantially all of the business or assets of the Company expressly to assume and agree to perform this Agreement to the same extent that the Company would be required to perform it if no such succession had taken place. Failure of the Company to obtain an assumption of this Agreement at or prior to the effectiveness of any succession shall be a breach of this Agreement and shall constitute Good Reason if the Executive elects to terminate employment, except that for purposes of implementing the foregoing, the date on which any such succession becomes effective shall be deemed the Date of Termination. As used in this Agreement, "Company" shall mean the Company as defined above and any successor to its business or assets as aforesaid which assumes and agrees to perform this Agreement, by operation of law or otherwise.

6.2 Successor to Executive. This Agreement shall inure to the benefit of and be enforceable by the Executive's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees. If the Executive should die while any amount would still be payable to the Executive or the Executive's family hereunder if the Executive had continued to live, all such amounts, unless otherwise provided herein, shall be paid in accordance with the terms of this Agreement to the executors, personal representatives or administrators of the Executive's estate.

7. Notice. All notices, instructions and other communications given hereunder or in connection herewith shall be in writing. Any such notice, instruction or communication shall be sent either (i) by registered or certified mail, return receipt requested, postage prepaid, or (ii) prepaid via a reputable nationwide overnight courier service, in each case addressed to the Company, at Aspen Technology, Inc.; ATTN: General Counsel; 20 Crosby Drive, Bedford MA 01730, and to the Executive at the Executive's address indicated on the signature page of this Agreement (or to such other address as either the Company or the Executive may have furnished to the other in writing in accordance herewith). Any such notice, instruction or communication shall be deemed to have been delivered five business days after it is sent by registered or certified mail, return receipt requested, postage prepaid, or one business day after it is sent via a reputable nationwide overnight courier service. Either party may give any notice, instruction or other communication hereunder using any other means, but no such notice, instruction or other communication shall be deemed to have been duly delivered unless and until it actually is received by the party for whom it is intended.

8. Miscellaneous.

8.1 Non-Disclosure and Non-Competition and Non-Solicitation. The Executive acknowledges and reaffirms the Executive's obligations with respect to non-disclosure, non-competition, and non-solicitation (and any other restrictions) reflected in the Proprietary and Confidential Information and Non-

Competition and Non-Solicitation Agreement between the Executive and the Company dated as of March 22, 2021. Notwithstanding any other provision of this Agreement, in the event the Executive is deemed by the Company to have violated Section 3(a) of such Proprietary and Confidential Information and Non-Competition and Non-Solicitation Agreement, the Company shall provide notice to the Executive and, upon the deemed delivery of such notice pursuant to Section 7, all amounts payable or benefits to be provided by the Company under Section 4 shall no longer be due and payable or required to be provided.

8.2 Section 409A of the Code. This Agreement is intended to comply with the provisions of Section 409A and the Agreement shall, to the extent practicable, be construed in accordance therewith. Terms defined in the Agreement shall have the meanings given such terms under Section 409A if and to the extent required in order to comply with Section 409A.

8.3 Not an Employment Contract. The Executive acknowledges that this Agreement does not constitute a contract of employment or impose on the Company any obligation to retain the Executive as an employee and that this Agreement does not prevent the Executive from terminating employment at any time.

8.4 Employment by Subsidiary. For purposes of this Agreement, the Executive's employment with the Company shall not be deemed to have terminated solely as a result of the Executive continuing to be employed by a wholly-owned subsidiary of the Company.

8.5 Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement, which shall remain in full force and effect.

8.6 Injunctive Relief. The Company and the Executive agree that any breach of this Agreement by the Company is likely to cause the Executive substantial and irrevocable damage and therefore, in the event of any such breach, in addition to such other remedies which may be available, the Executive shall have the right to specific performance and injunctive relief.

8.7 Governing Law. The validity, interpretation, construction and performance of this Agreement shall be governed by the internal laws of the Commonwealth of Massachusetts, without regard to conflicts of law principles.

8.8 Waivers. No waiver by the Executive at any time of any breach of, or compliance with, any provision of this Agreement to be performed by the Company shall be deemed a waiver of that or any other provision at any subsequent time.

8.9 Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed to be an original but both of which together shall constitute one and the same instrument.

8.10 Tax Withholding. Any payments provided for hereunder shall be paid net of any applicable tax withholding required under federal, state or local law.

8.11 Entire Agreement. Except as set forth in this Section 8.11, this Agreement sets forth the entire agreement of the parties hereto in respect of the subject matter contained herein and supersedes all prior agreements, promises, covenants, arrangements, communications, representations or warranties, whether oral or written, by any officer, employee or representative of any party hereto in respect of the subject matter contained herein; and any prior agreement of the parties hereto in respect of the subject matter contained herein is hereby terminated and cancelled. Notwithstanding the preceding sentence, the agreement referenced in Section 8.1 shall remain in full force and effect.

8.12 Amendments. This Agreement may be amended or modified only by a written instrument executed by both the Company and the Executive.

8.13 Executive's Acknowledgements. The Executive acknowledges that the Executive: (a) has read this Agreement; (b) has been represented in the preparation, negotiation, and execution of this Agreement by legal counsel of the Executive's own choice or has voluntarily declined to seek such counsel; (c) understands the terms and consequences of this Agreement; and (d) understands that the law firm of K&L Gates LLP has acted and is acting as counsel to the Company in connection with the transactions contemplated by this Agreement, and is not acting as counsel for the Executive.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year set forth above.

ASPEN TECHNOLOGY, INC.

***/s/* CHANTELLE BREITHAUPT**

Chantelle Breithaupt
Senior Vice President and Chief Financial Officer
Address:
11157 Hazel ave, Campbell, CA 95008

Exhibit A

FORM OF GENERAL RELEASE OF CLAIMS

This General Release of Claims (the "General Release") is being executed by Chantelle Breithaupt (the "Executive"), for and in consideration of certain amounts payable under the Amended and Restated Executive Retention Agreement (the "Agreement") entered into between the Executive and Aspen Technology, Inc. (the "Company"), dated as of March 22, 2021. The Executive agrees as follows:

The Executive, on behalf of the Executive and the Executive's agents, heirs, executors, administrators, successors and assigns, hereby fully, forever, irrevocably and unconditionally releases, remises and discharges the Company, its officers, directors, stockholders, corporate affiliates, subsidiaries, parent companies, agents and employees (each in their individual and corporate capacities) (hereinafter, the "Released Parties") from any and all claims, charges, complaints, demands, actions, causes of action, suits, rights, debts, sums of money, costs, accounts, reckonings, covenants, contracts, agreements, promises, doings, omissions, damages, executions, obligations, liabilities, and expenses (including attorneys' fees and costs), of every kind and nature that the Executive ever had or now has against the Released Parties, including, but not limited to, any and all claims arising out of or relating to the Executive's employment with and/or separation from the Company, including, but not limited to, all claims under Title VII of the Civil Rights Act of 1964, 42 U.S.C. § 2000e et seq., the Americans With Disabilities Act of 1990, 42 U.S.C. § 12101 et seq., the Age Discrimination in Employment Act, 29 U.S.C. § 621 et seq., the Family and Medical Leave Act, 29 U.S.C. § 2601 et seq., the Worker Adjustment and Retraining Notification Act ("WARN"), 29 U.S.C. § 2101 et seq., Section 806 of the Corporate and Criminal Fraud Accountability Act of 2002, 18 U.S.C. 1514(A), the Rehabilitation Act of

1973, 29 U.S.C. § 701 et seq., the Fair Credit Reporting Act, 15 U.S.C. § 1681 et seq., the Employee Retirement Income Security Act of 1974 (“ERISA”), 29 U.S.C. § 1001 et seq., Employee Order 11246, and Employee Order 11141, all as amended; all claims arising out of the Massachusetts Fair Employment Practices Act, M.G.L. c. 151B, § 1 et seq., the Massachusetts Civil Rights Act, M.G.L. c. 12, §§ 11H and 11I, the Massachusetts Equal Rights Act, M.G.L. c. 93, § 102 and M.G.L. c. 214, § 1C, the Massachusetts Labor and Industries Act, M.G.L. c. 149, § 1 et seq., the Massachusetts Privacy Act, M.G.L. c. 214, § 1B, and the Massachusetts Maternity Leave Act, M.G.L. c. 149, § 105D, all as amended; all common law claims including, but not limited to, actions in defamation, intentional infliction of emotional distress, misrepresentation, fraud, wrongful discharge, and breach of contract, all claims to any non-vested ownership interest in the Company, contractual or otherwise, and any claim or damage arising out of the Executive’s employment with and/or separation from the Company (including a claim for retaliation) under any common law theory or any federal, state or local statute or ordinance not expressly referenced above; provided, however, that (a) nothing in this General Release prevents the Executive from filing a charge with, cooperating with, or participating in any proceeding before the Equal Employment Opportunity Commission or a state fair employment practices agency (except that the Executive acknowledges that the Executive may not be able to recover any monetary benefits in connection with any such claim, charge or proceeding); and (b) this General Release does not include (i) any right to vested benefits to which the Executive may be entitled under any Company benefit plan; (ii) any rights the Executive may have under the terms of this General Release; (iii) any right to indemnification arising out of the Executive’s employment with the Company pursuant to the Company’s charter, bylaws or any policy of insurance maintained by the Company; and (iv) any rights that the Executive has under the Agreement.

The Executive acknowledges that the Executive has been given at least 21 days to consider this General Release, and that the Company advised the Executive to consult with an attorney of the Executive’s own choosing prior to signing this General Release. The Executive understands that the Executive may revoke this General Release for a period of seven days after the Executive signs this General Release by notifying the Company’s General Counsel, in writing, and the General Release shall not be effective or enforceable until the expiration of this seven-day revocation period. The Executive understands and agrees that by entering into this General Release, the Executive is waiving any and all rights or claims the Executive might have under the Age Discrimination in Employment Act, as amended by the Older Workers Benefits Protection Act, and that the Executive has received consideration beyond that to which the Executive was previously entitled.

IN WITNESS WHEREOF, the parties hereto have executed this General Release as of the day and year set forth below.

ASPEN TECHNOLOGY, INC.

***/s/* CHANTELLE BREITHAUPT**

Chantelle Breithaupt
Senior Vice President and Chief Financial Officer
Date: 3/22/2021

EXHIBIT 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Antonio J. Pietri, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Aspen Technology, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

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

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

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

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

Date: April 28, 2021

/s/ ANTONIO. J. PIETRI
Antonio J. Pietri
President and Chief Executive Officer
(*Principal Executive Officer)*

EXHIBIT 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Chantelle Breithaupt, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Aspen Technology, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

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

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

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

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

Date: April 28, 2021

/s/ CHANTELLE BREITHAUPT
Chantelle Breithaupt
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

EXHIBIT 32.1

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

In connection with the Quarterly Report on Form 10-Q of Aspen Technology, Inc. (the "Company") for the quarter ended March 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned hereby certifies in his capacity as an officer of the Company, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to his knowledge:

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

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

Date: April 28, 2021	**/s/ ANTONIO J. PIETRI**
	Antonio J. Pietri
	President and Chief Executive Officer
Date: April 28, 2021	**/s/ CHANTELLE BREITHAUPT**
	Chantelle Breithaupt
	Senior Vice President and Chief Financial Officer

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