UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2020
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: 0-20853

ANSYS, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**04-3219960**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
2600 ANSYS Drive, Canonsburg, PA	**15317**
(Address of Principal Executive Offices)	(Zip Code)

844-462-6797
(Registrant's telephone number, including area code)
N/A
(Former name, former address and former fiscal year, if changed since last report)

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

Title of each class	Trading Symbol(s)	Name of exchange on which registered
Common Stock, $0.01 par value per share	**ANSS**	**Nasdaq Stock Market LLC (Nasdaq Global Select Market)**

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes ☒ No ☐

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

Yes ☒ No ☐

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

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
Emerging growth company	☐		

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

☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes ☐ No ☒

The number of shares of the Registrant’s Common Stock, $0.01 par value per share, outstanding as of October 31, 2020 was 85,884,127 shares.

ANSYS, INC. AND SUBSIDIARIES

INDEX

		Page No.
PART I	**FINANCIAL INFORMATION**	
Item 1.	Financial Statements	
	Condensed Consolidated Balance Sheets – September 30, 2020 and December 31, 2019	3
	Condensed Consolidated Statements of Income – Three and Nine Months Ended September 30, 2020 and 2019	4
	Condensed Consolidated Statements of Comprehensive Income – Three and Nine Months Ended September 30, 2020 and 2019	5
	Condensed Consolidated Statements of Cash Flows – Nine Months Ended September 30, 2020 and 2019	6
	Condensed Consolidated Statements of Stockholders' Equity – Three and Nine Months Ended September 30, 2020 and 2019	7
	Notes to Condensed Consolidated Financial Statements	8
	Report of Independent Registered Public Accounting Firm	20
Item 2.	Management’s Discussion and Analysis of Financial Condition and Results of Operations	21
Item 3.	Quantitative and Qualitative Disclosures About Market Risk	43
Item 4.	Controls and Procedures	44
PART II	**OTHER INFORMATION**	
Item 1.	Legal Proceedings	45
Item 1A.	Risk Factors	45
Item 2.	Unregistered Sales of Equity Securities and Use of Proceeds	45
Item 3.	Defaults Upon Senior Securities	45
Item 4.	Mine Safety Disclosures	45
Item 5.	Other Information	45
Item 6.	Exhibits	46
	SIGNATURES	47

PART I – FINANCIAL INFORMATION

Item 1. Financial Statements:

ANSYS, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited)

(in thousands, except share and per share data)	September 30, 2020	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	**$ 844,741**	$ 872,094
Short-term investments	**468**	288
Accounts receivable, less allowance for doubtful accounts of $13,400 and $8,700, respectively	**371,352**	433,479
Other receivables and current assets	**242,160**	249,619
Total current assets	**1,458,721**	1,555,480
Long-term assets:		
Property and equipment, net	**90,299**	83,636
Operating lease right-of-use assets	**115,705**	105,671
Goodwill	**2,491,590**	2,413,280
Other intangible assets, net	**474,785**	476,711
Other long-term assets	**189,227**	180,032
Deferred income taxes	**25,968**	24,077
Total long-term assets	**3,387,574**	3,283,407
Total assets	**$ 4,846,295**	$ 4,838,887
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	**$ 10,578**	$ 14,298
Accrued bonuses and commissions	**52,352**	101,546
Accrued income taxes	**29,570**	9,996
Current portion of long-term debt	**—**	75,000
Other accrued expenses and liabilities	**142,856**	142,947
Deferred revenue	**326,491**	351,353
Total current liabilities	**561,847**	695,140
Long-term liabilities:		
Deferred income taxes	**63,729**	78,643
Long-term operating lease liabilities	**101,941**	91,768
Long-term debt	**423,759**	423,531
Other long-term liabilities	**105,406**	96,426
Total long-term liabilities	**694,835**	690,368
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.01 par value; 2,000,000 shares authorized; zero shares issued or outstanding	**—**	—
Common stock, $0.01 par value; 300,000,000 shares authorized; 94,627,585 shares issued	**946**	946
Additional paid-in capital	**1,182,127**	1,188,939
Retained earnings	**3,588,961**	3,370,706
Treasury stock, at cost: 8,774,080 and 8,893,177 shares, respectively	**(1,131,084)**	(1,041,831)
Accumulated other comprehensive loss	**(51,337)**	(65,381)
Total stockholders' equity	**3,589,613**	3,453,379
Total liabilities and stockholders' equity	**$ 4,846,295**	$ 4,838,887

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

ANSYS, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF INCOME
(Unaudited)

(in thousands, except per share data)	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Revenue:				
Software licenses	**$ 141,622**	$ 137,144	**$ 398,793**	$ 430,687
Maintenance and service	**225,343**	206,755	**658,818**	598,977
Total revenue	**366,965**	343,899	**1,057,611**	1,029,664
Cost of sales:				
Software licenses	**7,251**	5,708	**20,688**	16,620
Amortization	**9,911**	4,762	**29,227**	14,064
Maintenance and service	**36,223**	30,895	**107,446**	85,993
Total cost of sales	**53,385**	41,365	**157,361**	116,677
Gross profit	**313,580**	302,534	**900,250**	912,987
Operating expenses:				
Selling, general and administrative	**132,642**	120,682	**391,862**	353,263
Research and development	**86,616**	73,018	**258,861**	219,058
Amortization	**4,237**	3,787	**12,562**	11,342
Total operating expenses	**223,495**	197,487	**663,285**	583,663
Operating income	**90,085**	105,047	**236,965**	329,324
Interest income	**754**	3,188	**4,463**	9,610
Interest expense	**(1,853)**	(239)	**(8,544)**	(561)
Other income (expense), net	**1,158**	833	**3,169**	(937)
Income before income tax provision	**90,144**	108,829	**236,053**	337,436
Income tax provision	**14,517**	19,366	**17,798**	51,993
Net income	**$ 75,627**	$ 89,463	**$ 218,255**	$ 285,443
Earnings per share – basic:				
Earnings per share	**$ 0.88**	$ 1.06	**$ 2.55**	$ 3.40
Weighted average shares	**85,798**	84,109	**85,749**	83,951
Earnings per share – diluted:				
Earnings per share	**$ 0.87**	$ 1.04	**$ 2.50**	$ 3.34
Weighted average shares	**87,224**	85,733	**87,176**	85,570

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

ANSYS, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Unaudited)

(in thousands)	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Net income	**$ 75,627**	$ 89,463	**$ 218,255**	$ 285,443
Other comprehensive income (loss):				
Foreign currency translation adjustments	**28,048**	(20,762)	**14,044**	(27,762)
Comprehensive income	**$ 103,675**	$ 68,701	**$ 232,299**	$ 257,681

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

ANSYS, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	Nine Months Ended	
(in thousands)	September 30, 2020	September 30, 2019
Cash flows from operating activities:		
Net income	**$ 218,255**	$ 285,443
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and intangible assets amortization	**62,197**	42,216
Operating lease right-of-use assets expense	**15,336**	13,912
Deferred income tax benefit	**(22,627)**	(13,221)
Provision for bad debts	**5,799**	2,559
Stock-based compensation expense	**103,256**	84,784
Other	**2,294**	2,560
Changes in operating assets and liabilities:		
Accounts receivable	**62,184**	(12,610)
Other receivables and current assets	**12,735**	37,773
Other long-term assets	**(12,341)**	(2,288)
Accounts payable, accrued expenses and current liabilities	**(76,517)**	(37,289)
Accrued income taxes	**22,010**	(2,547)
Deferred revenue	**(29,978)**	(35,807)
Other long-term liabilities	**10,940**	(5,000)
Net cash provided by operating activities	**373,543**	360,485
Cash flows from investing activities:		
Acquisitions, net of cash acquired	**(100,194)**	(294,987)
Capital expenditures	**(24,195)**	(25,781)
Other investing activities	**(6,201)**	(12,680)
Net cash used in investing activities	**(130,590)**	(333,448)
Cash flows from financing activities:		
Principal payments on long-term debt	**(75,000)**	—
Purchase of treasury stock	**(161,029)**	(59,116)
Restricted stock withholding taxes paid in lieu of issued shares	**(66,774)**	(37,936)
Proceeds from shares issued for stock-based compensation	**26,957**	28,633
Other financing activities	**—**	(1,617)
Net cash used in financing activities	**(275,846)**	(70,036)
Effect of exchange rate fluctuations on cash and cash equivalents	**5,540**	(1,456)
Net decrease in cash and cash equivalents	**(27,353)**	(44,455)
Cash and cash equivalents, beginning of period	**872,094**	777,139
Cash and cash equivalents, end of period	**$ 844,741**	$ 732,684
Supplemental disclosure of cash flow information:		
Income taxes paid	**$ 35,576**	$ 73,561
Interest paid	**$ 9,985**	$ 356

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

ANSYS, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited)

(in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Retained Earnings	Treasury Stock Shares	Treasury Stock Amount	Accumulated Other Comprehensive (Loss)/Income	Total Stockholders' Equity
Balance, January 1, 2020	**94,628**	**$ 946**	**$ 1,188,939**	**$ 3,370,706**	**8,893**	**$ (1,041,831)**	**$ (65,381)**	**$ 3,453,379**
Treasury shares acquired					**690**	**(161,029)**		**(161,029)**
Stock-based compensation activity			**(70,769)**		**(541)**	**48,997**		**(21,772)**
Other comprehensive loss							**(24,292)**	**(24,292)**
Net income				**46,064**				**46,064**
Balance, March 31, 2020	**94,628**	**$ 946**	**$ 1,118,170**	**$ 3,416,770**	**9,042**	**$ (1,153,863)**	**$ (89,673)**	**$ 3,292,350**
Acquisition of Livermore Software Technology, LLC			**1,030**		**(6)**	**501**		**1,531**
Stock-based compensation activity			**24,993**		**(146)**	**12,322**		**37,315**
Other comprehensive income							**10,288**	**10,288**
Net income				**96,564**				**96,564**
Balance, June 30, 2020	**94,628**	**$ 946**	**$ 1,144,193**	**$ 3,513,334**	**8,890**	**$ (1,141,040)**	**$ (79,385)**	**$ 3,438,048**
Stock-based compensation activity			**37,934**		**(116)**	**9,956**		**47,890**
Other comprehensive income							**28,048**	**28,048**
Net income				**75,627**				**75,627**
Balance, September 30, 2020	**94,628**	**$ 946**	**$ 1,182,127**	**$ 3,588,961**	**8,774**	**$ (1,131,084)**	**$ (51,337)**	**$ 3,589,613**

(in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Retained Earnings	Treasury Stock Shares	Treasury Stock Amount	Accumulated Other Comprehensive (Loss)/ Income	Total Stockholders' Equity
Balance, January 1, 2019	93,236	$ 932	$ 867,462	$ 2,919,411	9,602	$ (1,075,879)	$ (62,379)	$ 2,649,547
Treasury shares acquired					250	(44,856)		(44,856)
Stock-based compensation activity			(42,465)		(494)	43,483		1,018
Other comprehensive loss							(7,558)	(7,558)
Net income				86,230				86,230
Balance, March 31, 2019	93,236	$ 932	$ 824,997	$ 3,005,641	9,358	$ (1,077,252)	$ (69,937)	$ 2,684,381
Treasury shares acquired					80	(14,260)		(14,260)
Stock-based compensation activity			14,699		(241)	22,158		36,857
Other comprehensive income							558	558
Net income				109,750				109,750
Balance, June 30, 2019	93,236	$ 932	$ 839,696	$ 3,115,391	9,197	$ (1,069,354)	$ (69,379)	$ 2,817,286
Stock-based compensation activity			25,938		(125)	11,399		37,337
Other comprehensive loss							(20,762)	(20,762)
Net income				89,463				89,463
Balance, September 30, 2019	93,236	$ 932	$ 865,634	$ 3,204,854	9,072	$ (1,057,955)	$ (90,141)	$ 2,923,324

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

ANSYS, INC. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
September 30, 2020
(Unaudited)

1. Organization

ANSYS, Inc. (Ansys, we, us, our) develops and globally markets engineering simulation software and services widely used by engineers, designers, researchers and students across a broad spectrum of industries and academia, including aerospace and defense, automotive, electronics, semiconductors, energy, materials and chemical processing, turbomachinery, consumer products, healthcare, and sports.

As defined by the accounting guidance for segment reporting, we operate as one segment.

Given the integrated approach to the multi-discipline problem-solving needs of our customers, a single sale of software may contain components from multiple product areas and include combined technologies. We also have a multi-year product and integration strategy that will result in new, combined products or changes to the historical product offerings. As a result, it is impracticable for us to provide accurate historical or current reporting among our various product lines.

We are closely monitoring the spread of COVID-19 and continually assessing its potential effects on our business. The COVID-19 pandemic has had, and is expected to continue to have, an adverse impact on our business, employees, liquidity, financial condition, results of operations and cash flows.

2. Accounting Policies

Basis of Presentation

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States for interim financial information for commercial and industrial companies, the instructions to Form 10-Q and Rule 10-01 of Regulation S-X. Accordingly, the accompanying unaudited condensed consolidated financial statements do not include all of the information and footnotes required by accounting principles generally accepted in the United States for complete financial statements. The accompanying unaudited condensed consolidated financial statements should be read in conjunction with our audited consolidated financial statements (and notes thereto) included in our Annual Report on Form 10-K for the year ended December 31, 2019 (2019 Form 10-K). The condensed consolidated December 31, 2019 balance sheet presented is derived from the audited December 31, 2019 balance sheet included in the 2019 Form 10-K. In our opinion, all adjustments considered necessary for a fair presentation of the financial statements have been included, and all adjustments are of a normal and recurring nature. Certain items in the condensed consolidated financial statements of prior years have been reclassified to conform to the current year's presentation. These reclassifications had no effect on reported net income, comprehensive income, cash flows, total assets or total liabilities and stockholders' equity. Operating results for the three and nine months ended September 30, 2020 are not necessarily indicative of the results that may be expected for any future period.

Changes in Accounting Policies

Our accounting policies are described in Note 2, “Accounting Policies,” in the 2019 Form 10-K. Summarized below is the accounting guidance adopted subsequent to December 31, 2019.

Credit losses: In June 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* (ASU 2016-13), which modifies the measurement of expected credit losses of certain financial instruments. We adopted ASU 2016-13 on January 1, 2020 with no material impact to our condensed consolidated financial statements. Previous guidance required the allowance for doubtful accounts to be estimated based on an incurred loss model, which considered past and current conditions. ASU 2016-13 requires us to use an expected loss model that also considers reasonable and supportable forecasts of future conditions, referred to as the current expected credit loss (CECL) methodology.

Under ASU 2016-13, we make judgments as to our ability to collect outstanding receivables and provide allowances for a portion of receivables over the lifetime of the receivables. Provisions are made based upon a specific review of all significant outstanding invoices from both value and delinquency perspectives. For those invoices not specifically reviewed, provisions are estimated at differing rates based upon the age of the receivable. In determining these percentages, we consider our historical loss experience, current economic trends and future conditions.

The changes in the allowance for doubtful accounts during the nine months ended September 30, 2020 were as follows:

(in thousands)		Nine Months Ended September 30, 2020
Beginning balance – January 1	$	8,700
Additions: Charges to costs and expenses		5,799
Deductions: Returns and write-offs		(1,099)
Ending balance – September 30	$	13,400

The increase in the allowance for doubtful accounts was driven by expected losses related to COVID-19.

Accounting Guidance Issued and Not Yet Adopted

Income taxes: In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes* (ASU 2019-12), as part of its initiative to reduce complexity in the accounting standards. The amendments in ASU 2019-12 eliminate certain exceptions related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. ASU 2019-12 also clarifies and simplifies other aspects of the accounting for income taxes. ASU 2019-12 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. Early adoption is permitted, including adoption in any interim period. We do not expect the adoption of this guidance to have a material impact on our financial position or results of operations.

Cash and Cash Equivalents

Cash and cash equivalents consist primarily of highly liquid investments such as deposits held at major banks and money market funds. Cash equivalents are carried at cost, which approximates fair value. Our cash and cash equivalents balances comprise the following:

	September 30, 2020			December 31, 2019		
(in thousands, except percentages)		Amount	% of Total		Amount	% of Total
Cash accounts	$	536,778	63.5	$	549,639	63.0
Money market funds		307,963	36.5		322,455	37.0
Total	$	844,741		$	872,094	

Our money market fund balances are held in various funds of two issuers.

3. Revenue from Contracts with Customers

Disaggregation of Revenue

The following table summarizes revenue:

	Three Months Ended		Nine Months Ended	
(in thousands, except percentages)	September 30, 2020	September 30, 2019	September 30, 2020	September 30, 2019
Revenue:				
Lease licenses	**$ 78,917**	$ 70,693	**$ 237,000**	$ 239,953
Perpetual licenses	**62,705**	66,451	**161,793**	190,734
Software licenses	**141,622**	137,144	**398,793**	430,687
Maintenance	**211,942**	193,189	**615,609**	559,768
Service	**13,401**	13,566	**43,209**	39,209
Maintenance and service	**225,343**	206,755	**658,818**	598,977
Total revenue	**$ 366,965**	$ 343,899	**$ 1,057,611**	$ 1,029,664
Direct revenue, as a percentage of total revenue	**74.9 %**	76.8 %	**75.7 %**	75.9 %
Indirect revenue, as a percentage of total revenue	**25.1 %**	23.2 %	**24.3 %**	24.1 %

Our software licenses revenue is recognized up front, while maintenance and service revenue is generally recognized over the term of the contract.

Deferred Revenue

Deferred revenue consists of billings made or payments received in advance of revenue recognition from customer agreements. The timing of revenue recognition may differ from the timing of billings to customers. Payment terms vary by the type and location of customer and the products or services offered. The time between invoicing and when payment is due is not significant.

The changes in deferred revenue, inclusive of both current and long-term deferred revenue, during the nine months ended September 30, 2020 and 2019 were as follows:

(in thousands)	2020	2019
Beginning balance – January 1	**$ 365,274**	$ 343,174
Acquired deferred revenue	**1,405**	3,266
Deferral of revenue	**1,025,057**	991,524
Recognition of revenue	**(1,057,611)**	(1,029,664)
Currency translation	**4,307**	(4,985)
Ending balance – September 30	**$ 338,432**	$ 303,315

Total revenue allocated to remaining performance obligations as of September 30, 2020 will be recognized as revenue as follows:

(in thousands)	
Next 12 months	**$ 570,236**
Months 13-24	**180,873**
Months 25-36	**61,069**
Thereafter	**67,734**
Total revenue allocated to remaining performance obligations	**$ 879,912**

Revenue allocated to remaining performance obligations represents contracted revenue that has not yet been recognized, which includes both deferred revenue and backlog. Our backlog represents installment billings for periods beyond the current quarterly billing cycle. Revenue recognized during the nine months ended September 30, 2020 and 2019 included amounts in deferred revenue and backlog at the beginning of the period of $465.5 million and $409.1 million, respectively.

4. Acquisitions

On April 1, 2020, we acquired 100% of the shares of Lumerical Inc. (Lumerical), a leading developer of photonic design and simulation tools, for a purchase price of approximately $107.5 million, paid in cash. The acquisition adds best-in-class photonic products to our multiphysics portfolio, providing customers with a full set of solutions to solve their next-generation product challenges.

The assets and liabilities of Lumerical have been recorded based upon management's estimates of their fair market values as of the acquisition date. The following tables summarize the fair value of consideration transferred and the fair values of identified assets acquired and liabilities assumed at the acquisition date:

Fair Value of Consideration Transferred:

(in thousands)		
Cash	**$**	**107,545**

Recognized Amounts of Identifiable Assets Acquired and Liabilities Assumed:

(in thousands)		
Cash	$	11,844
Accounts receivable and other tangible assets		4,244
Developed software and core technologies		31,614
Customer lists		1,616
Trade names		1,756
Accounts payable and other liabilities		(1,106)
Deferred revenue		(1,405)
Net deferred tax liabilities		(7,452)
Total identifiable net assets	**$**	**41,111**
Goodwill	**$**	**66,434**

The goodwill, which is not tax-deductible, is attributed to intangible assets that do not qualify for separate recognition, including the assembled workforce of the acquired business and the synergies expected to arise as a result of the acquisition of Lumerical.

The fair values of the assets acquired and liabilities assumed are based on preliminary calculations. The estimates and assumptions for these items are subject to change as additional information about what was known and knowable at the acquisition date is obtained during the measurement period (up to one year from the acquisition date).

We determined the fair value of our intangible assets using various valuation techniques, including the relief-from-royalty method and the multi-period excess earnings method. These models utilize certain unobservable inputs classified as Level 3 measurements as defined by ASC 820, *Fair Value Measurements and Disclosures*. The determination of fair value requires considerable judgment and is sensitive to changes in underlying assumptions, estimates and market factors. Estimating fair value requires us to make assumptions and estimates regarding our future plans, as well as industry and economic conditions. These assumptions and estimates include, but are not limited to: royalty rate, discount rate and attrition rate.

The valuation method and assumptions used to determine the fair value of the intangible assets acquired with the Lumerical acquisition are as follows:

Intangible Asset	Useful Life	Valuation Method	Assumptions
Developed software and core technologies	10 years	Multi-period excess earnings	Discount rate: 16.5%
Trade names	6 years	Relief-from-royalty	Royalty rate: 2.0% Discount rate: 16.5%
Customer lists	10 years	Multi-period excess earnings	Attrition rate: 10.0% Discount rate: 12.5%

The operating results of Lumerical have been included in our condensed consolidated financial statements since the date of acquisition. The effects of the business combination were not material to our consolidated results of operations.

On November 1, 2019, we completed the acquisition of 100% of the shares of Livermore Software Technology (LST), the premier provider of explicit dynamics and other advanced finite element analysis technology, for a purchase price of $781.5 million, inclusive of final net working capital adjustments. The acquisition empowers our customers to solve a new class of engineering challenges, including developing safer automobiles, aircraft and trains while reducing or even eliminating the need for costly physical testing. The purchase price was paid with $472.8 million in cash and 1.4 million shares of our common stock valued at $308.7 million. We issued $307.2 million of common stock in an unregistered offering to the prior owners of LST and the remaining $1.5 million was issued from shares held in treasury.

On February 1, 2019, we completed the acquisition of 100% of the shares of Granta Design Limited (Granta Design) for a purchase price of $208.7 million, paid in cash and inclusive of final net working capital adjustments. The acquisition of Granta Design, the premier provider of materials information technology, expands our portfolio into this important area, giving customers access to materials intelligence, including data that is critical to successful simulations.

Additionally, during the year ended December 31, 2019, we acquired DYNARDO GmbH, Helic, Inc. (Helic) and DfR Solutions to combine the acquired technologies with our existing comprehensive multiphysics portfolio. These acquisitions were not individually significant. The combined purchase price of these other acquisitions was $138.6 million, paid in cash and inclusive of final net working capital adjustments.

The operating results of each 2019 acquisition have been included in our condensed consolidated financial statements since each respective date of acquisition.

See Note 16, Subsequent Event, for information on our definitive agreement to acquire Analytical Graphics, Inc. (AGI).

5. Other Receivables and Current Assets, Other Accrued Expenses and Liabilities, and Other Long-Term Liabilities

Our other receivables and current assets, other accrued expenses and liabilities, and other long-term liabilities comprise the following balances:

(in thousands)	September 30, 2020	December 31, 2019
Receivables related to unrecognized revenue	**$ 145,097**	$ 177,679
Income taxes receivable, including overpayments and refunds	**53,156**	26,672
Prepaid expenses and other current assets	**43,907**	45,268
Total other receivables and current assets	**$ 242,160**	$ 249,619
Accrued vacation	**32,866**	24,336
Consumption, VAT and sales tax liabilities	**23,814**	36,398
Accrued expenses and other current liabilities	**86,176**	82,213
Total other accrued expenses and liabilities	**$ 142,856**	$ 142,947
Uncertain tax positions	**$ 69,906**	$ 64,375
Other long-term liabilities	**35,500**	32,051
Total other long-term liabilities	**$ 105,406**	$ 96,426

Receivables related to unrecognized revenue represent the current portion of billings made for customer contracts that have not yet been recognized as revenue.

6. Earnings Per Share

Basic earnings per share (EPS) amounts are computed by dividing earnings by the weighted average number of common shares outstanding during the period. Diluted EPS amounts assume the issuance of common stock for all potentially dilutive equivalents outstanding. To the extent stock awards are anti-dilutive, they are excluded from the calculation of diluted EPS.

The details of basic and diluted EPS are as follows:

	Three Months Ended		Nine Months Ended	
(in thousands, except per share data)	September 30, 2020	September 30, 2019	September 30, 2020	September 30, 2019
Net income	**$ 75,627**	$ 89,463	**$ 218,255**	$ 285,443
Weighted average shares outstanding – basic	**85,798**	84,109	**85,749**	83,951
Dilutive effect of stock plans	**1,426**	1,624	**1,427**	1,619
Weighted average shares outstanding – diluted	**87,224**	85,733	**87,176**	85,570
Basic earnings per share	**$ 0.88**	$ 1.06	**$ 2.55**	$ 3.40
Diluted earnings per share	**$ 0.87**	$ 1.04	**$ 2.50**	$ 3.34
Anti-dilutive shares	**30**	25	**28**	8

7. Goodwill and Intangible Assets

Intangible assets are classified as follows:

	September 30, 2020		December 31, 2019	
(in thousands)	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Finite-lived intangible assets:				
Developed software and core technologies	**$ 670,429**	**$ (359,230)**	$ 635,063	$ (332,622)
Customer lists and contract backlog	**262,744**	**(135,148)**	269,629	(132,596)
Trade names	**156,517**	**(120,884)**	154,259	(117,379)
Total	**$ 1,089,690**	**$ (615,262)**	$ 1,058,951	$ (582,597)
Indefinite-lived intangible asset:				
Trade name	**$ 357**		$ 357	

Finite-lived intangible assets are amortized over their estimated useful lives of two years to seventeen years. Amortization expense for the intangible assets reflected above was $14.1 million and $8.5 million for the three months ended September 30, 2020 and 2019, respectively. Amortization expense for the intangible assets reflected above was $41.8 million and $25.4 million for the nine months ended September 30, 2020 and 2019, respectively.

As of September 30, 2020, estimated future amortization expense for the intangible assets reflected above was as follows:

(in thousands)	
Remainder of 2020	**$ 13,900**
2021	**55,846**
2022	**56,888**
2023	**56,534**
2024	**55,051**
2025	**51,314**
Thereafter	**184,895**
Total intangible assets subject to amortization	**474,428**
Indefinite-lived trade name	**357**
Other intangible assets, net	**$ 474,785**

The changes in goodwill during the nine months ended September 30, 2020 and 2019 were as follows:

(in thousands)		**2020**		**2019**
Beginning balance – January 1	**$**	**2,413,280**	$	1,572,455
Acquisitions and adjustments[1]		**69,598**		219,009
Currency translation		**8,712**		(19,602)
Ending balance – September 30	**$**	**2,491,590**	$	1,771,862

[1] In accordance with the accounting for business combinations, we recorded adjustments to goodwill for the effect of changes in the provisional fair values of the assets acquired and liabilities assumed during the measurement period (up to one year from the acquisition date) as we obtained new information about facts and circumstances that existed as of the acquisition date that, if known, would have affected the measurement of the amounts recognized as of that date. Such adjustments are not material to our consolidated financial statements.

During the first quarter of 2020, we completed the annual impairment test for goodwill and the indefinite-lived intangible asset and determined that these assets had not been impaired as of the test date, January 1, 2020. Given the adverse economic and market conditions caused by COVID-19, we considered a variety of qualitative factors to determine if an additional quantitative impairment test was required subsequent to our annual impairment test. Based on a variety of factors, including the excess of the fair values over the carrying amounts in the most recent impairment test, we determined it was not more likely than not that an impairment existed as of March 31, 2020. No other events or circumstances changed during the nine months ended September 30, 2020 that would indicate that the fair values of our reporting unit and indefinite-lived intangible asset are below their carrying amounts.

8. Fair Value Measurement

The valuation hierarchy for disclosure of assets and liabilities reported at fair value prioritizes the inputs for such valuations into three broad levels:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2: quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument; or
- Level 3: unobservable inputs based on our own assumptions used to measure assets and liabilities at fair value.

A financial asset's or liability's classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement.

Our current and long-term debt is classified within Level 2 of the fair value hierarchy because these borrowings are not actively traded and have a variable interest rate structure based upon market rates. The carrying amount of our current and long-term debt approximates the estimated fair value. See Note 10, “Debt”, for additional information on these borrowings.

The following tables provide the assets carried at fair value and measured on a recurring basis:

(in thousands)	September 30, 2020	Fair Value Measurements at Reporting Date Using: Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Cash equivalents	**$ 307,963**	**$ 307,963**	**$ —**	**$ —**
Short-term investments	**$ 468**	**$ —**	**$ 468**	**$ —**
Deferred compensation plan investments	**$ 1,602**	**$ 1,602**	**$ —**	**$ —**

(in thousands)	December 31, 2019	Fair Value Measurements at Reporting Date Using: Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Cash equivalents	$ 322,455	$ 322,455	$ —	$ —
Short-term investments	$ 288	$ —	$ 288	$ —
Deferred compensation plan investments	$ 1,110	$ 1,110	$ —	$ —

The cash equivalents in the preceding tables represent money market funds, valued at net asset value, with carrying values which approximate their fair values because of their short-term nature.

The short-term investments in the preceding tables represent deposits held by certain foreign subsidiaries. The deposits have fixed interest rates with original maturities ranging from three months to one year.

The deferred compensation plan investments in the preceding tables represent trading securities held in a rabbi trust for the benefit of non-employee directors who elected to diversify their vested deferred stock awards. These securities consist of mutual funds traded in an active market with quoted prices. As a result, the plan assets are classified as Level 1 in the fair value hierarchy. The plan assets are recorded within other long-term assets on our condensed consolidated balance sheets.

9. Leases

We primarily have operating leases for office space included in our right-of-use (ROU) assets and lease liabilities. Our executive offices and those related to certain domestic product development, marketing, production and administration are located in a 186,000 square foot office facility in Canonsburg, Pennsylvania. The term of the lease is 183 months, which began on October 1, 2014 and expires on December 31, 2029. The lease agreement includes options to renew the contract through August 2044, an option to lease additional space in January 2025 and an option to terminate the lease in December 2025. No options are included in the lease liability as renewal is not reasonably certain. In addition, we are reasonably certain we will not terminate the lease agreement. Absent the exercise of options in the lease, our remaining base rent (inclusive of property taxes and certain operating costs) is $4.5 million per annum through 2024 and $4.7 million per annum for 2025 - 2029.

The components of our global lease cost reflected in the condensed consolidated statements of income are as follows:

	Three Months Ended		Nine Months Ended	
(in thousands)	September 30, 2020	September 30, 2019	September 30, 2020	September 30, 2019
Lease liability cost	**$ 6,206**	$ 5,684	**$ 18,704**	$ 16,579
Variable lease cost not included in the lease liability[1]	**1,033**	1,126	**3,354**	2,847
Total lease cost	**$ 7,239**	$ 6,810	**$ 22,058**	$ 19,426

[1] Variable lease cost includes common area maintenance, property taxes, utilities and fluctuations in rent due to a change in an index or rate.

Other information related to operating leases is as follows:

	Three Months Ended		Nine Months Ended	
(in thousands)	September 30, 2020	September 30, 2019	September 30, 2020	September 30, 2019
Cash paid for amounts included in the measurement of the lease liability:				
Operating cash flows from operating leases	**$ (5,921)**	$ (5,242)	**$ (17,322)**	$ (14,551)
Right-of-use assets obtained in exchange for new operating lease liabilities	**1,076**	6,155	**21,319**	29,262

	As of September 30,	
	2020	2019
Weighted-average remaining lease term of operating leases	**7.5 years**	7.8 years
Weighted-average discount rate of operating leases	**3.3 %**	3.7 %

The maturity schedule of the operating lease liabilities as of September 30, 2020 is as follows:

(in thousands)	
Remainder of 2020	**$ 6,467**
2021	**23,349**
2022	**20,424**
2023	**15,516**
2024	**14,661**
Thereafter	**58,798**
Total future lease payments	**139,215**
Less: Present value adjustment	**(17,101)**
Present value of future lease payments[1]	**$ 122,114**

[1] Includes the current portion of operating lease liabilities of $20.2 million, which is reflected in other accrued expenses and liabilities in the condensed consolidated balance sheets.

There were no material leases that have been signed but not yet commenced as of September 30, 2020.

10. Debt

In February 2019, we entered into a credit agreement for a $500.0 million unsecured revolving credit facility, which includes a $50.0 million sublimit for the issuance of letters of credit (Revolving Credit Facility), with Bank of America, N.A. as the Administrative Agent. The Revolving Credit Facility becomes payable in full on February 22, 2024 and is available for general corporate purposes, including, among others, to finance acquisitions and capital expenditures.

In connection with the acquisition of LST, we amended our credit agreement (Amended Credit Agreement) on October 16, 2019. The amendment provided for a new $500.0 million unsecured term loan facility to finance the acquisition. The term loan was funded on November 1, 2019 and matures on November 1, 2024. Principal on the term loan will be payable on the last business day of each fiscal quarter commencing with the ninth full fiscal quarter after the funding date at a rate of 1.25% per quarter, increasing to 2.50% per quarter after the next four fiscal quarters. We repaid $75.0 million of the unsecured term loan balance in January 2020 prior to the scheduled maturity dates in 2022 ($25.0 million) and 2023 ($50.0 million).

Borrowings under the Amended Credit Agreement accrue interest at the Eurodollar rate plus an applicable margin or at the base rate, at our election. For the quarter ended September 30, 2020, we elected to apply the Eurodollar rate. The base rate is the applicable margin plus the highest of (i) the federal funds rate plus 0.500%, (ii) the Bank of America prime rate and (iii) the Eurodollar rate plus 1.000%. The applicable margin for these borrowings is a percentage per annum based on the lower of (1) a pricing level determined by our then-current consolidated leverage ratio and (2) a pricing level determined by our debt ratings (if such debt ratings exist). This results in a margin ranging from 1.125% to 1.750% and 0.125% to 0.750% for the Eurodollar rate and base rate, respectively. The weighted-average interest rates in effect during the three and nine months ended September 30, 2020 were 1.43% and 2.33%, respectively. As of September 30, 2020, the rate in effect was 1.35%.

The Amended Credit Agreement contains language in the event the Eurodollar rate is not available due to LIBOR changes. If this occurs, the base rate will be used for borrowings. However, we may work with the Administrative Agent to amend the agreement to replace the Eurodollar rate with (i) one or more rates based on the Secured Overnight Financing Rate (SOFR); or (ii) another alternative benchmark rate, subject to the lenders' approval.

The Amended Credit Agreement contains customary representations and warranties, affirmative and negative covenants and events of default. The Amended Credit Agreement also contains a financial covenant requiring us to maintain a consolidated leverage ratio of indebtedness to earnings before interest, taxes, depreciation and amortization not exceeding 3.50 to 1.00 as of the end of any fiscal quarter (for the four-quarter period ending on such date) with an opportunity for a temporary increase in such consolidated leverage ratio to 4.00 to 1.00 upon the consummation of certain qualified acquisitions for which the aggregate consideration is at least $250.0 million.

As of September 30, 2020 and December 31, 2019, there were no outstanding borrowings under the unsecured Revolving Credit Facility, and the carrying value of the term loan was $423.8 million, which is net of $1.2 million of unamortized debt issuance costs, and $498.5 million, which is net of $1.5 million of unamortized debt issuance costs, respectively. The next principal payment on the term loan is not required until 2024. We were in compliance with all covenants as of September 30, 2020 and December 31, 2019.

We anticipate obtaining new debt financing to fund a significant portion of the cash component of the purchase price of the AGI acquisition. See Note 16, Subsequent Event, for information on our definitive agreement to acquire AGI.

11. Income Taxes

Our income before income tax provision, income tax provision and effective tax rates were as follows:

	Three Months Ended		Nine Months Ended	
(in thousands, except percentages)	**September 30, 2020**	**September 30, 2019**	**September 30, 2020**	**September 30, 2019**
Income before income tax provision	**$ 90,144**	$ 108,829	**$ 236,053**	$ 337,436
Income tax provision	**14,517**	19,366	**17,798**	51,993
Effective tax rate	**16.1 %**	17.8 %	**7.5 %**	15.4 %

Tax expense during the nine months ended September 30, 2020 benefited from increased stock compensation benefits, many of which were recognized discretely in the first quarter.

12. Stock Repurchase Program

Under our stock repurchase program, we repurchased shares as follows:

(in thousands, except per share data)	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Number of shares repurchased	**690**	330
Average price paid per share	**$ 233.48**	$ 179.41
Total cost	**$ 161,029**	$ 59,116

All of the shares of common stock repurchased during the first nine months of 2020 were repurchased in the first quarter of 2020. As of September 30, 2020, 2.8 million shares remained available for repurchase under the program.

13. Stock-Based Compensation

Total stock-based compensation expense and its net impact on basic and diluted earnings per share are as follows:

	Three Months Ended		Nine Months Ended	
(in thousands, except per share data)	September 30, 2020	September 30, 2019	September 30, 2020	September 30, 2019
Cost of sales:				
Maintenance and service	**$ 3,626**	$ 2,422	**$ 9,956**	$ 6,024
Operating expenses:				
Selling, general and administrative	**18,954**	16,774	**50,417**	44,408
Research and development	**15,605**	12,666	**42,883**	34,352
Stock-based compensation expense before taxes	**38,185**	31,862	**103,256**	84,784
Related income tax benefits	**(10,060)**	(9,847)	**(46,849)**	(30,075)
Stock-based compensation expense, net of taxes	**$ 28,125**	$ 22,015	**$ 56,407**	$ 54,709
Net impact on earnings per share:				
Basic earnings per share	**$ (0.33)**	$ (0.26)	**$ (0.66)**	$ (0.65)
Diluted earnings per share	**$ (0.32)**	$ (0.26)	**$ (0.65)**	$ (0.64)

14. Geographic Information

Revenue to external customers is attributed to individual countries based upon the location of the customer. Revenue by geographic area is as follows:

	Three Months Ended		Nine Months Ended	
(in thousands)	September 30, 2020	September 30, 2019	September 30, 2020	September 30, 2019
United States	**$ 156,663**	$ 146,761	**$ 465,919**	$ 425,212
Japan	**40,565**	35,749	**133,773**	116,364
Germany	**27,677**	37,541	**85,048**	93,847
South Korea	**21,083**	16,902	**54,105**	72,833
United Kingdom	**26,595**	9,619	**46,334**	32,007
France	**14,930**	17,226	**44,220**	46,825
China	**17,414**	18,057	**42,016**	43,904
Other Europe, Middle East and Africa (EMEA)	**37,314**	35,241	**107,678**	110,330
Other international	**24,724**	26,803	**78,518**	88,342
Total revenue	**$ 366,965**	$ 343,899	**$ 1,057,611**	$ 1,029,664

Property and equipment by geographic area is as follows:

(in thousands)	September 30, 2020	December 31, 2019
United States	**$ 61,899**	$ 59,473
India	**6,670**	5,660
France	**5,647**	3,657
Germany	**4,802**	4,237
United Kingdom	**3,589**	4,194
Other EMEA	**1,932**	1,875
Other international	**5,760**	4,540
Total property and equipment, net	**$ 90,299**	$ 83,636

15. Contingencies and Commitments

We are subject to various investigations, claims and legal proceedings that arise in the ordinary course of business, including commercial disputes, labor and employment matters, tax audits, alleged infringement of intellectual property rights and other matters. In our opinion, the resolution of pending matters is not expected to have a material adverse effect on our condensed consolidated results of operations, cash flows or financial position. However, each of these matters is subject to various uncertainties and it is possible that an unfavorable resolution of one or more of these proceedings could materially affect our results of operations, cash flows or financial position.

Our Indian subsidiary has several service tax audits pending that have resulted in formal inquiries being received on transactions through mid-2012. We could incur tax charges and related liabilities of approximately $7.2 million. As such charges are not probable at this time, a reserve has not been recorded on the condensed consolidated balance sheet as of September 30, 2020. The service tax issues raised in our notices and inquiries are very similar to the case, M/s Microsoft Corporation (I) (P) Ltd. Vs. Commissioner of Service Tax, New Delhi, wherein the Delhi Customs, Excise and Service Tax Appellate Tribunal (CESTAT) issued a favorable ruling to Microsoft. The Microsoft ruling was subsequently challenged in the Supreme Court by the Indian tax authority and a decision is still pending. We can provide no assurances on the impact that the present Microsoft case’s decision will have on our cases, however, an unfavorable ruling in the Microsoft case may result in a charge of $7.2 million. We are uncertain as to when these service tax matters will be concluded.

We sell software licenses and services to our customers under contractual agreements. Such agreements generally include certain provisions indemnifying the customer against claims of intellectual property infringement or non-compliance to contractual terms and conditions by third parties arising from such customer’s usage of our products or services. To date, payments related to these indemnification provisions have been immaterial. For several reasons, including the lack of prior material indemnification claims, we cannot determine the maximum amount of potential future payments, if any, related to such indemnification provisions.

16. Subsequent Event

On October 23, 2020, we entered into a definitive agreement to acquire 100% of the shares of AGI, a premier provider of mission-simulation, modeling, testing and analysis software for aerospace, defense and intelligence applications. Once closed, the acquisition will expand the scope of our offerings, empowering users to solve challenges by simulating from the chip level all the way to a customer's entire mission. The transaction is expected to close with a purchase price of $700.0 million, of which the AGI shareholders will receive 67% in cash and 33% in Ansys common stock. We anticipate obtaining new debt financing to fund a significant portion of the cash component of the purchase price.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of ANSYS, Inc.

Results of Review of Interim Financial Information

We have reviewed the accompanying condensed consolidated balance sheet of ANSYS, Inc. and subsidiaries (the “Company”) as of September 30, 2020, the related condensed consolidated statements of income, comprehensive income, and stockholders’ equity for the three-month and nine-month periods ended September 30, 2020 and 2019, and of cash flows for the nine-month periods ended September 30, 2020 and 2019 and the related notes (collectively referred to as the “interim financial information"). Based on our reviews, we are not aware of any material modifications that should be made to the accompanying interim financial information for it to be in conformity with accounting principles generally accepted in the United States of America.

We have previously audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheet of the Company as of December 31, 2019, and the related consolidated statements of income, comprehensive income, stockholders’ equity, and cash flows for the year then ended (not presented herein); and in our report dated February 27, 2020, we expressed an unqualified opinion on those consolidated financial statements. In our opinion, the information set forth in the accompanying condensed consolidated balance sheet as of December 31, 2019, is fairly stated, in all material respects, in relation to the consolidated balance sheet from which it has been derived.

Basis for Review Results

This interim financial information is the responsibility of the Company's management. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our reviews in accordance with standards of the PCAOB. A review of interim financial information consists principally of applying analytical procedures and making inquiries of persons responsible for financial and accounting matters. It is substantially less in scope than an audit conducted in accordance with the standards of the PCAOB, the objective of which is the expression of an opinion regarding the financial statements taken as a whole. Accordingly, we do not express such an opinion.

/s/ Deloitte & Touche LLP
Pittsburgh, Pennsylvania
November 4, 2020

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

The following discussion should be read in conjunction with the accompanying unaudited condensed consolidated financial statements and notes thereto for the nine months ended September 30, 2020, and with our audited consolidated financial statements and notes thereto for the year ended December 31, 2019 included in the 2019 Form 10-K filed with the Securities and Exchange Commission. The discussion and analysis of our financial condition and results of operations are based upon our condensed consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles (GAAP).

Business:

Ansys, a Delaware corporation formed in 1994, develops and globally markets engineering simulation software and services widely used by engineers, designers, researchers and students across a broad spectrum of industries and academia, including aerospace and defense, automotive, electronics, semiconductors, energy, materials and chemical processing, turbomachinery, consumer products, healthcare, and sports. Headquartered south of Pittsburgh, Pennsylvania, we employed approximately 4,500 people as of September 30, 2020. We focus on the development of open and flexible solutions that enable users to analyze designs directly on the desktop, providing a common platform for fast, efficient and cost-conscious product development, from design concept to final-stage testing and validation. We distribute our suite of simulation technologies through a global network of independent resellers and distributors (collectively, channel partners) and direct sales offices in strategic, global locations. It is our intention to continue to maintain this hybrid sales and distribution model.

We license our technology to businesses, educational institutions and governmental agencies. Growth in our revenue is affected by the strength of global economies, general business conditions, currency exchange rate fluctuations, customer budgetary constraints and the competitive position of our products. We believe that the features, functionality and integrated multiphysics capabilities of our software products are as strong as they have ever been. However, the software business is generally characterized by long sales cycles. These long sales cycles increase the difficulty of predicting sales for any particular quarter. We make many operational and strategic decisions based upon short- and long-term sales forecasts that are impacted not only by these long sales cycles, but also by current global economic conditions, including the impact of the current COVID-19 pandemic. As a result, we believe that our overall performance is best measured by fiscal year results rather than by quarterly results.

Management considers the competition and price pressure that it faces in the short- and long-term by focusing on expanding the breadth, depth, ease of use and quality of the technologies, features, functionality and integrated multiphysics capabilities of our software products as compared to our competitors; investing in research and development to develop new and innovative products and increase the capabilities of our existing products; supplying new products and services; focusing on customer needs, training, consulting and support; and enhancing our distribution channels. We also consider acquisitions to supplement our global engineering talent, product offerings and distribution channels.

Overview:

Impact of COVID-19

We are closely monitoring the spread of COVID-19 and continually assessing its current and potential effects on our business. The COVID-19 pandemic has had, and is for the foreseeable future expected to continue to have, an adverse impact on our business, employees, liquidity, financial condition, results of operations and cash flows.

At the onset of the crisis, we took action to enable our employees to work from home. We closed our offices (including our corporate headquarters), transitioned to a remote work environment and implemented certain travel restrictions, each of which have disrupted how we operate our business. We are continuing to monitor the situation, but as of now remote access remains the primary means of work for a majority of our workforce. Remote work arrangements have not adversely affected our ability to maintain effective financial operations, including our financial reporting systems, internal controls over financial reporting and disclosure controls and procedures. We expect to maintain these effective controls as we continue to work remotely during the COVID-19 pandemic.

The impact from the rapidly changing market and economic conditions due to the COVID-19 pandemic has disrupted the business of our customers and partners, and has impacted our business and consolidated results of operations. Our current expectations regarding future performance are subject to significant uncertainty and dependent upon how widespread the virus becomes, the duration and severity of the outbreak, the geographic markets affected, the actions taken by governmental authorities to contain the spread of the virus, including the shelter-in-place orders, the nature and scope of government economic recovery measures and other factors. The spread of the virus and economic deterioration caused by the virus have had an adverse impact on our business and, in the future, could have a material adverse impact on our business, as well as on our ability to achieve the financial guidance. We continue to adjust our spending to reflect our expectations for the pace at which economic recovery will occur. These adjustments include slowing the pace of our hiring and reducing non-headcount-related discretionary spending, as well as spending less on certain facilities and infrastructure projects. However, we have maintained and intend to maintain our commitment to certain digital transformation projects, in particular our customer relationship management (CRM) and human resources information system (HRIS) projects, as those projects are critical to our ability to operate efficiently and scale the business for future growth. We recently onboarded our partner community in CRM, and we completed phase one in the HRIS project by transferring our global employee data into the system. In addition, we continue to strategically invest in research and development, enabling us to stay on track with our product release targets.

Please see "Note About Forward-Looking Statements" and "Risk Factors" in Part I, Item 1A of our 2019 Form 10-K and Part II, Item 1A of this Quarterly Report on Form 10-Q for discussion on additional business risks, including those associated with the COVID-19 pandemic.

Overall GAAP and Non-GAAP Results

The table below presents the percentage change for both our GAAP and non-GAAP results for the three and nine months ended September 30, 2020 as compared to the three and nine months ended September 30, 2019.

	Three Months Ended September 30, 2020		**Nine Months Ended September 30, 2020**	
	GAAP	**Non-GAAP**	**GAAP**	**Non-GAAP**
Revenue	**6.7 %**	6.8 %	**2.7 %**	3.1 %
Operating income	**(14.2)%**	(1.9)%	**(28.0)%**	(11.3)%
Diluted earnings per share	**(16.3)%**	(4.2)%	**(25.1)%**	(13.9)%

We experienced an increase in revenue during the three and nine months ended September 30, 2020. The growth in revenue for the three months ended September 30, 2020 was due to growth in lease license revenue and maintenance revenue and contributions from our recent acquisitions, partially offset by reductions in perpetual license revenue and service revenue. The growth in revenue for the nine months ended September 30, 2020 was due to growth in maintenance and service revenue and contributions from our recent acquisitions, partially offset by reductions in software license revenue. The COVID-19 pandemic adversely impacted our revenue during the three and nine months ended September 30, 2020 with the most pronounced reductions occurring in perpetual licenses. However, due to our diverse customer base, both from a vertical and geographic perspective, as well as the close relationships with customers, we were able to conduct a large amount of business remotely, which partially mitigated the impacts of the COVID-19 outbreak.

We also experienced increased operating expenses during the three and nine months ended September 30, 2020, primarily due to increased personnel costs, higher stock-based compensation and additional operating expenses related to acquisitions. While our hiring pace was slowed and certain discretionary operational expenses, such as travel, were significantly reduced, the COVID-19 pandemic did not have a material impact on our operating expenses during the three and nine months ended September 30, 2020.

The non-GAAP results exclude the income statement effects of the acquisition accounting adjustments to deferred revenue, stock-based compensation, amortization of acquired intangible assets, transaction expenses related to business combinations, and adjustments related to the transition tax associated with the Tax Cuts and Jobs Act. For further disclosure regarding non-GAAP results, see the section titled "Non-GAAP Results."

Impact of Foreign Currency

Our comparative financial results were impacted by fluctuations in the U.S. Dollar during the three and nine months ended September 30, 2020 as compared to the three and nine months ended September 30, 2019. The favorable impacts on our revenue and operating income due to currency fluctuations are reflected in the table below.

	Three Months Ended September 30, 2020		Nine Months Ended September 30, 2020	
(in thousands)	GAAP	Non-GAAP	GAAP	Non-GAAP
Revenue	**$ 5,478**	$ 5,478	**$ 1,346**	$ 1,267
Operating income	**$ 2,720**	$ 2,922	**$ 2,936**	$ 2,871

In constant currency, our growth rates were as follows:

	Three Months Ended September 30, 2020		Nine Months Ended September 30, 2020	
	GAAP	Non-GAAP	GAAP	Non-GAAP
Revenue	**5.1 %**	5.3 %	**2.6 %**	2.9 %
Operating income	**(16.8)%**	(3.9)%	**(28.9)%**	(11.9)%

Constant currency amounts exclude the effects of foreign currency fluctuations on the reported results. To present this information, the 2020 results for entities whose functional currency is a currency other than the U.S. Dollar were converted to U.S. Dollars at rates that were in effect for the 2019 comparable period, rather than the actual exchange rates in effect for 2020. Constant currency growth rates are calculated by adjusting the 2020 reported revenue and operating income amounts by the 2020 currency fluctuation impacts and comparing to the 2019 comparable period reported revenue and operating income amounts.

Other Key Business Metric

Annual Contract Value (ACV) is one of our key performance metrics and is useful to investors in assessing the strength and trajectory of our business. It is used by management in financial and operational decision-making and in setting sales targets used for compensation. ACV should be viewed independently of revenue and deferred revenue as ACV is a performance metric and is not intended to be combined with any of these items. There is no GAAP measure comparable to ACV. ACV is composed of the following:

- the annualized value of maintenance and lease contracts with start dates or anniversary dates during the period, plus
- the value of perpetual license contracts with start dates during the period, plus
- the annualized value of fixed-term services contracts with start dates or anniversary dates during the period, plus
- the value of work performed during the period on fixed-deliverable services contracts.

Our ACV was as follows:

	Three Months Ended September 30,		Change		
(in thousands, except percentages)	2020	2019	Amount	%	Constant Currency %
ACV	**$ 305,334**	$ 290,856	$ 14,478	5.0	3.4
Recurring ACV as a percentage of ACV	**77.6 %**	72.6 %			

	Nine Months Ended September 30,		Change		
(in thousands, except percentages)	2020	2019	Amount	%	Constant Currency %
ACV	**$ 950,790**	$ 920,491	$ 30,299	3.3	3.3
Recurring ACV as a percentage of ACV	**81.1 %**	76.8 %			

Recurring ACV is comprised of both lease licenses and maintenance contracts. The increase in recurring ACV reflected for the three and nine months ended September 30, 2020 has been driven by a meaningful reduction in perpetual licenses and an increased preference for lease licenses, due in part to the impacts of COVID-19.

While the resilience of our business is evident in the growth shown above, the economic conditions due to the recent COVID-19 outbreak have disrupted the business of our customers and partners, and have adversely impacted our business and consolidated results. In addition, during 2019, trade discussions between the U.S. and China led to certain entities being placed on a restricted entity list. These restrictions limited our ability to deliver products and services to these customers. Although our 2019 results were adversely impacted by these restrictions for a portion of the year, the 2019 operating results include approximately $20.0 million of ACV related to transactions that occurred prior to the placement of the restrictions.

Other Financial Information

Our financial position includes $845.2 million in cash and short-term investments, and working capital of $896.9 million as of September 30, 2020.

We had 87.2 million fully diluted weighted average shares outstanding in Q3. We repurchased 0.7 million shares during the first quarter of 2020 at an average price of $233.48 per share. There were no repurchases during the second or third quarter of 2020. As of September 30, 2020, we had 2.8 million shares remaining available for repurchase under our authorized share repurchase program.

On October 23, 2020, we entered into a definitive agreement to acquire 100% of the shares of AGI. The transaction is expected to close with a purchase price of $700.0 million, of which the AGI shareholders will receive 67% in cash and 33% in Ansys common stock. We anticipate obtaining new debt financing to fund a significant portion of the cash component of the purchase price.

Geographic Trends:

The following table presents our geographic constant currency revenue growth during the three and nine months ended September 30, 2020 as compared to the three and nine months ended September 30, 2019:

	Three Months Ended September 30, 2020	Nine Months Ended September 30, 2020
Americas	**6.1 %**	**9.4 %**
EMEA	**2.1 %**	**(0.3)%**
Asia-Pacific	**6.7 %**	**(4.7)%**
Total	**5.1 %**	**2.6 %**

Under the current accounting for revenue, the value and duration of multi-year leases entered into during the period significantly impact revenue recognition. As a result, regional revenues may fluctuate significantly on a quarterly basis and are not necessarily indicative of customer usage changes or our cash flows for such regions during the periods presented.

To drive additional growth, we continue to focus on a number of sales improvement activities across the geographic regions, including sales hiring, pipeline building, productivity initiatives and customer engagement activities.

Continued trade tensions between the U.S. and China, together with the uncertainty around the COVID-19 outbreak, may further restrict our ability to sell and distribute our products to certain customers and our ability to collect against existing trade receivables and could have an adverse effect on our business, results of operations or financial condition. Refer to additional details in Part I, “Item 1A. Risk Factors” in our 2019 Form 10-K and in Part II, "Item 1A. Risk Factors" of subsequent Quarterly Reports on Form 10-Q for 2020.

Industry Commentary:

We experienced industry trends consistent with those of 2019 and the first half of 2020. The high-tech, semiconductor and automotive industries remained strong as companies seek to capitalize on the market opportunities presented by the complexity of technology required to support 5G, autonomy, electrification and other high growth rate areas. While the commercial aviation sector continues to be significantly impacted by the dramatic reduction in demand for global air travel, the continued needs of national security ensure that the defense segment has remained strong and buoyed our overall performance in the aerospace and defense industry. The energy industry continues its transition to a lower carbon balance while being significantly impacted by the global pandemic and the continued subdued oil price. Despite this, the industry remains committed to simulation led digital transformation as a way to reduce costs, improve productivity and innovate its way to a new energy future.

Use of Estimates:

The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to fair values of stock awards, bad debts, contract revenue, acquired deferred revenue, the standalone selling prices of our products and services, the valuation of goodwill and other intangible assets, deferred compensation, income taxes, uncertain tax positions, tax valuation reserves, operating lease assets and liabilities, useful lives for depreciation and amortization, and contingencies and litigation. We base our estimates on historical experience, market experience, estimated future cash flows and various other assumptions that management believes are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

Note About Forward-Looking Statements

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, including, but not limited to, the following statements, as well as statements that contain such words as "anticipates," "intends," "believes," "plans" and other similar expressions:

- Our expectations regarding the impacts of the COVID-19 pandemic.
- Our expectations regarding the impacts of new accounting guidance.
- Our expectations regarding the outcome of our service tax audit cases.
- Our assessment of the ultimate liabilities arising from various investigations, claims and legal proceedings.
- Our expectations regarding future claims related to indemnification obligations.
- Our intentions regarding our hybrid sales and distribution model.
- Our statement regarding the strength of the features, functionality and integrated multiphysics capabilities of our software products.
- Our belief that our overall performance is best measured by fiscal-year results rather than by quarterly results.
- Our expectations regarding increased lease license volatility due to an increased customer preference for time-based licenses.
- Our estimates regarding the expected impact on reported revenue related to the acquisition accounting treatment of deferred revenue.
- Our expectation that we will continue to make targeted investments in our global sales and marketing organizations and our global business infrastructure to enhance and support our revenue-generating activities.
- Our intentions related to investments in research and development, particularly as it relates to expanding the ease of use and capabilities of our broad portfolio of simulation software products.
- Our expectations regarding the accelerated development of new and innovative products to the marketplace while lowering design and engineering costs for customers as a result of our acquisitions.
- Our statements regarding the impact of global economic conditions.
- Our intention to repatriate previously taxed earnings in excess of working capital needs and to reinvest all other earnings of our non-U.S. subsidiaries.
- Our plans related to future capital spending.
- The sufficiency of existing cash and cash equivalent balances to meet future working capital and capital expenditure requirements.
- Our belief that the best uses of our excess cash are to invest in the business and to repurchase stock in order to both offset dilution and return capital to stockholders, in excess of our requirements, with the goal of increasing stockholder value.
- Our intentions related to investments in complementary companies, products, services and technologies.
- Our expectation that changes in currency exchange rates will affect our financial position, results of operations and cash flows.

- Our expectations regarding acquisitions and integrating such acquired companies to realize the benefits of cost reductions and other synergies relating thereto.

Forward-looking statements should not be unduly relied upon because they involve known and unknown risks, uncertainties and other factors, some of which are beyond our control. Our actual results could differ materially from those set forth in forward-looking statements. Certain factors, among others, that might cause such a difference include risks and uncertainties disclosed in our 2019 Form 10-K, Part I, "Item 1A. Risk Factors" and in Part II, "Item 1A. Risk Factors" of subsequent Quarterly Reports on Form 10-Q for 2020. Information regarding any new risk factors or material changes to these risk factors has been included within Part II, "Item 1A. Risk Factors" of this Quarterly Report on Form 10-Q.

Results of Operations

Three Months Ended September 30, 2020 Compared to Three Months Ended September 30, 2019

Revenue:

	Three Months Ended September 30,		Change		
(in thousands, except percentages)	2020	2019	Amount	%	Constant Currency %
Revenue:					
Lease licenses	**$ 78,917**	$ 70,693	$ 8,224	11.6	9.9
Perpetual licenses	**62,705**	66,451	(3,746)	(5.6)	(6.8)
Software licenses	**141,622**	137,144	4,478	3.3	1.8
Maintenance	**211,942**	193,189	18,753	9.7	8.0
Service	**13,401**	13,566	(165)	(1.2)	(3.0)
Maintenance and service	**225,343**	206,755	18,588	9.0	7.3
Total revenue	**$ 366,965**	$ 343,899	$ 23,066	6.7	5.1

Our revenue in the quarter ended September 30, 2020 increased 6.7% as compared to the quarter ended September 30, 2019, while revenue grew 5.1% in constant currency. The growth rate was favorably impacted by our continued investment in our global sales, support and marketing organizations, as well as our recent acquisitions and the timing and duration of our multi-year lease contracts. The growth rate was negatively impacted by the trade restrictions between the United States and China, and the impact of COVID-19. Lease license revenue increased 11.6%, or 9.9% in constant currency, as compared to the prior-year quarter. Annual maintenance contracts that were sold with new perpetual licenses, maintenance contracts for new perpetual licenses sold in previous quarters and the maintenance portion of lease license contracts collectively contributed to maintenance revenue growth of 9.7%, or 8.0% in constant currency. Perpetual license revenue, which is derived from new sales during the quarter, decreased 5.6%, or 6.8% in constant currency, as compared to the prior-year quarter. Service revenue decreased 1.2%, or 3.0% in constant currency, as compared to the prior-year quarter.

We continue to experience increased interest by some of our larger customers in enterprise agreements that often include longer-term, time-based licenses involving a larger number of our software products. While these arrangements typically involve a higher overall transaction price, the upfront recognition of license revenue related to these larger, multi-year transactions can result in significantly higher lease license revenue volatility. As software products, across a large variety of applications and industries, become increasingly distributed in software-as-a-service, cloud and other subscription environments in which the licensing approach is time-based rather than perpetual, we are also experiencing a shifting preference from perpetual licenses to time-based licenses across a broader spectrum of our customers. This shifting preference was elevated in the first three quarters of 2020 as a result of the economic impacts of COVID-19, and we expect it to continue into the foreseeable future.

In relation to COVID-19 and our revenue, we currently expect a similar business environment during the fourth quarter to that of the third quarter. Businesses have not resumed full operations and our teams and those of our customers will likely continue working remotely into 2021. As a result of social distancing, our in-person demand generation events and those of our channel partners have been canceled. While we have adjusted to have a stronger digital focus for demand generation, as evidenced by our hosting of our inaugural IDEAS Forum and Ansys Innovation Conference in September, the absence of certain events have had and are expected to continue to have an adverse impact on our results, especially for certain channel partners. In addition, we have experienced delays in the timing of closing certain transactions, including large enterprise-type deals. These deals are often multi-year leases which have a significant impact on our operating results due to up-front revenue recognition of the license. We expect this trend to continue and anticipate that customers will delay certain purchases, reduce the size of planned purchases or forgo purchases that otherwise were expected to occur. In addition, we have experienced some deterioration in renewal rates among our smaller customers, particularly small and medium-sized businesses. Additional waves of COVID-19, such as the recent surge in Europe and the United States, could result in renewed shutdowns that stop or regress economic recovery.

With respect to revenue, on average for the quarter ended September 30, 2020, the U.S. Dollar was approximately 3.4% weaker, when measured against our primary foreign currencies, than for the quarter ended September 30, 2019. The table below presents the impacts of currency fluctuations on revenue for the quarter ended September 30, 2020. Amounts in brackets indicate an adverse impact from currency fluctuations.

(in thousands)	Three Months Ended September 30, 2020
Euro	**$ 3,531**
British Pound	**1,227**
Japanese Yen	**446**
Taiwan Dollar	**399**
South Korean Won	**88**
Indian Rupee	**(299)**
Other	**86**
Total	**$ 5,478**

The impacts from currency fluctuations resulted in increased operating income of $2.7 million for the quarter ended September 30, 2020 as compared to the quarter ended September 30, 2019.

As a percentage of revenue, our international and domestic revenues, and our direct and indirect revenues, were as follows:

	Three Months Ended September 30,	
	2020	2019
International	**57.3 %**	57.3 %
Domestic	**42.7 %**	42.7 %
Direct	**74.9 %**	76.8 %
Indirect	**25.1 %**	23.2 %

In valuing deferred revenue on the balance sheets of our recent acquisitions as of their respective acquisition dates, we applied the fair value provisions applicable to the accounting for business combinations, resulting in a reduction of deferred revenue as compared to the historical carrying amount. As a result, our post-acquisition revenue will be less than the sum of what would have otherwise been reported by us and each acquiree absent the acquisitions. The impacts on reported revenue were $2.2 million and $1.6 million for the quarters ended September 30, 2020 and 2019, respectively. The expected impacts on reported revenue are $1.2 million and $11.3 million for the quarter ending December 31, 2020 and the year ending December 31, 2020, respectively. The expected impacts on reported revenue include only the impacts for acquisitions that closed before September 30, 2020.

Deferred Revenue and Backlog:

Deferred revenue consists of billings made or payments received in advance of revenue recognition from customer agreements. The deferred revenue on our condensed consolidated balance sheets does not represent the total value of annual or multi-year, noncancellable agreements. Our backlog represents installment billings for periods beyond the current quarterly billing cycle. Our deferred revenue and backlog as of September 30, 2020 and December 31, 2019 consisted of the following:

	Balance at September 30, 2020		
(in thousands)	Total	Current	Long-Term
Deferred revenue	**$ 338,432**	**$ 326,491**	**$ 11,941**
Backlog	**541,480**	**243,745**	**297,735**
Total	**$ 879,912**	**$ 570,236**	**$ 309,676**

(in thousands)	Balance at December 31, 2019 Total	Current	Long-Term
Deferred revenue	$ 365,274	$ 351,353	$ 13,921
Backlog	505,469	218,398	287,071
Total	$ 870,743	$ 569,751	$ 300,992

Revenue associated with deferred revenue and backlog that will be recognized in the subsequent twelve months is classified as current in the tables above.

Cost of Sales and Operating Expenses:

The tables below reflect our operating results as presented on the condensed consolidated statements of income, which are inclusive of foreign currency translation impacts. Amounts included in the discussions that follow each table are provided in constant currency and are inclusive of costs related to our acquisitions. The impact of foreign exchange translation is discussed separately, where material. The fourth quarter 2019 acquisition of LST contributed $11.2 million to the overall increase in cost of sales and operating expenses, inclusive of intangible asset amortization.

	Three Months Ended September 30,					
	2020		2019		Change	
(in thousands, except percentages)	Amount	% of Revenue	Amount	% of Revenue	Amount	%
Cost of sales:						
Software licenses	**$ 7,251**	**2.0**	$ 5,708	1.7	$ 1,543	27.0
Amortization	**9,911**	**2.7**	4,762	1.4	5,149	108.1
Maintenance and service	**36,223**	**9.9**	30,895	9.0	5,328	17.2
Total cost of sales	**53,385**	**14.5**	41,365	12.0	12,020	29.1
Gross profit	**$ 313,580**	**85.5**	$ 302,534	88.0	$ 11,046	3.7

Software Licenses: The net increase in the cost of software licenses was primarily due to the following:

- Increased third-party royalties of $1.8 million.

Amortization: The increase in amortization expense was due to the amortization of intangible assets acquired within the last year.

Maintenance and Service: The increase in maintenance and service costs was primarily due to the following:

- Increased salaries of $2.2 million.
- Increased third-party technical support of $1.7 million.
- Increased stock-based compensation of $1.2 million.

The improvement in gross profit was a result of the increase in revenue, partially offset by the increase in the cost of sales.

	Three Months Ended September 30,					
	2020		2019		Change	
(in thousands, except percentages)	Amount	% of Revenue	Amount	% of Revenue	Amount	%
Operating expenses:						
Selling, general and administrative	**$ 132,642**	**36.1**	$ 120,682	35.1	$ 11,960	9.9
Research and development	**86,616**	**23.6**	73,018	21.2	13,598	18.6
Amortization	**4,237**	**1.2**	3,787	1.1	450	11.9
Total operating expenses	**$ 223,495**	**60.9**	$ 197,487	57.4	$ 26,008	13.2

Selling, General and Administrative: The net increase in selling, general and administrative costs was primarily due to the following:

- Increased salaries and other headcount-related costs of $9.5 million.
- Increased marketing expense of $2.7 million.
- Increased third-party commissions of $2.4 million.
- Increased stock-based compensation of $2.2 million.
- Increased costs related to foreign exchange translation of $1.4 million due to a weaker U.S. Dollar.
- Increased IT maintenance and software hosting costs of $1.4 million.
- Decreased business travel of $5.1 million due to COVID-19.
- Decreased incentive compensation of $2.5 million.

We anticipate that we will continue to make targeted investments in our global sales and marketing organizations and our global business infrastructure to enhance and support our revenue-generating activities.

Research and Development: The increase in research and development costs was primarily due to the following:

- Increased salaries and other headcount-related costs of $9.6 million.
- Increased stock-based compensation of $2.9 million.
- Increased IT maintenance and software hosting costs of $1.3 million.

We have traditionally invested significant resources in research and development activities and intend to continue to make investments in expanding the ease of use and capabilities of our broad portfolio of simulation software products, even through the COVID-19 pandemic.

Interest Income: Interest income for the quarter ended September 30, 2020 was $0.8 million as compared to $3.2 million for the quarter ended September 30, 2019. Interest income decreased as a result of a lower interest rate environment and the related decrease in the average rate of return on invested cash balances.

Interest Expense: Interest expense for the quarter ended September 30, 2020 was $1.9 million as compared to $0.2 million for the quarter ended September 30, 2019. Interest expense increased as a result of the interest incurred on debt financing obtained in connection with the acquisition of LST in the fourth quarter of 2019.

Other Income, net: Our other income consisted of the following:

	Three Months Ended September 30,	
(in thousands)	**2020**	**2019**
Foreign currency gains, net	**$ 1,147**	$ 826
Other	**11**	7
Total other income, net	**$ 1,158**	$ 833

Income Tax Provision: Our income before income tax provision, income tax provision and effective tax rates were as follows:

	Three Months Ended September 30,	
(in thousands, except percentages)	**2020**	**2019**
Income before income tax provision	**$ 90,144**	$ 108,829
Income tax provision	**$ 14,517**	$ 19,366
Effective tax rate	**16.1 %**	17.8 %

The decrease in the effective tax rate from the prior year was primarily due to the release of a valuation allowance in a foreign jurisdiction.

When compared to the federal and state combined statutory rate for each respective period, the effective tax rates for the quarters ended September 30, 2020 and 2019 were favorably impacted by tax benefits from stock-based compensation, the foreign-derived intangible income (FDII) deduction, and research and development credits.

Net Income: Our net income, diluted earnings per share and weighted average shares used in computing diluted earnings per share were as follows:

	Three Months Ended September 30,	
(in thousands, except per share data)	**2020**	**2019**
Net income	**$ 75,627**	$ 89,463
Diluted earnings per share	**$ 0.87**	$ 1.04
Weighted average shares outstanding - diluted	**87,224**	85,733

Nine Months Ended September 30, 2020 Compared to Nine Months Ended September 30, 2019

Revenue:

(in thousands, except percentages)	Nine Months Ended September 30, 2020	2019	Change Amount	%	Constant Currency %
Revenue:					
Lease licenses	**$ 237,000**	$ 239,953	$ (2,953)	(1.2)	(1.8)
Perpetual licenses	**161,793**	190,734	(28,941)	(15.2)	(15.2)
Software licenses	**398,793**	430,687	(31,894)	(7.4)	(7.7)
Maintenance	**615,609**	559,768	55,841	10.0	10.0
Service	**43,209**	39,209	4,000	10.2	10.2
Maintenance and service	**658,818**	598,977	59,841	10.0	10.0
Total revenue	**$ 1,057,611**	$ 1,029,664	$ 27,947	2.7	2.6

Our revenue in the nine months ended September 30, 2020 increased 2.7% as compared to the nine months ended September 30, 2019, while revenue grew 2.6% in constant currency. The growth rate was favorably impacted by our recent acquisitions. The growth rate was negatively impacted by the timing and duration of multi-year lease contracts, the trade restrictions between the United States and China, and the impact of COVID-19. Annual maintenance contracts that were sold with new perpetual licenses, maintenance contracts for new perpetual licenses sold in previous quarters and the maintenance portion of lease license contracts collectively contributed to maintenance revenue growth of 10.0% in both reported and constant currency. Service revenue, driven primarily by a focus on service offerings that provide mentorship on simulation best practices, training and expanding simulation adoption, increased 10.2% in both reported and constant currency, as compared to the nine months ended September 30, 2019. Lease license revenue decreased 1.2%, or 1.8% in constant currency, as compared to the nine months ended September 30, 2019, driven primarily by a decrease in multi-year lease contracts. Perpetual license revenue, which is derived from new sales during the nine months ended September 30, 2020, decreased 15.2% in both reported and constant currency, as compared to the nine months ended September 30, 2019.

With respect to revenue, on average for the nine months ended September 30, 2020, the U.S. Dollar was approximately 0.3% weaker, when measured against our primary foreign currencies, than for the nine months ended September 30, 2019. The table below presents the impacts of currency fluctuations on revenue for the nine months ended September 30, 2020. Amounts in brackets indicate an adverse impact from currency fluctuations.

(in thousands)	Nine Months Ended September 30, 2020
Japanese Yen	**$ 2,098**
Taiwan Dollar	**820**
British Pound	**723**
Euro	**281**
South Korean Won	**(1,527)**
Indian Rupee	**(1,016)**
Other	**(33)**
Total	**$ 1,346**

The impacts from currency fluctuations resulted in increased operating income of $2.9 million for the nine months ended September 30, 2020 as compared to the nine months ended September 30, 2019.

As a percentage of revenue, our international and domestic revenues, and our direct and indirect revenues, were as follows:

	Nine Months Ended September 30,	
	2020	**2019**
International	**55.9 %**	58.7 %
Domestic	**44.1 %**	41.3 %
Direct	**75.7 %**	75.9 %
Indirect	**24.3 %**	24.1 %

In valuing deferred revenue on the balance sheets of our recent acquisitions as of their respective acquisition dates, we applied the fair value provisions applicable to the accounting for business combinations, resulting in a reduction of deferred revenue as compared to the historical carrying amount. As a result, our post-acquisition revenue will be less than the sum of what would have otherwise been reported by us and each acquiree absent the acquisitions. The impacts on reported revenue were $10.1 million and $6.2 million for the nine months ended September 30, 2020 and 2019, respectively.

Cost of Sales and Operating Expenses:

The tables below reflect our operating results as presented on the condensed consolidated statements of income, which are inclusive of foreign currency translation impacts. Amounts included in the discussions that follow each table are provided in constant currency and are inclusive of costs related to our acquisitions. The impact of foreign exchange translation is discussed separately, where material. The fourth quarter 2019 acquisition of LST contributed $33.7 million to the overall increase in cost of sales and operating expenses, inclusive of intangible asset amortization.

	Nine Months Ended September 30,					
	2020		2019		Change	
(in thousands, except percentages)	Amount	% of Revenue	Amount	% of Revenue	Amount	%
Cost of sales:						
Software licenses	**$ 20,688**	**2.0**	$ 16,620	1.6	$ 4,068	24.5
Amortization	**29,227**	**2.8**	14,064	1.4	15,163	107.8
Maintenance and service	**107,446**	**10.2**	85,993	8.4	21,453	24.9
Total cost of sales	**157,361**	**14.9**	116,677	11.3	40,684	34.9
Gross profit	**$ 900,250**	**85.1**	$ 912,987	88.7	$ (12,737)	(1.4)

Software Licenses: The increase in the cost of software licenses was primarily due to increased third-party royalties of $4.3 million.

Amortization: The increase in amortization expense was due to the amortization of intangible assets acquired within the last year.

Maintenance and Service: The increase in maintenance and service costs was primarily due to the following:

- Increased salaries and other headcount-related costs of $11.1 million.
- Increased third-party technical support of $5.1 million.
- Increased stock-based compensation of $3.9 million.

The reduction in gross profit was a result of an increase in the cost of sales, partially offset by an increase in revenue.

(in thousands, except percentages)	Nine Months Ended September 30, 2020 Amount	% of Revenue	2019 Amount	% of Revenue	Change Amount	%
Operating expenses:						
Selling, general and administrative	$ **391,862**	**37.1**	$ 353,263	34.3	$ 38,599	10.9
Research and development	**258,861**	**24.5**	219,058	21.3	39,803	18.2
Amortization	**12,562**	**1.2**	11,342	1.1	1,220	10.8
Total operating expenses	$ **663,285**	**62.7**	$ 583,663	56.7	$ 79,622	13.6

Selling, General and Administrative: The net increase in selling, general and administrative costs was primarily due to the following:

- Increased salaries and other headcount-related costs of $29.7 million.
- Increased stock-based compensation of $6.0 million.
- Increased third-party commissions of $4.8 million.
- Increased IT maintenance and software hosting costs of $4.3 million.
- Increased marketing expense of $3.9 million.
- Increased bad debt expense of $3.2 million due to expected losses related to COVID-19.
- Decreased business travel of $10.9 million due to COVID-19.
- Decreased incentive compensation of $4.2 million.

Research and Development: The increase in research and development costs was primarily due to the following:

- Increased salaries and other headcount-related costs of $31.4 million.
- Increased stock-based compensation of $8.5 million.

Interest Income: Interest income for the nine months ended September 30, 2020 was $4.5 million as compared to $9.6 million for the nine months ended September 30, 2019. Interest income decreased as a result of a lower interest rate environment and the related decrease in the average rate of return on invested cash balances.

Interest Expense: Interest expense for the nine months ended September 30, 2020 was $8.5 million as compared to $0.6 million for the nine months ended September 30, 2019. Interest expense increased as a result of the interest incurred on debt financing obtained in connection with the acquisition of LST in the fourth quarter of 2019.

Other Income (Expense), net: Our other income (expense) consisted of the following:

(in thousands)	Nine Months Ended September 30, 2020	2019
Investment gains, net	$ **3,666**	$ 237
Foreign currency losses, net	**(511)**	(1,556)
Other	**14**	382
Total other income (expense), net	$ **3,169**	$ (937)

Income Tax Provision: Our income before income tax provision, income tax provision and effective tax rates were as follows:

	Nine Months Ended September 30,	
(in thousands, except percentages)	**2020**	**2019**
Income before income tax provision	**$ 236,053**	$ 337,436
Income tax provision	**$ 17,798**	$ 51,993
Effective tax rate	**7.5 %**	15.4 %

The decrease in the effective tax rate from the prior year was primarily due to increased benefits related to stock-based compensation. The effective tax rate also benefited from entity structuring activities and the release of valuation allowances in foreign jurisdictions.

When compared to the federal and state combined statutory rate for each respective period, the effective tax rates for the nine months ended September 30, 2020 and 2019 were favorably impacted by tax benefits from stock-based compensation, the FDII deduction, and research and development credits.

Net Income: Our net income, diluted earnings per share and weighted average shares used in computing diluted earnings per share were as follows:

	Nine Months Ended September 30,	
(in thousands, except per share data)	**2020**	**2019**
Net income	**$ 218,255**	$ 285,443
Diluted earnings per share	**$ 2.50**	$ 3.34
Weighted average shares outstanding - diluted	**87,176**	85,570

Non-GAAP Results

We provide non-GAAP revenue, non-GAAP gross profit, non-GAAP gross profit margin, non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share as supplemental measures to GAAP regarding our operational performance. These financial measures exclude the impact of certain items and, therefore, have not been calculated in accordance with GAAP. A detailed explanation and a reconciliation of each non-GAAP financial measure to its most comparable GAAP financial measure are included below.

ANSYS, INC. AND SUBSIDIARIES
Reconciliations of GAAP to Non-GAAP Measures
(Unaudited)

	Three Months Ended September 30, 2020						
(in thousands, except percentages and per share data)	**Revenue**	**Gross Profit**	**%**	**Operating Income**	**%**	**Net Income**	**EPS - Diluted[1]**
Total GAAP	**$ 366,965**	**$ 313,580**	**85.5 %**	**$ 90,085**	**24.5 %**	**$ 75,627**	**$ 0.87**
Acquisition accounting for deferred revenue	**2,164**	**2,164**	**— %**	**2,164**	**0.5 %**	**2,164**	**0.02**
Stock-based compensation expense	**—**	**3,626**	**0.9 %**	**38,185**	**10.4 %**	**38,185**	**0.44**
Excess payroll taxes related to stock-based awards	**—**	**85**	**— %**	**732**	**0.2 %**	**732**	**0.01**
Amortization of intangible assets from acquisitions	**—**	**9,911**	**2.8 %**	**14,148**	**3.8 %**	**14,148**	**0.16**
Transaction expenses related to business combinations	**—**	**—**	**— %**	**1,549**	**0.4 %**	**1,549**	**0.02**
Adjustment for income tax effect	**—**	**—**	**— %**	**—**	**— %**	**(14,133)**	**(0.16)**
Total non-GAAP	**$ 369,129**	**$ 329,366**	**89.2 %**	**$ 146,863**	**39.8 %**	**$ 118,272**	**$ 1.36**

[1] Diluted weighted average shares were 87,224.

	Three Months Ended September 30, 2019						
(in thousands, except percentages and per share data)	**Revenue**	**Gross Profit**	**%**	**Operating Income**	**%**	**Net Income**	**EPS - Diluted[1]**
Total GAAP	$ 343,899	$ 302,534	88.0 %	$ 105,047	30.5 %	$ 89,463	$ 1.04
Acquisition accounting for deferred revenue	1,596	1,596	— %	1,596	0.4 %	1,596	0.02
Stock-based compensation expense	—	2,422	0.7 %	31,862	9.2 %	31,862	0.37
Excess payroll taxes related to stock-based awards	—	—	— %	137	0.1 %	137	—
Amortization of intangible assets from acquisitions	—	4,762	1.4 %	8,549	2.4 %	8,549	0.10
Transaction expenses related to business combinations	—	—	— %	2,531	0.7 %	2,531	0.03
Rabbi trust (income) / expense	—	—	— %	—	— %	(45)	—
Adjustment for income tax effect	—	—	— %	—	— %	(12,385)	(0.14)
Total non-GAAP	$ 345,495	$ 311,314	90.1 %	$ 149,722	43.3 %	$ 121,708	$ 1.42

[1] Diluted weighted average shares were 85,733.

ANSYS, INC. AND SUBSIDIARIES
Reconciliations of GAAP to Non-GAAP Measures
(Unaudited)

	Nine Months Ended September 30, 2020						
(in thousands, except percentages and per share data)	**Revenue**	**Gross Profit**	**%**	**Operating Income**	**%**	**Net Income**	**EPS - Diluted**[1]
Total GAAP	**$ 1,057,611**	**$ 900,250**	**85.1 %**	**$ 236,965**	**22.4 %**	**$ 218,255**	**$ 2.50**
Acquisition accounting for deferred revenue	**10,116**	**10,116**	**0.2 %**	**10,116**	**0.7 %**	**10,116**	**0.12**
Stock-based compensation expense	**—**	**9,956**	**0.9 %**	**103,256**	**9.7 %**	**103,256**	**1.19**
Excess payroll taxes related to stock-based awards	**—**	**774**	**0.1 %**	**9,591**	**0.9 %**	**9,591**	**0.11**
Amortization of intangible assets from acquisitions	**—**	**29,227**	**2.7 %**	**41,789**	**3.9 %**	**41,789**	**0.48**
Transaction expenses related to business combinations	**—**	**—**	**— %**	**2,808**	**0.3 %**	**2,808**	**0.03**
Rabbi trust (income) / expense	**—**	**—**	**— %**	**—**	**— %**	**(5)**	**—**
Adjustment for income tax effect	**—**	**—**	**— %**	**—**	**— %**	**(60,906)**	**(0.70)**
Total non-GAAP	**$ 1,067,727**	**$ 950,323**	**89.0 %**	**$ 404,525**	**37.9 %**	**$ 324,904**	**$ 3.73**

[1] Diluted weighted average shares were 87,176.

	Nine Months Ended September 30, 2019						
(in thousands, except percentages and per share data)	**Revenue**	**Gross Profit**	**%**	**Operating Income**	**%**	**Net Income**	**EPS - Diluted**[1]
Total GAAP	$ 1,029,664	$ 912,987	88.7 %	$ 329,324	32.0 %	$ 285,443	$ 3.34
Acquisition accounting for deferred revenue	6,249	6,249	— %	6,249	0.4 %	6,249	0.07
Stock-based compensation expense	—	6,024	0.6 %	84,784	8.2 %	84,784	0.98
Excess payroll taxes related to stock-based awards	—	476	— %	4,516	0.4 %	4,516	0.05
Amortization of intangible assets from acquisitions	—	14,064	1.4 %	25,406	2.5 %	25,406	0.30
Transaction expenses related to business combinations	—	—	— %	5,642	0.5 %	5,642	0.07
Rabbi trust (income) / expense	—	—	— %	—	— %	(268)	—
Adjustment related to the Tax Cuts and Jobs Act	—	—	— %	—	— %	(1,834)	(0.02)
Adjustment for income tax effect	—	—	— %	—	— %	(39,654)	(0.46)
Total non-GAAP	$ 1,035,913	$ 939,800	90.7 %	$ 455,921	44.0 %	$ 370,284	$ 4.33

[1] Diluted weighted average shares were 85,570.

We use non-GAAP financial measures (a) to evaluate our historical and prospective financial performance as well as our performance relative to our competitors, (b) to set internal sales targets and spending budgets, (c) to allocate resources, (d) to measure operational profitability and the accuracy of forecasting, (e) to assess financial discipline over operational expenditures and (f) as an important factor in determining variable compensation for management and employees. In addition, many financial analysts that follow us focus on and publish both historical results and future projections based on non-GAAP financial measures. We believe that it is in the best interest of our investors to provide this information to analysts so that they accurately report the non-GAAP financial information. Moreover, investors have historically requested, and we have historically reported, these non-GAAP financial measures as a means of providing consistent and comparable information with past reports of financial results.

While we believe that these non-GAAP financial measures provide useful supplemental information to investors, there are limitations associated with the use of these non-GAAP financial measures. These non-GAAP financial measures are not prepared in accordance with GAAP, are not reported by all our competitors and may not be directly comparable to similarly titled measures of our competitors due to potential differences in the exact method of calculation. We compensate for these limitations by using these non-GAAP financial measures as supplements to GAAP financial measures and by reviewing the reconciliations of the non-GAAP financial measures to their most comparable GAAP financial measures.

The adjustments to these non-GAAP financial measures, and the basis for such adjustments, are outlined below:

Acquisition accounting for deferred revenue. Historically, we have consummated acquisitions in order to support our strategic and other business objectives. In accordance with the fair value provisions applicable to the accounting for business combinations, acquired deferred revenue is often recorded on the opening balance sheet at an amount that is lower than the historical carrying value. Although this acquisition accounting requirement has no impact on our business or cash flow, it adversely impacts our reported GAAP revenue in the reporting periods following an acquisition. In order to provide investors with financial information that facilitates comparison of both historical and future results, we provide non-GAAP financial measures which exclude the impact of the acquisition accounting adjustment. We believe that this non-GAAP financial adjustment is useful to investors because it allows investors to (a) evaluate the effectiveness of the methodology and information used by us in our financial and operational decision-making, and (b) compare our past and future reports of financial results as the revenue reduction related to acquired deferred revenue will not recur when related lease licenses and software maintenance contracts are renewed in future periods.

Amortization of intangible assets from acquisitions. We incur amortization of intangible assets, included in our GAAP presentation of amortization expense, related to various acquisitions we have made. We exclude these expenses for the purpose of calculating non-GAAP gross profit, non-GAAP gross profit margin, non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share when we evaluate our continuing operational performance because these costs are fixed at the time of an acquisition, are then amortized over a period of several years after the acquisition and generally cannot be changed or influenced by us after the acquisition. Accordingly, we do not consider these expenses for purposes of evaluating our performance during the applicable time period after the acquisition, and we exclude such expenses when making decisions to allocate resources. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate the effectiveness of the methodology and information used by us in our financial and operational decision-making, and (b) compare our past reports of financial results as we have historically reported these non-GAAP financial measures.

Stock-based compensation expense. We incur expense related to stock-based compensation included in our GAAP presentation of cost of maintenance and service; research and development expense; and selling, general and administrative expense. This non-GAAP adjustment also includes excess payroll tax expense related to stock-based compensation. Stock-based compensation expense (benefit) incurred in connection with our deferred compensation plan held in a rabbi trust includes an offsetting benefit (charge) recorded in other income (expense). Although stock-based compensation is an expense and viewed as a form of compensation, we exclude these expenses for the purpose of calculating non-GAAP gross profit, non-GAAP gross profit margin, non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share when we evaluate our continuing operational performance. We similarly exclude income (expense) related to assets held in a rabbi trust in connection with our deferred compensation plan. Specifically, we exclude stock-based compensation and income (expense) related to assets held in the deferred compensation plan rabbi trust during our annual budgeting process and our quarterly and annual assessments of our performance. The annual budgeting process is the primary mechanism whereby we allocate resources to various initiatives and operational requirements. Additionally, the annual review by our board of directors during which it compares our historical business model and profitability to the planned business model and profitability for the forthcoming year excludes the impact of stock-based compensation. In evaluating the performance of our senior management and department managers, charges related to stock-based compensation are excluded from expenditure and profitability results. In fact, we record stock-based compensation expense into a stand-alone cost center for which no single operational manager is responsible or accountable. In this way, we can review, on a period-to-period basis, each manager's performance and assess financial discipline over operational expenditures without the effect of stock-based compensation. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate our operating results and the effectiveness of the methodology used by us to review our operating results, and (b) review historical comparability in our financial reporting as well as comparability with competitors' operating results.

Transaction expenses related to business combinations. We incur expenses for professional services rendered in connection with business combinations, which are included in our GAAP presentation of selling, general and administrative expense. These expenses are generally not tax-deductible. We exclude these acquisition-related transaction expenses, derived from announced acquisitions, for the purpose of calculating non-GAAP operating income, non-GAAP operating profit margin, non-GAAP net income and non-GAAP diluted earnings per share when we evaluate our continuing operational performance, as we generally would not have otherwise incurred these expenses in the periods presented as a part of our operations. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate our operating results and the effectiveness of the methodology used by us to review our operating results, and (b) review historical comparability in our financial reporting as well as comparability with competitors' operating results.

Tax Cuts and Jobs Act. We recorded impacts to our income tax provision related to the enactment of the Tax Cuts and Jobs Act of 2017, specifically for the transition tax related to unrepatriated cash and the impacts of the tax rate change on net deferred tax assets. We exclude these impacts for the purpose of calculating non-GAAP net income and non-GAAP diluted earnings per share when we evaluate our continuing operational performance, as (i) the charges are not expected to recur as part of our normal operations and (ii) the charges resulted from the extremely infrequent event of major U.S. tax reform, the last such reform having occurred in 1986. We believe that these non-GAAP financial measures are useful to investors because they allow investors to (a) evaluate our operating results and the effectiveness of the methodology used by us to review our operating results, and (b) review historical comparability in our financial reporting.

Non-GAAP tax provision. We utilize a normalized non-GAAP annual effective tax rate (AETR) to calculate non-GAAP measures. This methodology provides better consistency across interim reporting periods by eliminating the effects of non-recurring items and aligning the non-GAAP tax rate with our expected geographic earnings mix. To project this rate, we analyzed our historic and projected non-GAAP earnings mix by geography along with other factors such as our current tax structure, recurring tax credits and incentives, and expected tax positions. On an annual basis we will re-evaluate this rate for significant items that may materially affect our projections.

Non-GAAP financial measures are not in accordance with, or an alternative for, GAAP. Our non-GAAP financial measures are not meant to be considered in isolation or as a substitute for comparable GAAP financial measures and should be read only in conjunction with our consolidated financial statements prepared in accordance with GAAP.

We have provided a reconciliation of the non-GAAP financial measures to the most directly comparable GAAP financial measures as listed below:

GAAP Reporting Measure	**Non-GAAP Reporting Measure**
Revenue	Non-GAAP Revenue
Gross Profit	Non-GAAP Gross Profit
Gross Profit Margin	Non-GAAP Gross Profit Margin
Operating Income	Non-GAAP Operating Income
Operating Profit Margin	Non-GAAP Operating Profit Margin
Net Income	Non-GAAP Net Income
Diluted Earnings Per Share	Non-GAAP Diluted Earnings Per Share

Liquidity and Capital Resources

(in thousands)	September 30, 2020	December 31, 2019	Change
Cash, cash equivalents and short-term investments	**$ 845,209**	$ 872,382	$ (27,173)
Working capital	**$ 896,874**	$ 860,340	$ 36,534

Cash, Cash Equivalents and Short-Term Investments

Cash and cash equivalents consist primarily of highly liquid investments such as money market funds and deposits held at major banks. Short-term investments consist primarily of deposits held by certain of our foreign subsidiaries with original maturities of three months to one year. The following table presents our foreign and domestic holdings of cash, cash equivalents and short-term investments as of September 30, 2020 and December 31, 2019:

(in thousands, except percentages)	September 30, 2020	% of Total	December 31, 2019	% of Total
Domestic	**$ 498,083**	**58.9**	$ 626,433	71.8
Foreign	**347,126**	**41.1**	245,949	28.2
Total	**$ 845,209**		$ 872,382	

In general, it is our intention to permanently reinvest all earnings in excess of previously taxed amounts. As part of U.S. tax reform, substantially all of the previous earnings of our non-U.S. subsidiaries were taxed through the transition tax and current earnings are taxed as part of global intangible low-taxed income tax expense. These taxes increased our previously taxed earnings and allow for the repatriation of the majority of our foreign earnings without any residual U.S. federal tax. While we believe that the financial reporting bases may be greater than the tax bases of investments in foreign subsidiaries for any earnings in excess of previously taxed amounts, such amounts are considered permanently reinvested. The cumulative temporary difference related to such permanently reinvested earnings is approximately $58.7 million and we would anticipate the tax effect on those earnings to be immaterial as a result of U.S. tax reform.

The amount of cash, cash equivalents and short-term investments held by foreign subsidiaries is subject to translation adjustments caused by changes in foreign currency exchange rates as of the end of each respective reporting period, the offset to which is recorded in accumulated other comprehensive loss on our condensed consolidated balance sheet.

Cash Flows from Operating Activities

	Nine Months Ended September 30,		
(in thousands)	2020	2019	Change
Net cash provided by operating activities	**$ 373,543**	$ 360,485	$ 13,058

Net cash provided by operating activities increased during the current fiscal year due to increased net cash flows from operating assets and liabilities of $46.8 million, partially offset by decreased net income (net of non-cash operating adjustments) of $33.7 million. The growth in net cash provided by operating activities was impacted by reduced income taxes paid associated with lower year-to-date taxable income, as well as our ability to delay certain income, employment and indirect tax payments into the fourth quarter of 2020 and beyond due to payment extensions issued by governments in connection with COVID-19.

Cash Flows from Investing Activities

	Nine Months Ended September 30,		
(in thousands)	2020	2019	Change
Net cash used in investing activities	**$ (130,590)**	$ (333,448)	$ 202,858

Net cash used in investing activities decreased during the current fiscal year due to decreased acquisition-related net cash outlays of $194.8 million. We currently plan capital spending of $40.0 million to $50.0 million during fiscal year 2020 as compared to the $44.9 million that was spent in fiscal year 2019. The level of spending will depend on various factors, including the growth of the business and general economic conditions as well as the impact of the COVID-19 pandemic on our operations.

On October 23, 2020, we entered into a definitive agreement to acquire 100% of the shares of AGI, a premier provider of mission-simulation, modeling, testing and analysis software for aerospace, defense and intelligence applications. Once closed, the acquisition will expand the scope of our offerings, empowering users to solve challenges by simulating from the chip level all the way to a customer's entire mission. The transaction is expected to close with a purchase price of $700.0 million, of which the AGI shareholders will receive 67% in cash and 33% in Ansys common stock.

Cash Flows from Financing Activities

	Nine Months Ended September 30,		
(in thousands)	**2020**	**2019**	**Change**
Net cash used in financing activities	**$ (275,846)**	$ (70,036)	$ (205,810)

Net cash used in financing activities increased during the current fiscal year due to increased stock repurchases of $101.9 million, principal payments on long-term debt of $75.0 million, and increased restricted stock withholding taxes paid in lieu of issued shares of $28.8 million.

We believe that existing cash and cash equivalent balances of $844.7 million, together with cash generated from operations and access to the $500.0 million Revolving Credit Facility, will be sufficient to meet our working capital and capital expenditure requirements through the next twelve months. Our cash requirements in the future may also be financed through additional equity or debt financings. However, future disruptions in the capital markets could make financing more challenging, and there can be no assurance that such financing can be obtained on commercially reasonable terms, or at all.

Related to the acquisition of AGI, we anticipate obtaining new debt financing to fund a significant portion of the cash component of the purchase price.

We also believe that our liquidity will allow us to manage the anticipated impact of COVID-19 on our business operations for the foreseeable future. However, we have seen delays in customer payments on existing contracts and longer payment terms requested for new contracts, particularly related to larger contract commitments. Management reviews these requests weekly and approves on a case-by-case basis. We expect an impact estimated at $15.0 - $25.0 million for customer payments that would have otherwise been made in 2020 that will be delayed to 2021. In addition, the fourth quarter cash flow will be adversely impacted by $10.2 million related to an unfavorable foreign tax assessment, of which $8.7 million is expected to be recaptured in the 2021 cash flow.

Under our stock repurchase program, we repurchased shares as follows:

	Nine Months Ended	
(in thousands, except per share data)	**September 30, 2020**	**September 30, 2019**
Number of shares repurchased	**690**	330
Average price paid per share	**$ 233.48**	$ 179.41
Total cost	**$ 161,029**	$ 59,116

All of the shares of common stock repurchased during the first nine months of 2020 were repurchased in the first quarter of 2020. As of September 30, 2020, 2.8 million shares remained available for repurchase under the program.

The authorized repurchase program does not have an expiration date, and the pace of the repurchase activity will depend on factors such as working capital needs, cash requirements for acquisitions, our stock price, and economic and market conditions. Our stock repurchases may be effected from time to time through open market purchases or pursuant to a Rule 10b5-1 plan.

We continue to generate positive cash flows from operating activities and believe that the best uses of our excess cash are to invest in the business; acquire or make investments in complementary companies, products, services and technologies; and make payments on our outstanding debt balances. Any future acquisitions may be funded by available cash and investments, cash generated from operations, debt financing, or the issuance of additional securities. Additionally, we have in the past, and expect in the future, to repurchase stock in order to both offset dilution and return capital, in excess of our requirements, to stockholders with the goal of increasing stockholder value.

Off-Balance-Sheet Arrangements

We do not have any special-purpose entities or off-balance-sheet financing.

Contractual Obligations

There were no material changes to our significant contractual obligations during the nine months ended September 30, 2020 as compared to those previously reported within “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in our 2019 Form 10-K.

Critical Accounting Policies and Estimates

During the first quarter of 2020, we completed the annual impairment test for goodwill and the indefinite-lived intangible asset and determined that these assets had not been impaired as of the test date, January 1, 2020. Given the adverse economic and market conditions caused by COVID-19, we considered a variety of qualitative factors to determine if an additional quantitative impairment test was required subsequent to our annual impairment test. Based on a variety of factors, including the excess of the fair values over the carrying amounts in the most recent impairment test, we determined it was not more likely than not that an impairment existed as of March 31, 2020. No other events or circumstances changed during the nine months ended September 30, 2020 that would indicate that the fair values of our reporting unit and indefinite-lived intangible asset are below their carrying amounts.

No significant changes have occurred to our critical accounting policies and estimates as previously reported within “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in our 2019 Form 10-K.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk. Changes in the overall level of interest rates affect the interest income that is generated from our cash, cash equivalents and short-term investments and the interest expense that is generated from our outstanding borrowings. For the three and nine months ended September 30, 2020, interest income was $0.8 million and $4.5 million, respectively, and interest expense was $1.9 million and $8.5 million, respectively. Cash and cash equivalents consist primarily of highly liquid investments such as money market funds and deposits held at major banks. Short-term investments consist primarily of deposits held by certain foreign subsidiaries with original maturities of three months to one year.

Foreign Currency Transaction Risk. As we operate in international regions, a portion of our revenue, expenses, cash, accounts receivable and payment obligations are denominated in foreign currencies. As a result, changes in currency exchange rates will affect our financial position, results of operations and cash flows. While all of the economic effects of COVID-19 are not known, it may expose us to additional foreign currency transaction risk.

With respect to revenue, on average for the quarter ended September 30, 2020, the U.S. Dollar was approximately 3.4% weaker, when measured against our primary foreign currencies, than for the quarter ended September 30, 2019. With respect to revenue, on average for the nine months ended September 30, 2020, the U.S. Dollar was approximately 0.3% weaker, when measured against our primary foreign currencies, than for the nine months ended September 30, 2019. The table below presents the impacts of currency fluctuations on revenue for the three and nine months ended September 30, 2020. Amounts in brackets indicate a net adverse impact from currency fluctuations.

(in thousands)	Three Months Ended September 30, 2020	Nine Months Ended September 30, 2020
Japanese Yen	$ 446	$ 2,098
Taiwan Dollar	399	820
British Pound	1,227	723
Euro	3,531	281
South Korean Won	88	(1,527)
Indian Rupee	(299)	(1,016)
Other	86	(33)
Total	$ 5,478	$ 1,346

The impacts from currency fluctuations resulted in increased operating income of $2.7 million and $2.9 million for the three and nine months ended September 30, 2020, respectively, as compared to the three and nine months ended September 30, 2019.

The most significant currency impacts on revenue and operating income are typically attributable to U.S. Dollar exchange rate changes against the British Pound, Euro, Japanese Yen and South Korean Won. Historical exchange rates for these currency pairs are reflected in the charts below:

	Period-End Exchange Rates			
As of	**GBP/USD**	**EUR/USD**	**USD/JPY**	**USD/KRW**
September 30, 2019	1.229	1.090	108.085	1,200.048
December 31, 2019	1.326	1.121	108.637	1,156.069
September 30, 2020	**1.292**	**1.172**	**105.441**	**1,165.365**

	Average Exchange Rates			
Three Months Ended	**GBP/USD**	**EUR/USD**	**USD/JPY**	**USD/KRW**
September 30, 2019	1.232	1.111	107.335	1,195.362
September 30, 2020	**1.292**	**1.169**	**106.133**	**1,187.790**

	Average Exchange Rates			
Nine Months Ended	**GBP/USD**	**EUR/USD**	**USD/JPY**	**USD/KRW**
September 30, 2019	1.273	1.123	109.131	1,162.070
September 30, 2020	**1.271**	**1.124**	**107.546**	**1,200.160**

No other material change has occurred in our market risk subsequent to December 31, 2019.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures. As required by Rules 13a-15 and 15d-15 of the Securities Exchange Act of 1934, as amended, or the Exchange Act, we have evaluated, with the participation of management, including the Chief Executive Officer and the Chief Financial Officer, the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this report. Based on such evaluation, the Chief Executive Officer and Chief Financial Officer have concluded that such disclosure controls and procedures are effective, as defined in Rule 13a-15(e) of the Exchange Act.

We believe, based on our knowledge, that the financial statements and other financial information included in this report fairly present, in all material respects, our financial condition, results of operations and cash flows as of and for the periods presented in this report. We are committed to both a sound internal control environment and to good corporate governance.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with policies or procedures may deteriorate.

From time to time, we review the disclosure controls and procedures, and may periodically make changes to enhance their effectiveness and to ensure that our systems evolve with our business.

Changes in Internal Control. There were no changes in our internal control over financial reporting that occurred during the three months ended September 30, 2020 that materially affected, or were reasonably likely to materially affect, our internal control over financial reporting. Although the majority of our employee base worked remotely, the remote work arrangements did not adversely affect our ability to maintain financial operations, including our financial reporting systems, internal controls over financial reporting and disclosure controls and procedures.

PART II – OTHER INFORMATION

Item 1. Legal Proceedings

We are subject to various investigations, claims and legal proceedings that arise in the ordinary course of business, including commercial disputes, labor and employment matters, tax audits, alleged infringement of intellectual property rights and other matters. In our opinion, the resolution of pending matters is not expected to have a material adverse effect on our condensed consolidated results of operations, cash flows or financial position. However, each of these matters is subject to various uncertainties and it is possible that an unfavorable resolution of one or more of these proceedings could materially affect our results of operations, cash flows or financial position.

Item 1A. Risk Factors

We face a number of risks that could materially and adversely affect our business, financial position, results of operations and cash flows. A discussion of our risk factors can be found in Item 1A "Risk Factors" in our 2019 Form 10-K and should be read in conjunction with the risk factors found in Item 1A "Risk Factors" in our subsequent Quarterly Reports on Form 10-Q for 2020. The impact of COVID-19 may exacerbate the risks discussed in Part I, "Item 1A. Risk Factors" in our 2019 Form 10-K, any of which could have a material effect on us. This situation continues to evolve and additional impacts may arise of which we are currently not aware.

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

None.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

Exhibit No.	Exhibit
15	Independent Registered Public Accountant's Letter Regarding Unaudited Financial Information.
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	Inline XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document)
101.SCH	Inline XBRL Taxonomy Extension Schema
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

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.

ANSYS, Inc.

Date:	November 4, 2020	By:	/s/ *Ajei S. Gopal* Ajei S. Gopal President and Chief Executive Officer (Principal Executive Officer)
Date:	November 4, 2020	By:	/s/ *Maria T. Shields* Maria T. Shields Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)

EXHIBIT 15

November 4, 2020

The Board of Directors and Stockholders of ANSYS, Inc.
2600 ANSYS Drive
Canonsburg, PA 15317

We are aware that our report dated November 4, 2020, on our review of the interim financial information of ANSYS, Inc. appearing in this Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, is incorporated by reference in Registration Statement Nos. 333-152765, 333-174670, 333-177030, 333-196393, 333-206111, and 333-212412 on Form S-8.

/s/ Deloitte & Touche LLP
Pittsburgh, Pennsylvania

EXHIBIT 31.1

CHIEF EXECUTIVE OFFICER CERTIFICATION

I, Ajei S. Gopal, certify that:

1. I have reviewed this quarterly report on Form 10-Q of ANSYS, Inc. ("Ansys");

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 Ansys as of, and for, the periods presented in this report;

4. Ansys' other certifying officer 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 Ansys 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 Ansys, 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 Ansys' 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 Ansys' internal control over financial reporting that occurred during Ansys' most recent fiscal quarter (Ansys' fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, Ansys' internal control over financial reporting; and

5. Ansys' other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to Ansys' auditors and the audit committee of Ansys' 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 Ansys' 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 Ansys' internal control over financial reporting.

Date: November 4, 2020

/s/ Ajei S. Gopal
Ajei S. Gopal
President and Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

CHIEF FINANCIAL OFFICER CERTIFICATION

I, Maria T. Shields, certify that:

1. I have reviewed this quarterly report on Form 10-Q of ANSYS, Inc. ("Ansys");
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 Ansys as of, and for, the periods presented in this report;
4. Ansys' other certifying officer 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 Ansys 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 Ansys, 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 Ansys' 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 Ansys' internal control over financial reporting that occurred during Ansys' most recent fiscal quarter (Ansys' fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, Ansys' internal control over financial reporting; and
5. Ansys' other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to Ansys' auditors and the audit committee of Ansys' 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 Ansys' 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 Ansys' internal control over financial reporting.

Date: November 4, 2020

/s/ Maria T. Shields

Maria T. Shields
Chief Financial Officer
(Principal Financial Officer and Principal Accounting 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 of ANSYS, Inc. (the "Company") on Form 10-Q for the quarter ended September 30, 2020 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Ajei S. Gopal, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

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

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

This certification is provided solely pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed to be part of the Report or filed for any purpose whatsoever.

/s/ *Ajei S. Gopal*
Ajei S. Gopal
President and Chief Executive Officer
(Principal Executive Officer)
November 4, 2020

EXHIBIT 32.2

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 of ANSYS, Inc. (the “Company”) on Form 10-Q for the quarter ended September 30, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Maria T. Shields, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

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

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

This certification is provided solely pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed to be part of the Report or filed for any purpose whatsoever.

/s/ *Maria T. Shields*
Maria T. Shields
Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)
November 4, 2020