

**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 001-36164

Twitter, Inc.

(Exact name of registrant as specified in its charter)

Delaware

20-8913779

(State or other jurisdiction of
incorporation or organization)

(I.R.S. Employer
Identification No.)

1355 Market Street, Suite 900
San Francisco, California 94103
(Address of principal executive offices and Zip Code)
(415) 222-9670
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value \$0.000005 per share	TWTR	New York Stock Exchange

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§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	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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 outstanding as of October 29, 2020 was 795,349,591.

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SPECIAL NOTE REGARDING 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, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, which statements involve substantial risks and uncertainties. Forward-looking statements generally relate to future events or our future financial or operating performance. In some cases, you can identify forward-looking statements because they contain words such as “may,” “will,” “should,” “expects,” “plans,” “anticipates,” “could,” “intends,” “target,” “projects,” “contemplates,” “believes,” “estimates,” “predicts,” “potential” or “continue” or the negative of these words or other similar terms or expressions that concern our expectations, strategy, plans or intentions. Forward-looking statements contained in this Quarterly Report on Form 10-Q include, but are not limited to, statements about:

- our ability to attract and retain people on Twitter and increase their level of engagement, including ad engagement, and its impact on revenue;
- our plans regarding health and safety and our other top priorities, including our expectations regarding the impact on our reported metrics, policies, enforcement and preventing manipulation of our platform;
- the impact of the COVID-19 pandemic and related responses of businesses and governments to the pandemic on our operations and personnel, and on commercial activity and advertiser demand across our platform and on our operating results;
- our expectations regarding monetizable DAUs (mDAU), changes in cost per ad engagement and changes in ad engagements;
- our ability to develop or acquire new products, product features and services, improve our existing products and services, including with respect to Promoted Products, video and performance advertising, and increase the value of our products and services;
- our business strategies, plans and priorities, including our plans for growth and hiring, investment in our research and development efforts and our plans to scale capacity and enhance capability and reliability of our infrastructure, including capital expenditures;
- our work to increase the stability, performance, development velocity and scale of our ads platform and our Mobile Application Promotion (MAP) product;
- our ability to provide new content from third parties, including our ability to secure live streaming video content on terms that are acceptable to us;
- our ability to attract advertisers to our platforms, products and services and increase the amount that advertisers spend with us;
- our expectations regarding our mDAU growth and growth rates and related opportunities as well as the continued usage of our mobile applications, including the impact of seasonality and the timing of events;
- our ability to increase our revenue and our revenue growth rate, including advertising and data licensing and other revenue;
- our ability to improve monetization of our products and services;
- our future financial performance, including trends in cost per ad engagement, revenue (including data licensing revenue), cost of revenue, operating expenses, including stock-based compensation and income taxes;
- the impact of the security breach in July 2020 whereby attackers gained control of certain highly-visible accounts;
- our expectations regarding certain deferred tax assets and fluctuations in our tax expense and cash taxes;
- the impact of privacy and data protection laws and regulations;
- the impact of content- or copyright-related legislation or regulation;
- our expectations regarding outstanding litigation or the decisions of the courts and the results of the draft complaint we received from the Federal Trade Commission;
- the effects of seasonal trends on our results of operations;
- the impact of our future transactions and corporate structuring on our income and other taxes;
- the sufficiency of our cash and cash equivalents, short-term investment balance and credit facility together with cash generated from operations to meet our working capital and capital expenditure requirements;

- our ability to timely and effectively develop, invest in, scale and adapt our existing technology and network infrastructure;
- our ability to successfully acquire and integrate companies and assets; and
- our expectations regarding international operations and foreign exchange gains and losses.

We caution you that the foregoing list may not contain all of the forward-looking statements made in this Quarterly Report on Form 10-Q.

You should not rely upon forward-looking statements as predictions of future events. We have based the forward-looking statements contained in this Quarterly Report on Form 10-Q primarily on our current expectations and projections about future events and trends that we believe may affect our business, financial condition, operating results, cash flows or prospects. The outcome of the events described in these forward-looking statements is subject to risks, uncertainties and other factors described in the section titled "Risk Factors" and elsewhere in this Quarterly Report on Form 10-Q. Moreover, we operate in a very competitive and rapidly changing environment. New risks and uncertainties emerge from time to time and it is not possible for us to predict all risks and uncertainties that could have an impact on the forward-looking statements contained in this Quarterly Report on Form 10-Q. We cannot assure you that the results, events and circumstances reflected in the forward-looking statements will be achieved or occur, and actual results, events or circumstances could differ materially from those described in the forward-looking statements.

The forward-looking statements made in this Quarterly Report on Form 10-Q relate only to events as of the date on which the statements are made. We undertake no obligation to update any forward-looking statements made in this Quarterly Report on Form 10-Q to reflect events or circumstances after the date of this Quarterly Report on Form 10-Q or to reflect new information or the occurrence of unanticipated events, except as required by law. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make.

NOTE REGARDING KEY METRICS

We review a number of metrics, including monetizable daily active usage or users, or mDAU, changes in ad engagements and changes in cost per ad engagement, to evaluate our business, measure our performance, identify trends affecting our business, formulate business plans and make strategic decisions. See the section titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations— Key Metrics” for a discussion of how we calculate mDAU, changes in ad engagements and changes in cost per ad engagement.

We define mDAU as people, organizations, or other accounts who logged in or were otherwise authenticated and accessed Twitter on any given day through twitter.com or Twitter applications that are able to show ads. Average mDAU for a period represents the number of mDAU on each day of such period divided by the number of days for such period. Changes in mDAU are a measure of changes in the size of our daily logged in or otherwise authenticated active total accounts. To calculate the year-over-year change in mDAU, we subtract the average mDAU for the three months ended in the previous year from the average mDAU for the same three months ended in the current year and divide the result by the average mDAU for the three months ended in the previous year. Additionally, our calculation of mDAU is not based on any standardized industry methodology and is not necessarily calculated in the same manner or comparable to similarly titled measures presented by other companies. Similarly, our measures of mDAU growth and engagement may differ from estimates published by third parties or from similarly-titled metrics of our competitors due to differences in methodology.

The numbers of mDAU presented in this Quarterly Report on Form 10-Q are based on internal company data. While these numbers are based on what we believe to be reasonable estimates for the applicable period of measurement, there are inherent challenges in measuring usage and engagement across our large number of total accounts around the world. Furthermore, our metrics may be impacted by our information quality efforts, which are our overall efforts to reduce malicious activity on the service, inclusive of spam, malicious automation, and fake accounts. For example, there are a number of false or spam accounts in existence on our platform. We have performed an internal review of a sample of accounts and estimate that the average of false or spam accounts during the third quarter of 2020 represented fewer than 5% of our mDAU during the quarter. The false or spam accounts for a period represents the average of false or spam accounts in the samples during each monthly analysis period during the quarter. In making this determination, we applied significant judgment, so our estimation of false or spam accounts may not accurately represent the actual number of such accounts, and the actual number of false or spam accounts could be higher than we have estimated. We are continually seeking to improve our ability to estimate the total number of spam accounts and eliminate them from the calculation of our mDAU, and have made improvements in our spam detection capabilities that have resulted in the suspension of a large number of spam, malicious automation, and fake accounts. We intend to continue to make such improvements. After we determine an account is spam, malicious automation, or fake, we stop counting it in our mDAU, or other related metrics. We also treat multiple accounts held by a single person or organization as multiple mDAU because we permit people and organizations to have more than one account. Additionally, some accounts used by organizations are used by many people within the organization. As such, the calculations of our mDAU may not accurately reflect the actual number of people or organizations using our platform.

In addition, geographic location data collected for purposes of reporting the geographic location of our mDAU is based on the IP address or phone number associated with the account when an account is initially registered on Twitter. The IP address or phone number may not always accurately reflect a person’s actual location at the time they engaged with our platform. For example, someone accessing Twitter from the location of the proxy server that the person connects to rather than from the person’s actual location.

We regularly review and may adjust our processes for calculating our internal metrics to improve their accuracy.

PART I — FINANCIAL INFORMATION

Item 1. Financial Statements

TWITTER, INC.
CONSOLIDATED BALANCE SHEETS
(In thousands, except par value)
(Unaudited)

	September 30, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	\$ 2,201,073	\$ 1,799,082
Short-term investments	5,479,974	4,839,970
Accounts receivable, net of allowance for doubtful accounts of \$16,327 and \$2,401	747,548	850,184
Prepaid expenses and other current assets	160,984	130,839
Total current assets	8,589,579	7,620,075
Property and equipment, net	1,392,720	1,031,781
Operating lease right-of-use assets	828,213	697,095
Intangible assets, net	58,923	55,106
Goodwill	1,289,147	1,256,699
Deferred tax assets, net	792,362	1,908,086
Other assets	137,848	134,547
Total assets	<u>\$ 13,088,792</u>	<u>\$ 12,703,389</u>
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$ 241,102	\$ 161,148
Accrued and other current liabilities	623,885	500,893
Convertible notes, short-term	905,532	—
Operating lease liabilities, short-term	161,508	146,959
Finance lease liabilities, short-term	3,076	23,476
Total current liabilities	1,935,103	832,476
Convertible notes, long-term	1,858,685	1,816,833
Senior notes, long-term	692,742	691,967
Operating lease liabilities, long-term	727,011	609,245
Deferred and other long-term tax liabilities, net	28,845	24,170
Other long-term liabilities	34,318	24,312
Total liabilities	5,276,704	3,999,003
Commitments and contingencies (Note 14)		
Stockholders' equity:		
Preferred stock, \$0.000005 par value-- 200,000 shares authorized; none issued and outstanding	—	—
Common stock, \$0.000005 par value-- 5,000,000 shares authorized; 794,447 and 779,619 shares issued and outstanding	4	4
Additional paid-in capital	9,249,956	8,763,330
Accumulated other comprehensive loss	(90,087)	(70,534)
Retained earnings (accumulated deficit)	(1,347,785)	11,586
Total stockholders' equity	7,812,088	8,704,386
Total liabilities and stockholders' equity	<u>\$ 13,088,792</u>	<u>\$ 12,703,389</u>

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

TWITTER, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share data)
(Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Revenue	\$ 936,233	\$ 823,717	\$ 2,427,308	\$ 2,451,988
Costs and expenses				
Cost of revenue	361,388	281,057	933,464	823,033
Research and development	208,877	178,553	625,071	484,041
Sales and marketing	215,285	226,204	643,858	672,252
General and administrative	94,576	93,758	450,181	259,173
Total costs and expenses	880,126	779,572	2,652,574	2,238,499
Income (loss) from operations	56,107	44,145	(225,266)	213,489
Interest expense	(39,614)	(36,226)	(112,712)	(111,803)
Interest income	17,167	40,348	75,077	123,776
Other income (expense), net	(3,977)	(504)	(12,057)	6,583
Income (loss) before income taxes	29,683	47,763	(274,958)	232,045
Provision (benefit) for income taxes	1,024	11,241	1,082,784	(1,114,841)
Net income (loss)	\$ 28,659	\$ 36,522	\$ (1,357,742)	\$ 1,346,886
Net income (loss) per share attributable to common stockholders:				
Basic	\$ 0.04	\$ 0.05	\$ (1.73)	\$ 1.75
Diluted	\$ 0.04	\$ 0.05	\$ (1.73)	\$ 1.72
Weighted-average shares used to compute net income (loss) per share attributable to common stockholders:				
Basic	790,827	772,789	785,788	768,719
Diluted	806,383	790,523	785,788	784,443

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

TWITTER, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(In thousands)
(Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net income (loss)	\$ 28,659	\$ 36,522	\$ (1,357,742)	\$ 1,346,886
Other comprehensive income (loss), net of tax:				
Change in unrealized gain (loss) on investments in available-for-sale securities	(2,154)	1,331	20,037	19,285
Change in foreign currency translation adjustment	5,067	(70,296)	(39,590)	(69,883)
Net change in accumulated other comprehensive income (loss)	2,913	(68,965)	(19,553)	(50,598)
Comprehensive income (loss)	<u>\$ 31,572</u>	<u>\$ (32,443)</u>	<u>\$ (1,377,295)</u>	<u>\$ 1,296,288</u>

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

TWITTER, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands)
(Unaudited)

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2020		2019		2020		2019	
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount
Common stock								
Balance, beginning of period	790,426	\$ 4	772,393	\$ 4	779,619	\$ 4	764,257	\$ 4
Issuance of common stock in connection with RSU vesting	4,085	—	3,264	—	12,256	—	10,396	—
Issuance of restricted stock in connection with acquisitions	—	—	—	—	33	—	—	—
Issuance of restricted stock in connection with acquisitions accounted for as stock-based compensation	—	—	—	—	1,381	—	306	—
Exercise of stock options	37	—	152	—	301	—	347	—
Issuance of common stock upon purchases under employee stock purchase plan	—	—	—	—	1,395	—	901	—
Shares withheld related to net share settlement of equity awards	(101)	—	(91)	—	(538)	—	(487)	—
Other activities	—	—	—	—	—	—	(2)	—
Balance, end of period	794,447	\$ 4	775,718	\$ 4	794,447	\$ 4	775,718	\$ 4
Additional paid-in capital								
Balance, beginning of period	—	\$ 9,127,495	—	\$ 8,535,463	—	\$ 8,763,330	—	\$ 8,324,974
Issuance of restricted stock in connection with acquisitions	—	—	—	—	—	1,312	—	—
Exercise of stock options	—	31	—	245	—	454	—	754
Issuance of common stock upon purchases under employee stock purchase plan	—	—	—	—	—	34,395	—	25,209
Shares withheld related to net share settlement of equity awards	—	(3,726)	—	(3,757)	—	(18,344)	—	(16,695)
Stock-based compensation	—	126,156	—	106,783	—	376,600	—	304,492
Equity component of the convertible note issuance, net	—	—	—	—	—	92,209	—	—
Balance, end of period	—	\$ 9,249,956	—	\$ 8,638,734	—	\$ 9,249,956	—	\$ 8,638,734
Accumulated other comprehensive loss								
Balance, beginning of period	—	\$ (93,000)	—	\$ (46,944)	—	\$ (70,534)	—	\$ (65,311)
Other comprehensive income (loss)	—	2,913	—	(68,965)	—	(19,553)	—	(50,598)
Balance, end of period	—	\$ (90,087)	—	\$ (115,909)	—	\$ (90,087)	—	\$ (115,909)
Retained earnings (Accumulated deficit)								
Balance, beginning of period	—	\$ (1,376,444)	—	\$ (143,709)	—	\$ 11,586	—	\$ (1,454,073)
Cumulative-effect adjustment from adoption of current expected credit loss guidance	—	—	—	—	—	(1,629)	—	—
Net income (loss)	—	28,659	—	36,522	—	(1,357,742)	—	1,346,886
Balance, end of period	—	\$ (1,347,785)	—	\$ (107,187)	—	\$ (1,347,785)	—	\$ (107,187)
Total stockholders' equity	794,447	\$ 7,812,088	775,718	\$ 8,415,642	794,447	\$ 7,812,088	775,718	\$ 8,415,642

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

TWITTER, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)
(Unaudited)

	Nine Months Ended September 30,	
	2020	2019
Cash flows from operating activities		
Net income (loss)	\$ (1,357,742)	\$ 1,346,886
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Depreciation and amortization expense	366,469	349,076
Stock-based compensation expense	346,748	276,729
Amortization of discount on convertible notes	74,733	93,251
Bad debt expense	16,861	2,661
Deferred income taxes	(32,382)	68,587
Deferred tax assets establishment related to intra-entity transfers of intangible assets	—	(1,206,880)
Deferred tax assets valuation allowance establishment	1,101,374	—
Impairment of investments in privately-held companies	8,842	1,550
Other adjustments	(7,756)	(16,502)
Changes in assets and liabilities, net of assets acquired and liabilities assumed from acquisitions:		
Accounts receivable	97,812	93,932
Prepaid expenses and other assets	(24,765)	(21,216)
Operating lease right-of-use assets	121,712	104,862
Accounts payable	(5,722)	(12,599)
Accrued and other liabilities	76,497	40,378
Operating lease liabilities	(120,111)	(94,530)
Net cash provided by operating activities	<u>662,570</u>	<u>1,026,185</u>
Cash flows from investing activities		
Purchases of property and equipment	(577,829)	(389,073)
Proceeds from sales of property and equipment	5,815	4,290
Purchases of marketable securities	(5,103,983)	(3,940,682)
Proceeds from maturities of marketable securities	3,566,895	4,151,862
Proceeds from sales of marketable securities	925,387	173,325
Purchases of investments in privately-held companies	(3,839)	(51,163)
Business combinations, net of cash acquired	(34,285)	(20,302)
Other investing activities	(11,050)	2,281
Net cash used in investing activities	<u>(1,232,889)</u>	<u>(69,462)</u>
Cash flows from financing activities		
Proceeds from issuance of convertible notes	1,000,000	—
Debt issuance costs	(14,662)	—
Repayment of convertible notes	—	(935,000)
Taxes paid related to net share settlement of equity awards	(18,344)	(16,695)
Payments of finance lease obligations	(20,573)	(53,627)
Proceeds from exercise of stock options	454	753
Proceeds from issuances of common stock under employee stock purchase plan	34,395	25,209
Net cash provided by (used in) financing activities	<u>981,270</u>	<u>(979,360)</u>
Net increase (decrease) in cash, cash equivalents and restricted cash	410,951	(22,637)
Foreign exchange effect on cash, cash equivalents and restricted cash	(14,854)	(1,790)
Cash, cash equivalents and restricted cash at beginning of period	1,827,666	1,921,875
Cash, cash equivalents and restricted cash at end of period	<u>\$ 2,223,763</u>	<u>\$ 1,897,448</u>
Supplemental disclosures of non-cash investing and financing activities		
Common stock issued in connection with acquisitions	\$ 1,312	\$ —
Changes in accrued property and equipment purchases	\$ 103,649	\$ 26,679
Reconciliation of cash, cash equivalents and restricted cash as shown in the consolidated statements of cash flows		
Cash and cash equivalents	\$ 2,201,073	\$ 1,869,444
Restricted cash included in prepaid expenses and other current assets	2,251	1,869
Restricted cash included in other assets	20,439	26,135
Total cash, cash equivalents and restricted cash	<u>\$ 2,223,763</u>	<u>\$ 1,897,448</u>

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

TWITTER, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

Note 1. Description of Business and Summary of Significant Accounting Policies

Twitter, Inc. ("Twitter" or the "Company") was incorporated in Delaware in April 2007 and is headquartered in San Francisco, California. Twitter offers products and services for people, organizations, advertisers, developers and platform and data partners.

Basis of Presentation

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation.

The accompanying unaudited consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States of America (GAAP). The unaudited interim consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements and reflect, in management's opinion, all adjustments of a normal, recurring nature that are necessary for the fair statement of the Company's financial position, results of operations and cash flows for the interim periods, but are not necessarily indicative of the results expected for the full fiscal year or any other period.

The accompanying interim consolidated financial statements and these related notes should be read in conjunction with the consolidated financial statements and related notes included in the Company's Annual Report on Form 10-K for the year ended December 31, 2019.

Prior Period Reclassifications

Certain prior period amounts have been reclassified to conform to the current period presentation.

Use of Estimates

The preparation of the Company's consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses, as well as related disclosure of contingent assets and liabilities. Actual results could differ materially from the Company's estimates. To the extent that there are material differences between these estimates and actual results, the Company's financial condition or operating results will be affected. The Company bases its estimates on past experience and other assumptions that the Company believes are reasonable under the circumstances, and the Company evaluates these estimates on an ongoing basis.

COVID-19 Impacts

The COVID-19 pandemic has caused, and continues to cause, widespread economic disruption and has impacted the Company in a number of ways, most notably a significant decrease in global advertising spend in the month of March and the second quarter of 2020, followed by a recovery in the third quarter of 2020. The Company expects the extent of the impact on its financial and operational results will continue to depend on the duration and severity of the economic disruption caused by the COVID-19 pandemic.

As of September 30, 2020, the Company had \$7.68 billion of cash, cash equivalents and short-term investments in marketable securities. If required, the Company may take certain liquidity mitigation actions in the future; however, it does not believe such actions are necessary based on its current forecasts. The Company believes that the existing cash, cash equivalents and short-term investments balances, together with cash generated by operations will be sufficient to meet its working capital and capital expenditure requirements in the foreseeable future based on its current expectations of the impact of the COVID-19 pandemic.

The Company considered the impacts of the COVID-19 pandemic on its significant estimates and judgments used in applying its accounting policies in the three and nine months ended September 30, 2020. In light of the pandemic, there is a greater degree of uncertainty in applying these judgments and depending on the duration and severity of the pandemic, changes to its estimates and judgments could result in a meaningful impact to its financial statements in future periods. Some of the more reasonably possible and significant items subject to a greater degree of uncertainty during this time include estimates of the valuation allowance against deferred tax assets, the carrying value of investments in privately-held companies, revenue collectibility, and credit losses related to accounts receivable, unbilled revenue, and investments in debt securities.

Recent Accounting Pronouncements

Recently adopted accounting pronouncements

In June 2016, the Financial Accounting Standards Board (FASB) issued a new accounting standard update on the measurement of credit losses on financial instruments. The new guidance requires financial assets measured at amortized cost to be presented at the net amount expected to be collected and available-for-sale debt securities to record credit losses through an allowance for credit losses. The Company adopted this new accounting standard on January 1, 2020 using a modified retrospective method. In connection with the adoption of this guidance, the Company recorded a cumulative-effect adjustment of \$1.6 million to opening retained earnings as of January 1, 2020, related to additional allowance for credit losses on doubtful accounts and unbilled revenue.

In August 2018, the FASB issued a new accounting standard update which eliminates, adds and modifies certain disclosure requirements for fair value measurements. The update eliminates the requirement to disclose the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy, and introduces a requirement to disclose the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements. The Company adopted this new accounting standard on January 1, 2020, using the prospective method, and the adoption did not have a material impact on the Company's financial statements and related disclosures.

In August 2018, the FASB issued a new accounting standard update requiring a customer in a cloud computing arrangement (i.e., hosting arrangement) that is a service contract to capitalize certain implementation costs as if the arrangement was an internal-use software project. Capitalized implementation costs related to a hosting arrangement that is a service contract will be amortized over the term of the hosting arrangement, beginning when the module or component of the hosting arrangement is ready for its intended use. The Company adopted the new accounting standard update on January 1, 2020, using the prospective method, and the adoption did not have a material impact on the Company's financial statements and related disclosures.

In December 2019, the FASB issued a new accounting standard update to simplify the accounting for income taxes. The new guidance removes certain exceptions for recognizing deferred taxes for investments, performing intraperiod allocation and calculating income taxes in interim periods. It also adds guidance to reduce complexity in certain areas, including recognizing deferred taxes for tax goodwill and allocating taxes to members of a consolidated group. The Company adopted this guidance on January 1, 2020, using the modified retrospective method, and the adoption did not have a material impact on the Company's financial statements and related disclosures.

Recently issued accounting pronouncements not yet adopted

In August 2020, the FASB issued a new accounting standard update to simplify the accounting for convertible debt and other equity-linked instruments. The new guidance simplifies the accounting for convertible instruments by eliminating the cash conversion and beneficial conversion feature models used to separately account for embedded conversion features as a component of equity. Instead, the entity will account for the convertible debt or convertible preferred stock securities as a single unit of account, unless the conversion feature requires bifurcation and recognition as derivatives. Additionally, the guidance requires entities to use the if-converted method for all convertible instruments in the diluted earnings per share calculation and include the effect of potential share settlement for instruments that may be settled in cash or shares. This guidance will be effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2021, using a modified or full retrospective transition method. Early adoption is permitted for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. The Company is evaluating the impact of adopting this new accounting standard update on its financial statements and related disclosures.

With the exception of the standards discussed above, there have been no other recent accounting pronouncements or changes in accounting pronouncements during the nine months ended September 30, 2020, as compared to the recent accounting pronouncements described in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2019, that are of significance or potential significance to the Company.

Significant Accounting Policies

There have been no material changes to the Company's significant accounting policies from its Annual Report on Form 10-K for the fiscal year ended December 31, 2019, except for the policies noted below, which changed as a result of the adoption of the new standard on the measurement of credit losses on financial instruments.

Accounts Receivable, Net

The Company records accounts receivable at the invoiced amount. The Company maintains an allowance for doubtful accounts to reserve for potentially uncollectible receivable amounts. In evaluating the Company's ability to collect outstanding receivable balances, the Company considers various factors including the age of the balance, the creditworthiness of the customer, which is assessed based on ongoing credit evaluations and payment history, the customer's current financial condition, and considers macro-economic factors such as gross domestic product (GDP) growth rates to estimate expected future credit losses. In the three and nine months ended September 30, 2020, the Company recorded a \$0.9 million reduction and a \$15.4 million increment in the allowance for doubtful accounts, respectively, including estimated future losses in consideration of the impact of the COVID-19 pandemic on the economy and the Company. The Company considered the current and expected future economic and market conditions surrounding the COVID-19 pandemic to determine future expected losses on its accounts receivable. Actual future bad debt could differ materially from this estimate and additional bad debt could be incurred as the duration and severity of the impact of the COVID-19 pandemic remains uncertain.

Unbilled Revenue (Contract Assets)

The Company evaluates whether its unbilled revenue is exposed to potential credit losses by considering factors such as the creditworthiness of its customers, the term over which unbilled revenue will be recognized, historical impairment of unbilled revenue, and contemplation of projected macroeconomic factors such as GDP growth rates. As of September 30, 2020, the Company recorded an immaterial amount of allowance for credit losses on unbilled revenue in consideration of the impact of the COVID-19 pandemic on the economy and the Company. The Company considered the current and expected future economic and market conditions surrounding the COVID-19 pandemic to determine future expected credit losses on its unbilled revenue. Actual results could differ materially from the Company's estimates given the uncertainty arising from the COVID-19 pandemic.

Cash, Cash Equivalents and Short-term Investments

The Company determines the appropriate classification of its investments in marketable securities at the time of purchase and reevaluates such designation at each balance sheet date. The Company has classified and accounted for its marketable securities as available-for-sale. After considering the Company's capital preservation objectives, as well as its liquidity requirements, the Company may sell securities prior to their stated maturities. The Company carries its available-for-sale securities at fair value. The Company reports the unrealized gains and losses, net of taxes, as a component of stockholders' equity, except for unrealized losses determined to be credit-related which are recorded as other income (expense), net in the consolidated statements of operations and reports an allowance for credit losses in short-term investments on the balance sheet, if any.

The Company's investment policy only allows purchases of investment-grade notes and provides guidelines on concentrations to ensure minimum risk of loss. The Company evaluates whether the unrealized loss on available-for-sale debt securities is the result of the credit worthiness of the corporate notes it held, or other non-credit-related factors such as liquidity by reviewing a number of factors such as the implied yield of the corporate note based on the market price, the nature of the invested entity's business or industry, market capitalization relative to debt, changes in credit ratings, and the market prices of the corporate notes subsequent to period end. As of September 30, 2020, the gross unrealized loss on available-for-sale debt securities was immaterial and there were no expected credit losses related to the Company's available-for-sale debt securities. The Company does not intend to sell these investments and it is not more likely than not that the Company will be required to sell these investments before recovery of their amortized cost bases. As of September 30, 2020, no allowance for credit losses in short-term investments was recorded. However, given the uncertainty surrounding the severity and duration of the COVID-19 pandemic, the Company could incur future unrealized losses on available-for-sale debt securities that are credit-related, which will be recorded in other income (expense), net in the consolidated statements of operations.

Note 2. Revenue

Revenue Recognition

Revenue is recognized when the control of promised goods or services is transferred to customers at an amount that reflects the consideration to which the Company expects to be entitled to in exchange for those goods or services. The Company identifies its contracts with customers and all performance obligations within those contracts. The Company then determines the transaction price and allocates the transaction price to the performance obligations within the Company's contracts with customers, recognizing revenue when, or as the Company satisfies its performance obligations. While the majority of the Company's revenue transactions are based on standard business terms and conditions, the Company also enters into sales agreements with advertisers and data partners that sometimes involve multiple performance obligations and occasionally include non-standard terms or conditions.

Revenue by geography is based on the billing address of the customers. The following tables set forth revenue by services and revenue by geographic area (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Revenue by services:				
Advertising services	\$ 808,449	\$ 702,257	\$ 2,052,635	\$ 2,108,846
Data licensing and other	127,784	121,460	374,673	343,142
Total revenue	<u>\$ 936,233</u>	<u>\$ 823,717</u>	<u>\$ 2,427,308</u>	<u>\$ 2,451,988</u>

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Revenue by geographic area:				
United States	\$ 512,637	\$ 465,409	\$ 1,345,948	\$ 1,352,966
Japan	132,392	128,797	371,763	397,539
Rest of World	291,204	229,511	709,597	701,483
Total revenue	<u>\$ 936,233</u>	<u>\$ 823,717</u>	<u>\$ 2,427,308</u>	<u>\$ 2,451,988</u>

Contract Balances

The Company enters into contracts with its customers, which may give rise to contract liabilities (deferred revenue) and contract assets (unbilled revenue). The payment terms and conditions within the Company's contracts vary by the type and location of its customer and products or services purchased, the substantial majority of which are due in less than one year. When the timing of revenue recognition differs from the timing of payments made by customers, the Company recognizes either unbilled revenue (its performance precedes the billing date) or deferred revenue (customer payment is received in advance of performance).

Unbilled Revenue (Contract Assets)

The Company presents unbilled revenue in the consolidated balance sheets within prepaid expenses and other current assets and within other assets. The Company's contracts do not contain material financing components. The Company's unbilled revenue primarily consists of amounts that have yet to be billed under contracts with escalating fee structures. Specifically, because the Company generally recognizes revenue on a straight-line basis for data licensing arrangements with escalating fee structures, revenue recognized represents amounts to which the Company is contractually entitled; however, the revenue recognized exceeds the amounts the Company has a right to bill as of the period end, thus resulting in unbilled revenue.

Deferred Revenue (Contract Liabilities)

The Company presents deferred revenue primarily within accrued and other current liabilities in the consolidated balance sheets and there is not expected to be any material non-current contract liabilities given the Company's contracting provisions. The Company's deferred revenue balance primarily consists of cash payments due in advance of satisfying its performance obligations relating to data licensing contracts and performance obligations given to customers based on their spend relating to advertising contracts, for which the Company defers, as they represent material rights. The Company recognizes deferred revenue relating to its data licensing contracts on a straight-line basis over the period in which the Company provides data. The Company recognizes deferred revenue relating to its advertising contracts based on the amount of customer spend and the relative standalone selling price of the material rights.

The following table presents contract balances (in thousands):

	September 30, 2020	December 31, 2019
Unbilled revenue	\$ 37,241	\$ 27,691
Deferred revenue	\$ 58,408	\$ 69,000

The amount of revenue recognized in the three months ended September 30, 2020 that was included in the deferred revenue balance as of June 30, 2020 was \$35.3 million. The amount of revenue recognized in the nine months ended September 30, 2020 that was included in the deferred revenue balance as of December 31, 2019 was \$69.0 million. This revenue consists primarily of revenue recognized as a result of the utilization of bonus ads inventory earned by and material rights provided to customers in prior periods and the satisfaction of the Company's performance obligations relating to data licensing contracts with advance cash payments or material rights.

The amount of revenue recognized from obligations satisfied (or partially satisfied) in prior periods was not material.

The increase in the unbilled revenue balance from December 31, 2019 to September 30, 2020 was primarily attributable to differences between revenue recognized and amounts billed in the Company's data licensing arrangements with escalating fee structures due to recognizing such fees as revenue on a straight-line basis.

The decrease in the deferred revenue balance from December 31, 2019 to September 30, 2020 was primarily due to utilization of bonus and make good ads inventory earned in prior periods and the satisfaction of the Company's performance obligations relating to data licensing contracts with advance cash payments or material rights, offset by bonus ads inventory offered to customers during the period.

Remaining Performance Obligations

As of September 30, 2020, the aggregate amount of the transaction price allocated to remaining performance obligations in contracts with an original expected duration exceeding one year is \$836.5 million. This total amount primarily consists of long-term data licensing contracts and excludes deferred revenue related to the Company's short-term advertising service arrangements. The Company expects to recognize this amount as revenue over the following time periods (in thousands):

	Remaining Performance Obligations			
	Total	Remainder of 2020	2021	2022 and Thereafter
Revenue expected to be recognized on remaining performance obligations	\$ 836,537	\$ 79,300	\$ 295,179	\$ 462,058

Note 3. Cash, Cash Equivalents and Short-term Investments

Cash, cash equivalents and short-term investments consist of the following (in thousands):

	September 30, 2020	December 31, 2019
Cash and cash equivalents:		
Cash	\$ 234,497	\$ 254,405
Money market funds	1,620,552	465,158
Corporate notes, commercial paper and certificates of deposit	346,024	1,079,519
Total cash and cash equivalents	\$ 2,201,073	\$ 1,799,082
Short-term investments:		
U.S. government and agency securities	\$ 956,442	\$ 660,860
Corporate notes, commercial paper and certificates of deposit	4,522,498	4,179,110
Marketable equity securities	1,034	—
Total short-term investments	\$ 5,479,974	\$ 4,839,970

The contractual maturities of debt securities classified as available-for-sale as of September 30, 2020 were as follows (in thousands):

	September 30, 2020
Due within one year	\$ 2,753,187
Due after one year through five years	2,725,753
Total	\$ 5,478,940

The following tables summarize unrealized gains and losses related to available-for-sale debt securities classified as short-term investments on the Company's consolidated balance sheets (in thousands):

	September 30, 2020			
	Gross Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregated Estimated Fair Value
U.S. government and agency securities	\$ 954,625	\$ 1,817	\$ —	\$ 956,442
Corporate notes, commercial paper and certificates of deposit	4,491,038	31,957	(497)	4,522,498
Total available-for-sale debt securities classified as short-term investments	\$ 5,445,663	\$ 33,774	\$ (497)	\$ 5,478,940

	December 31, 2019			
	Gross Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregated Estimated Fair Value
U.S. government and agency securities	\$ 660,361	\$ 1,049	\$ (550)	\$ 660,860
Corporate notes, commercial paper and certificates of deposit	4,166,203	13,133	(226)	4,179,110
Total available-for-sale debt securities classified as short-term investments	\$ 4,826,564	\$ 14,182	\$ (776)	\$ 4,839,970

The gross unrealized loss on available-for-sale debt securities in a continuous loss position for 12 months or longer was not material as of September 30, 2020 and December 31, 2019.

Note 4. Fair Value Measurements

The Company measures its cash equivalents, short-term investments and derivative financial instruments at fair value. The Company classifies its cash equivalents, short-term investments and derivative financial instruments within Level 1 or Level 2 because the Company values these investments using quoted market prices or alternative pricing sources and models utilizing market observable inputs. The fair value of the Company's Level 1 financial assets is based on quoted market prices of the identical underlying security. The fair value of the Company's Level 2 financial assets is based on inputs that are directly or indirectly observable in the market, including the readily-available pricing sources for the identical underlying security that may not be actively traded.

The following tables set forth the fair value of the Company's financial assets and liabilities measured at fair value on a recurring basis as of September 30, 2020 and December 31, 2019 based on the three-tier fair value hierarchy (in thousands):

	September 30, 2020		
	Level 1	Level 2	Total
Assets			
Cash equivalents:			
Money market funds	\$ 1,620,552	\$ —	\$ 1,620,552
Corporate notes	—	9,085	9,085
Commercial paper	—	324,634	324,634
Certificates of deposit	—	12,305	12,305
Short-term investments:			
U.S. government and agency securities	—	956,442	956,442
Corporate notes	—	2,928,802	2,928,802
Commercial paper	—	1,099,352	1,099,352
Certificates of deposit	—	494,344	494,344
Marketable equity securities	1,034	—	1,034
Other current assets:			
Foreign currency contracts	—	404	404
Total	<u>\$ 1,621,586</u>	<u>\$ 5,825,368</u>	<u>\$ 7,446,954</u>
Liabilities			
Other current liabilities:			
Foreign currency contracts	\$ —	\$ 6,889	\$ 6,889
Total	<u>\$ —</u>	<u>\$ 6,889</u>	<u>\$ 6,889</u>

	December 31, 2019		
	Level 1	Level 2	Total
Assets			
Cash equivalents:			
Money market funds	\$ 465,158	\$ —	\$ 465,158
Corporate notes	—	8,246	8,246
Commercial paper	—	1,031,825	1,031,825
Certificates of deposit	—	39,448	39,448
Short-term investments:			
U.S. government and agency securities	—	660,860	660,860
Corporate notes	—	2,468,429	2,468,429
Commercial paper	—	1,236,487	1,236,487
Certificates of deposit	—	474,194	474,194
Other current assets:			
Foreign currency contracts	—	3,756	3,756
Total	<u>\$ 465,158</u>	<u>\$ 5,923,245</u>	<u>\$ 6,388,403</u>
Liabilities			
Other current liabilities:			
Foreign currency contracts	\$ —	\$ 1,573	\$ 1,573
Total	<u>\$ —</u>	<u>\$ 1,573</u>	<u>\$ 1,573</u>

The Company has \$954.0 million in aggregate principal amount of 1.00% convertible senior notes due in 2021, or the 2021 Notes, \$1.15 billion in aggregate principal amount of 0.25% convertible senior notes due in 2024, or the 2024 Notes, \$1.0 billion in aggregate principal amount of 0.375% convertible senior notes due in 2025, or the 2025 Notes, and, taken together with the 2021 Notes and the 2024 Notes, the Convertible Notes. The Company also has \$700.0 million in aggregate principal amount of 3.875% senior notes due in 2027, or the 2027 Notes, and, together with the Convertible Notes, the Notes, outstanding as of September 30, 2020. Refer to Note 10 – Senior Notes and Convertible Notes for further details on the Notes.

The estimated fair value of the 2021 Notes, the 2024 Notes, and the 2027 Notes, based on a market approach as of September 30, 2020 was approximately \$949.0 million, \$1.26 billion, and \$728.0 million, respectively, which represents a Level 2 valuation. The estimated fair value was determined based on the estimated or actual bids and offers of the Notes in an over-the-counter market on the last business day of the period.

The estimated fair value of the 2025 Notes, based on a binomial model, as of September 30, 2020 was approximately \$1.28 billion, which represents a Level 3 valuation. The Level 3 inputs used include risk free rate, volatility and discount yield.

Derivative Financial Instruments

The Company enters into foreign currency forward contracts with financial institutions to reduce the risk that its earnings may be adversely affected by the impact of exchange rate fluctuations on monetary assets or liabilities denominated in currencies other than the functional currency of a subsidiary. These contracts do not subject the Company to material balance sheet risk due to exchange rate movements because gains and losses on these derivatives are intended to offset gains and losses on the hedged foreign currency denominated assets and liabilities. These foreign currency forward contracts are not designated as hedging instruments.

The Company recognizes these derivative instruments as either assets or liabilities in the consolidated balance sheets at fair value based on a Level 2 valuation. The Company records changes in the fair value (i.e., gains or losses) of the derivatives in other income (expense), net in the consolidated statements of operations. The notional principal of foreign currency contracts outstanding was equivalent to \$470.5 million and \$456.1 million as of September 30, 2020 and December 31, 2019, respectively.

The fair values of outstanding derivative instruments for the periods presented on a gross basis are as follows (in thousands):

	Balance Sheet Location	September 30, 2020	December 31, 2019
Assets			
Foreign currency contracts not designated as hedging instruments	Other current assets	\$ 404	\$ 3,756
Liabilities			
Foreign currency contracts not designated as hedging instruments	Other current liabilities	\$ 6,889	\$ 1,573

The Company recognized \$7.1 million and \$18.3 million of net losses on its foreign currency contracts in the three and nine months ended September 30, 2020, respectively. The Company recognized \$9.6 million and \$14.5 million of net losses on its foreign currency contracts in the three and nine months ended September 30, 2019, respectively.

Note 5. Property and Equipment, Net

The following tables set forth property and equipment, net by type and by geographic area for the periods presented (in thousands):

	September 30, 2020	December 31, 2019
Property and equipment, net		
Equipment	\$ 1,683,628	\$ 1,445,003
Furniture and leasehold improvements	362,599	347,983
Capitalized software	769,879	688,894
Construction in progress	383,296	100,551
Total	3,199,402	2,582,431
Less: Accumulated depreciation and amortization	(1,806,682)	(1,550,650)
Property and equipment, net	\$ 1,392,720	\$ 1,031,781

	September 30, 2020	December 31, 2019
Property and equipment, net:		
United States	\$ 1,359,952	\$ 999,552
International	32,768	32,229
Total property and equipment, net	<u>\$ 1,392,720</u>	<u>\$ 1,031,781</u>

Note 6. Operating and Finance Leases

The Company has operating leases primarily for office space and data center facilities. The Company subleases certain leased office space to third parties when it determines there is excess leased capacity. The Company's server and networking equipment leases typically are accounted for as finance leases. Operating lease right-of-use assets obtained in exchange for operating lease obligations were \$253.9 million and \$34.0 million in the nine months ended September 30, 2020 and 2019, respectively.

Future lease payments under leases and sublease income as of September 30, 2020 were as follows (in thousands):

	Operating Leases	Finance Leases	Total	Sublease Income
Year Ending December 31,				
Remainder of 2020	\$ 37,771	\$ 2,528	\$ 40,299	\$ (2,715)
2021	220,364	569	220,933	(8,920)
2022	218,230	—	218,230	(1,325)
2023	143,583	—	143,583	—
2024	143,242	—	143,242	—
Thereafter	630,098	—	630,098	—
Total future lease payments (receipts)	1,393,288	3,097	1,396,385	<u>\$ (12,960)</u>
Less: leases not yet commenced	(367,190)	—	(367,190)	
Less: imputed interest	(137,579)	(21)	(137,600)	
Total lease liabilities	<u>\$ 888,519</u>	<u>\$ 3,076</u>	<u>\$ 891,595</u>	
Reconciliation of lease liabilities as shown in the consolidated balance sheets				
Operating lease liabilities, short-term	\$ 161,508	\$ —	\$ 161,508	
Operating lease liabilities, long-term	727,011	—	727,011	
Finance lease liabilities, short-term	—	3,076	3,076	
Total lease liabilities	<u>\$ 888,519</u>	<u>\$ 3,076</u>	<u>\$ 891,595</u>	

There were no other material changes in the Company's operating and finance leases in the three and nine months ended September 30, 2020, as compared to the disclosure in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2019.

Note 7. Goodwill and Intangible Assets

The following table presents the goodwill activities for the periods presented (in thousands):

Goodwill	
Balance as of December 31, 2019	\$ 1,256,699
Acquisitions	33,080
Other	(632)
Balance as of September 30, 2020	<u>\$ 1,289,147</u>

For each of the periods presented, gross goodwill balance equaled the net balance since no impairment charges have been recorded. The following table presents the detail of intangible assets for the periods presented (in thousands):

	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
September 30, 2020:			
Patents and developed technologies	\$ 115,203	\$ (57,880)	\$ 57,323
Other	3,233	(1,633)	1,600
Total	\$ 118,436	\$ (59,513)	\$ 58,923
December 31, 2019:			
Patents and developed technologies	\$ 96,636	\$ (41,530)	\$ 55,106
Total	\$ 96,636	\$ (41,530)	\$ 55,106

Amortization expense associated with intangible assets was \$5.4 million and \$3.8 million for the three months ended September 30, 2020 and 2019, respectively, and \$18.0 million and \$12.5 million for the nine months ended September 30, 2020 and 2019, respectively.

Estimated future amortization expense as of September 30, 2020 is as follows (in thousands):

Remainder of 2020	\$ 5,425
2021	18,249
2022	13,022
2023	7,843
2024	6,026
Thereafter	8,358
Total	\$ 58,923

Note 8. Accrued and Other Current Liabilities

The following table presents the detail of accrued and other current liabilities for the periods presented (in thousands):

	September 30, 2020	December 31, 2019
Accrued compensation	\$ 157,334	\$ 190,465
Federal Trade Commission accrual (see Note 14)	150,000	—
Deferred revenue	57,180	68,987
Accrued publisher, content and ad network costs	38,490	45,265
Accrued professional services	34,240	38,596
Accrued tax liabilities	31,710	45,967
Accrued other	154,931	111,613
Total	\$ 623,885	\$ 500,893

Note 9. Acquisitions and Other Investments

2020 Acquisitions

During the nine months ended September 30, 2020, the Company made a number of acquisitions, which were accounted for as business combinations. The total purchase price for these acquisitions was \$46.1 million, which was allocated as follows: \$8.8 million to developed technologies and other acquired intangible assets, \$4.2 million to net assets assumed based on their estimated fair value on the acquisition date, and the excess \$33.1 million of the purchase price over the fair value of net assets acquired to goodwill. The goodwill from the acquisitions is mainly attributable to assembled workforce, expected synergies and other benefits. The goodwill is not tax deductible. Developed technologies and other acquired intangible assets will be amortized on a straight-line basis over their estimated useful lives of up to three years.

The results of operations for these acquisitions have been included in the Company's consolidated statements of operations since the date of each respective acquisition. Actual and pro forma revenue and results of operations for these acquisitions have not been presented because they do not have a material impact on the consolidated revenue and results of operations.

Investments in Privately-Held Companies

From time to time, the Company makes strategic investments in privately-held companies. The Company evaluates each investee to determine if the investee is a variable interest entity and, if so, whether the Company is the primary beneficiary of the variable interest entity. The Company has determined, as of September 30, 2020, there were no variable interest entities required to be consolidated in the Company's consolidated financial statements. The Company's investments in privately-held companies are primarily non-marketable equity securities without readily determinable fair values. The Company accounts for its investments in privately-held companies either under equity method accounting or by adjusting the carrying value of its non-marketable equity securities to fair value upon observable transactions for identical or similar investments of the same issuer or upon impairment (referred to as the measurement alternative). All gains and losses on non-marketable equity securities, realized and unrealized, are recognized in other income (expense), net. The Company's non-marketable equity securities had a combined carrying value of \$77.3 million and \$77.7 million as of September 30, 2020 and December 31, 2019, respectively. The maximum loss the Company can incur for its investments is their carrying value. These investments in privately-held companies are included within other assets on the consolidated balance sheets.

The Company periodically evaluates the carrying value of the investments in privately-held companies when events and circumstances indicate that the carrying amount of the investment may not be recovered. The Company estimates the fair value of the investments to assess whether impairment losses shall be recorded using Level 3 inputs. These investments include the Company's holdings in privately-held companies that are not exchange traded and therefore not supported with observable market prices; hence, the Company may determine the fair value by reviewing equity valuation reports, current financial results, long-term plans of the privately-held companies, the amount of cash that the privately-held companies have on-hand, the ability to obtain additional financing and overall market conditions in which the privately-held companies operate or based on the price observed from the most recent completed financing. The Company recorded impairment charges of \$0.3 million and \$8.8 million in the three and nine months ended September 30, 2020, respectively, and \$1.6 million in the nine months ended September 30, 2019, within other income (expense), net in the consolidated statements of operations. No impairment charge was recorded in the three months ended September 30, 2019. The Company also recorded a gain of \$10.2 million from the sale of an investment in a privately-held company in the nine months ended September 30, 2019 within other income (expense), net in the consolidated statements of operations. No gains were recorded in the three and nine months ended September 30, 2020 and in the three months ended September 30, 2019.

Note 10. Senior Notes and Convertible Notes

Senior Notes

2027 Notes

In 2019, the Company issued \$700.0 million aggregate principal amount of the 3.875% senior notes due 2027, or the 2027 Notes, in a private placement to qualified institutional buyers pursuant to Rule 144A under the Securities Act of 1933, as amended, and outside the United States pursuant to Regulation S under the Securities Act of 1933. The total net proceeds from this offering were approximately \$691.9 million, after deducting \$8.1 million of debt issuance costs in connection with the issuance of the 2027 Notes. The 2027 Notes represent senior unsecured obligations of the Company. The interest rate is fixed at 3.875% per annum and interest is payable semi-annually in arrears on June 15 and December 15 of each year, which commenced on June 15, 2020. The 2027 Notes mature on December 15, 2027.

Convertible Notes

2025 Notes

In March 2020, the Company entered into an investment agreement (the Investment Agreement) with Silver Lake Partners V DE (AIV), L.P. (Silver Lake) relating to the issuance and sale to Silver Lake of \$1.0 billion in aggregate principal amount of the Company's 0.375% convertible senior notes due 2025, or the 2025 Notes. The total net proceeds from this offering were approximately \$985.3 million, after deducting \$14.7 million of debt issuance costs in connection with the 2025 Notes.

The 2025 Notes represent senior unsecured obligations of the Company. The interest rate is fixed at 0.375% per annum and interest is payable semi-annually in arrears on March 15 and September 15 of each year, which commenced on September 15, 2020. The 2025 Notes mature on March 15, 2025, subject to earlier conversion, redemption or repurchase.

The 2025 Notes are convertible at the option of the holder at any time until the scheduled trading day prior to the maturity date, including in connection with a redemption by the Company. The 2025 Notes will be convertible into shares of the Company's common stock based on an initial conversion rate of 24.0964 shares of common stock per \$1,000 principal amount of the 2025 Notes, which is equal to an initial conversion price of \$41.50 per share, subject to customary anti-dilution and other adjustments, including in connection with any make-whole adjustment as a result of certain extraordinary transactions.

Upon conversion of the 2025 Notes, the Company will pay or deliver, as the case may be, cash, shares of its common stock or a combination of cash and shares of its common stock, at the Company's election. If the Company satisfies its conversion obligation solely in cash or through payment and delivery, as the case may be, of a combination of cash and shares of its common stock, the amount of cash and shares of common stock, if any, due upon conversion will be based on a daily conversion value (as set forth in the indenture governing the 2025 Notes) calculated on a proportionate basis for each trading day in a 30 trading day observation period.

On or after March 20, 2022, the 2025 Notes will be redeemable by the Company in the event that the closing sale price of the Company's common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period (including the last trading day of such period) ending on, and including, the trading day immediately preceding the date on which the Company provides the redemption notice at a redemption price of 100% of the principal amount of such 2025 Notes, plus accrued and unpaid interest to, but excluding, the redemption date.

With certain exceptions, upon a change of control of the Company or a fundamental change (as defined in the indenture governing the 2025 Notes), the holders of the 2025 Notes may require that the Company repurchase all or part of the principal amount of the 2025 Notes at a repurchase price equal to 100% of the principal amount of the 2025 Notes, plus any accrued and unpaid interest to, but excluding, the repurchase date.

Pursuant to the Investment Agreement, and subject to certain exceptions, Silver Lake will be restricted from transferring or entering into an agreement that transfers the economic consequences of ownership of the 2025 Notes or converting the 2025 Notes prior to the earlier of (i) the two year anniversary of the original issue date of the 2025 Notes or (ii) immediately prior to the consummation of a change of control of the Company. Exceptions to such restrictions on transfer include, among others: (a) transfers to affiliates of Silver Lake, (b) transfers to the Company or any of its subsidiaries, (c) transfers to a third party where the net proceeds of such sale are solely used to satisfy a margin call or repay a permitted loan or (d) transfers in connection with certain merger and acquisition events.

In accordance with accounting guidance on convertible debt that may be settled in cash on conversion, the Company separated the conversion option associated with the 2025 Notes (the equity component) from the respective debt instrument (the liability component). The carrying value of the liability component was determined by measuring the fair value of a similar liability that does not have an associated convertible feature. The carrying value of the equity component of \$121.4 million, which is recognized in stockholders' equity, represents the difference between the proceeds from the issuance of the 2025 Notes and the fair value of the liability component. The equity component is not remeasured as long as it continues to meet the conditions for equity classification. The excess of the principal amount of the liability component over its carrying amount (the debt discount) is amortized to interest expense at an effective interest rate of 2.99% over the expected life of the 2025 Notes. The Company allocated \$1.8 million of issuance costs to the equity component and the remaining issuance costs of \$12.9 million are amortized to interest expense under the effective interest rate method over the expected life of the notes.

As of September 30, 2020, the net carrying value, net of debt issuance costs, of the 2025 Notes was \$879.8 million.

2021 Notes and 2024 Notes

In 2014, the Company issued \$954.0 million in aggregate principal amount of the 1.00% convertible senior notes due 2021, or the 2021 Notes, in a private placement to qualified institutional buyers pursuant to Rule 144A of the Securities Act of 1933, as amended. The total net proceeds from this offering were approximately \$939.5 million, after deducting \$14.3 million of debt discount and \$0.2 million of debt issuance costs in connection with the issuance of the 2021 Notes.

In 2018, the Company issued \$1.15 billion aggregate principal amount of the 0.25% convertible senior notes due 2024, or the 2024 Notes, in a private placement to qualified institutional buyers pursuant to Rule 144A under the Securities Act of 1933. The total net proceeds from this offering were approximately \$1.14 billion, after deducting \$12.3 million of debt issuance costs in connection with the 2024 Notes.

The 2021 Notes and the 2024 Notes are senior unsecured obligations of the Company. The interest rate of the 2021 Notes is fixed at 1.00% per annum and interest is payable semi-annually in arrears on March 15 and September 15 of each year. The interest rate of the 2024 Notes is fixed at 0.25% per annum and interest is payable semi-annually in arrears on June 15 and December 15 of each year. The 2021 Notes mature on September 15, 2021 and the 2024 Notes mature on June 15, 2024.

Senior Notes and Convertible Notes

The Notes consisted of the following (in thousands):

	September 30, 2020				December 31, 2019		
	2021 Notes	2024 Notes	2025 Notes	2027 Notes	2021 Notes	2024 Notes	2027 Notes
Principal amounts:							
Principal	\$ 954,000	\$ 1,150,000	\$ 1,000,000	\$ 700,000	\$ 954,000	\$ 1,150,000	\$ 700,000
Unamortized debt discount and issuance costs ⁽¹⁾	(48,468)	(171,081)	(120,234)	(7,258)	(84,652)	(202,515)	(8,033)
Net carrying amount	\$ 905,532	\$ 978,919	\$ 879,766	\$ 692,742	\$ 869,348	\$ 947,485	\$ 691,967
Carrying amount of the equity component ⁽²⁾	\$ 283,283	\$ 254,981	\$ 121,413	\$ —	\$ 283,283	\$ 254,981	\$ —

(1) Included in the consolidated balance sheets within convertible notes, short-term; convertible notes, long-term; and senior notes, long-term, and amortized over the remaining lives of the Notes.

(2) Included in the consolidated balance sheets within additional paid-in capital.

During the three months ended September 30, 2020 and 2019, the Company recognized \$29.6 million and \$33.1 million, respectively, of interest expense related to the amortization of debt discount and issuance costs prior to capitalization of interest, and \$10.9 million and \$3.6 million, respectively, of coupon interest expense. During the nine months ended September 30, 2020 and 2019, the Company recognized \$82.4 million and \$101.6 million, respectively, of interest expense related to the amortization of debt discount and issuance costs prior to capitalization of interest, and \$31.7 million and \$11.0 million, respectively, of coupon interest expense.

As of September 30, 2020, the remaining life of the 2021 Notes, the 2024 Notes, the 2025 Notes, and the 2027 Notes is approximately 11 months, 44 months, 53 months, and 86 months, respectively.

Note 11. Net Income (Loss) per Share

Basic net income (loss) per share is computed by dividing net income (loss) attributable to common stockholders by the weighted-average common shares outstanding during the period. The weighted-average common shares outstanding is adjusted for shares subject to repurchase such as unvested restricted stock granted to employees in connection with acquisitions, contingently returnable shares and escrowed shares supporting indemnification obligations that are issued in connection with acquisitions and unvested stock options exercised.

Diluted net income (loss) per share is computed by dividing the net income (loss) attributable to common stockholders by the weighted-average number of common shares outstanding during the period, including potential dilutive common stock instruments. In the nine months ended September 30, 2020, the Company's potential common stock instruments such as stock options, RSUs, shares to be purchased under the 2013 Employee Stock Purchase Plan, shares subject to repurchases, the conversion feature of the Convertible Notes and the warrants were not included in the computation of diluted loss per share as the effect of including these shares in the calculation would have been anti-dilutive.

The following table presents the calculation of basic and diluted net income (loss) per share for periods presented (in thousands, except per share data):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Basic net income (loss) per share:				
Numerator				
Net income (loss)	\$ 28,659	\$ 36,522	\$ (1,357,742)	\$ 1,346,886
Denominator				
Weighted-average common shares outstanding	793,065	774,580	787,831	770,755
Weighted-average restricted stock subject to repurchase	(2,238)	(1,791)	(2,043)	(2,036)
Weighted-average shares used to compute basic net income (loss) per share	<u>790,827</u>	<u>772,789</u>	<u>785,788</u>	<u>768,719</u>
Basic net income (loss) per share attributable to common stockholders	<u>\$ 0.04</u>	<u>\$ 0.05</u>	<u>\$ (1.73)</u>	<u>\$ 1.75</u>
Diluted net income (loss) per share:				
Numerator				
Net income (loss)	\$ 28,659	\$ 36,522	\$ (1,357,742)	\$ 1,346,886
Denominator				
Number of shares used in basic computation	790,827	772,789	785,788	768,719
Weighted-average effect of dilutive securities:				
RSUs	12,194	12,950	—	11,348
Stock options	2,221	2,585	—	2,548
Other	1,141	2,199	—	1,828
Weighted-average shares used to compute diluted net income (loss) per share	<u>806,383</u>	<u>790,523</u>	<u>785,788</u>	<u>784,443</u>
Diluted net income (loss) per share attributable to common stockholders	<u>\$ 0.04</u>	<u>\$ 0.05</u>	<u>\$ (1.73)</u>	<u>\$ 1.72</u>

The following numbers of potential common shares at the end of each period were excluded from the calculation of diluted net income (loss) per share attributable to common stockholders because their effect would have been anti-dilutive for the periods presented (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
RSUs	2,549	1,973	38,932	10,670
Warrants	32,412	44,454	32,412	44,454
Stock options	26	3	2,917	3
Shares subject to repurchase and others	3,317	2,660	7,930	3,177

Since the Company expects to settle the principal amount of the outstanding Convertible Notes in cash, the Company uses the treasury stock method for calculating any potential dilutive effect of the conversion spread on diluted net income per share, if applicable. For the 2021 Notes, the conversion spread of 12.3 million shares will have a dilutive impact on diluted net income per share of common stock when the average market price of the Company's common stock for a given period exceeds the conversion price of \$77.64 per share. For the 2024 Notes, the conversion spread of 20.1 million shares will have a dilutive impact on diluted net income per share of common stock when the average market price of the Company's common stock for a given period exceeds the conversion price of \$57.14 per share. For the 2025 Notes, the conversion spread of 24.1 million shares will have a dilutive impact on diluted net income per share of common stock when the average market price of the Company's common stock for a given period exceeds the conversion price of \$41.50 per share. Since the average market price of the common stock is below \$41.50 for all periods presented, the Convertible Notes are anti-dilutive.

If the average market price of the common stock exceeds the exercise price of the warrants, \$105.28 for the 2021 Notes, and \$80.20 for the 2024 Notes, the warrants will have a dilutive effect on the earnings per share assuming that the Company is profitable. Since the average market price of the common stock is below \$80.20 for all periods presented, the warrants are anti-dilutive.

Note 12. Stockholders' Equity

Equity Incentive Plans

The Company's 2013 Equity Incentive Plan serves as the successor to the 2007 Equity Incentive Plan. The number of shares of the Company's common stock available for issuance under the 2013 Equity Incentive Plan were and will be increased on the first day of each fiscal year beginning with the 2014 fiscal year, in an amount equal to the least of (i) 60,000,000 shares, (ii) 5% of the outstanding shares on the last day of the immediately preceding fiscal year, or (iii) such number of shares determined by the Company's Board of Directors.

Share Repurchases

In March 2020, the Company's Board of Directors authorized a program to repurchase up to \$2.0 billion of the Company's common stock over time. Repurchases may be made from time to time through open market purchases or through privately negotiated transactions subject to market conditions, applicable legal requirements and other relevant factors. The repurchase program does not obligate the Company to acquire any particular amount of its common stock, and may be suspended at any time at the Company's discretion. No shares were repurchased under the program in the nine months ended September 30, 2020.

Employee Stock Purchase Plan

The number of shares available for sale under the Employee Stock Purchase Plan (ESPP) has been and will be increased on the first day of each fiscal year beginning with the 2014 fiscal year, in an amount equal to the least of (i) 11.3 million shares; (ii) 1% of the outstanding shares of the Company's common stock as of the last day of the immediately preceding fiscal year; or (iii) such other amount as determined by the Company's Board of Directors.

During the nine months ended September 30, 2020, employees purchased an aggregate of 1.4 million shares under the ESPP at a weighted-average price of \$24.65 per share. During the nine months ended September 30, 2019, employees purchased an aggregate of 0.9 million shares under the ESPP at a weighted-average price of \$27.96 per share.

Restricted Common Stock

The Company has granted restricted common stock to certain continuing employees in connection with certain of its acquisitions. Vesting of this stock is dependent on the respective employee's continued employment at the Company during the requisite service period, which is generally up to four years from the issuance date, and the Company has the right to repurchase the unvested shares upon termination of employment. The fair value of the restricted common stock issued to employees is recorded as compensation expense on a straight-line basis over the requisite service period.

During the nine months ended September 30, 2020, the Company granted 1.4 million shares of restricted common stock with a weighted-average grant date fair value of \$34.30 per share in connection with certain acquisitions. The Company had 2.0 million and 1.4 million shares of unvested restricted common stock as of September 30, 2020 and December 31, 2019, respectively. The Company's restricted common stock activity was not material during the nine months ended September 30, 2020.

Stock Option Activity

The Company had 2.9 million and 3.2 million shares of stock options outstanding as of September 30, 2020 and December 31, 2019, respectively. The Company's stock option activity was not material during the nine months ended September 30, 2020.

Performance Restricted Stock Units Activity

The Company grants restricted stock units to certain of its executive officers periodically that vest based on the Company's attainment of the annual financial performance goals and the executives' continued employment through the vesting date (PRSUs). These PRSUs are granted when the annual performance targets are set and the awards are approved by the Compensation Committee of the Board of Directors, generally in the first quarter of each financial year. Prior to 2020, the Company granted PRSUs with a vesting period of approximately one year. In the nine months ended September 30, 2020, the Company granted PRSUs with a vesting period of approximately three years.

The following table summarizes the activity related to the Company's PRSUs for the nine months ended September 30, 2020 (in thousands, except per share data):

	PRSUs Outstanding	
	Shares	Weighted-Average Grant-Date Fair Value Per Share
Unvested and outstanding at December 31, 2019	646	\$ 31.52
Granted (100% target level)	729	\$ 27.77
Vested (100% target level)	(646)	\$ 31.52
Unvested and outstanding at September 30, 2020	729	\$ 27.77

The total fair value of PRSUs vested during the nine months ended September 30, 2020 and 2019 was \$22.7 million and \$23.2 million, respectively.

The Company also grants restricted stock units to certain of its executive officers that vest based on Twitter stock price performance relative to a broad-market index over a performance period of two or three calendar years and the executives' continued employment through the vesting date (TSR RSUs). Prior to 2020, the Company granted TSR RSUs with a performance period of two calendar years and a vesting period of approximately two years. In the nine months ended September 30, 2020, the Company granted TSR RSU grants with a performance period of three calendar years and a vesting period of approximately three years.

The following table summarizes the activity related to the Company's TSR RSUs for the nine months ended September 30, 2020 (in thousands, except per share data):

	TSR RSUs Outstanding	
	Shares	Weighted-Average Grant-Date Fair Value Per Share
Unvested and outstanding at December 31, 2019	759	\$ 41.15
Granted (100% target level)	487	\$ 31.16
Additional earned performance shares related to 2019 grants	52	\$ 54.97
Vested (116% target level)	(381)	\$ 54.97
Unvested and outstanding at September 30, 2020	917	\$ 30.90

The total fair value of TSR RSUs vested during the nine months ended September 30, 2020 and 2019 was \$13.4 million and \$3.7 million, respectively.

RSU Activity

The following table summarizes the activity related to the Company's RSUs, excluding PRSUs and TSR RSUs, for the nine months ended September 30, 2020. For purposes of this table, vested RSUs represent the shares for which the service condition had been fulfilled as of each respective date (in thousands, except per share data):

	RSUs Outstanding	
	Shares	Weighted-Average Grant-Date Fair Value Per Share
Unvested and outstanding at December 31, 2019	31,731	\$ 29.74
Granted	20,923	\$ 29.99
Vested	(11,229)	\$ 26.94
Canceled	(2,493)	\$ 30.52
Unvested and outstanding at September 30, 2020	38,932	\$ 30.63

The total fair value of RSUs vested during the three months ended September 30, 2020 and 2019 was \$147.7 million and \$133.7 million, respectively. The total fair value of RSUs vested during the nine months ended September 30, 2020 and 2019 was \$363.6 million and \$353.1 million, respectively.

Stock-Based Compensation Expense

Stock-based compensation expense is allocated based on the cost center to which the award holder belongs. Total stock-based compensation expense by function is as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Cost of revenue	\$ 8,581	\$ 5,757	\$ 23,333	\$ 16,778
Research and development	66,111	53,009	204,686	149,499
Sales and marketing	25,550	23,755	73,572	64,022
General and administrative	15,727	16,102	45,157	46,430
Total stock-based compensation expense	<u>\$ 115,969</u>	<u>\$ 98,623</u>	<u>\$ 346,748</u>	<u>\$ 276,729</u>

The Company capitalized \$10.2 million and \$9.9 million of stock-based compensation expense associated with the cost for developing software for internal use in the three months ended September 30, 2020 and 2019, respectively, and \$29.1 million and \$29.5 million in the nine months ended September 30, 2020 and 2019, respectively.

As of September 30, 2020, there was \$1.13 billion of gross unamortized stock-based compensation expense related to unvested awards which is expected to be recognized over a weighted-average period of 2.8 years. The Company accounts for forfeitures as they occur.

Note 13. Income Taxes

The Company's tax provision or benefit from income taxes for interim periods has been historically determined using an estimate of its annual effective tax rate, adjusted for discrete items, if any. Under certain circumstances where the Company is unable to make a reliable estimate of the annual effective tax rate, the accounting standard permits the use of the actual effective tax rate for the year-to-date period. In the third quarter of 2020, the Company used this approach because it was unable to reasonably estimate its annual effective rate due to the variability of the rate as a result of fluctuations in forecasted income, fluctuations in pre-tax income and loss between quarters, and the effects of being taxed in multiple tax jurisdictions.

The Company recorded a net provision for income taxes of \$1.0 million and \$1.08 billion for the three and nine months ended September 30, 2020, respectively. For the nine months ended September 30, 2020, the net provision for income taxes consisted of a provision for income taxes related to the establishment of a valuation allowance against deferred tax assets of \$1.10 billion of a foreign subsidiary, which was offset by an income tax benefit of \$18.6 million. The Company recorded a net provision for income taxes of \$11.2 million and a net benefit from income taxes of \$1.11 billion for the three and nine months ended September 30, 2019, respectively. For the nine months ended September 30, 2019, the net benefit from income taxes consisted of income tax benefits from the establishment of deferred tax assets from intra-entity transfers of certain intangible assets of \$1.21 billion, which was offset by income tax provisions of \$92.0 million.

For the three and nine months ended September 30, 2020, the primary difference between the effective tax rate and the federal statutory tax rate relates to the valuation allowance establishment in the three months ended June 30, 2020, the accrual related to the ongoing Federal Trade Commission matter described in Note 14 – Commitments and Contingencies that is not expected to be tax-deductible if and when paid, research and development credits, stock-based compensation, and foreign tax rate differences. For the three and nine months ended September 30, 2019, the primary difference between the effective tax rate and the federal statutory tax rate relates to the deferred tax asset establishment, research and development credits, stock-based compensation, and foreign tax rate differences.

The Company reassessed the ability to realize deferred tax assets by considering the available positive and negative evidence. As of June 30, 2020, the Company concluded that the deferred tax assets in a foreign subsidiary are not more-likely-than-not to be realized and recorded a full valuation allowance against such deferred tax assets in the approximate amount of \$1.10 billion. In evaluating the need for a valuation allowance, the Company considered its recent operating results which resulted in a cumulative taxable loss in a foreign subsidiary for the twelve quarters ended June 30, 2020. The twelve quarters cumulative taxable losses from operations is considered a significant piece of negative evidence and outweighs other positive evidence, such as projections of future income. The twelve quarters cumulative taxable losses and projected near-term losses in the foreign subsidiary are largely driven by the negative impact from the COVID-19 pandemic as it has caused, and may continue to cause, decreased advertiser demand. If there are favorable changes to actual operating results or to projections of future income, the Company may determine that it is more-likely-than-not such deferred tax assets may be realizable. As of September 30, 2020, there have been no changes to the Company's conclusion.

As of September 30, 2020, the Company had \$792.4 million of deferred tax assets for which it has not established a valuation allowance, related to the US federal, states other than Massachusetts and California, and international subsidiaries other than Ireland. The \$792.4 million deferred tax asset balance reflects the reduction in net deferred tax assets of \$1.10 billion in the nine months ended September 30, 2020. The Company completed its reassessment of the ability to realize these assets and concluded that a valuation allowance was not required. Depending on the extent and severity of COVID-19's impact, the Company's forecasted earnings and expectations may change and could result in a material non-cash income tax charge to record additional valuation allowances to further reduce its deferred tax assets to the net amount it believes is more-likely-than-not to be realized.

As of September 30, 2020, the Company has \$441.3 million of unrecognized tax benefits, of which \$363.0 million could result in a reduction of the Company's effective tax rate, if recognized. The remainder of the unrecognized tax benefits would not affect the effective tax rate due to the full valuation allowance recorded for California and Massachusetts deferred tax assets. On June 7, 2019, the Ninth Circuit Court of Appeals issued a new opinion in the case of *Altera Corp. v. Commissioner*, which upheld Department of Treasury regulations which require related parties in an intercompany cost-sharing arrangement to share expenses related to stock-based compensation. The Company has prepared the consolidated financial statements consistent with this opinion. In February 2020, Altera Corp. filed a petition to appeal the decision with the Supreme Court of the United States. On June 22, 2020, the Supreme Court denied the petition. The Company has considered the impact of the Supreme Court's denial and there were no material impacts to its consolidated financial statements as of September 30, 2020. Subsequent to September 30, 2020 but prior to the filing of this Form 10-Q, the Company filed its 2019 US Federal Tax Return and included certain adjustments related to the decision of the Ninth Circuit Court of Appeals in the case of *Altera Corp. v. Commissioner* for which the Company previously recognized a reserve. As a result, the Company's unrecognized tax benefits will decrease by \$91.9 million with no impact to the effective tax rate in the fourth quarter of 2020.

The Company is subject to taxation in the United States and various state and foreign jurisdictions. Earnings from non-U.S. activities are subject to local country income tax. The material jurisdictions in which the Company is subject to potential examination by taxing authorities include the United States, California and Ireland. The Company believes that adequate amounts have been reserved in these jurisdictions.

Note 14. Commitments and Contingencies

Credit Facility

The Company has a revolving credit agreement with certain lenders, which provides for a \$500.0 million unsecured revolving credit facility maturing on August 7, 2023. The Company is obligated to pay interest on loans under the credit facility and other customary fees for a credit facility of this size and type, including an upfront fee and an unused commitment fee. The interest rate for the credit facility is determined based on calculations using certain market rates as set forth in the credit agreement. In addition, the credit facility contains restrictions on payments including cash payments of dividends. As of September 30, 2020, no amounts had been drawn under the credit facility.

Contractual Obligations

The Company's principal commitments consist of obligations under the Notes (including principal and coupon interest), operating and finance leases for equipment, office space and co-located data center facilities, as well as non-cancellable contractual commitments.

During the nine months ended September 30, 2020, the Company entered into the Investment Agreement relating to the issuance and sale of \$1.0 billion in aggregate principal amount of the 2025 Notes. As of September 30, 2020, the Company's contractual obligation to settle commitments related to the 2025 Notes is \$7.5 million for the years ended December 31, 2021 through 2022, \$7.5 million for the years ended December 31, 2023 through 2024, and \$1.0 billion for the year ended December 31, 2025.

Other than as described above, there were no material changes outside the Company's normal course of business in its commitments under contractual obligations from those disclosed in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2019.

Legal Proceedings

Beginning in September 2016, multiple putative class actions and derivative actions were filed in state and federal courts in the United States against the Company and the Company's directors and/or certain former officers alleging that false and misleading statements, made in 2015, are in violation of securities laws and breached fiduciary duty. The putative class actions were consolidated in the U.S. District Court for the Northern District of California. On October 16, 2017, the court granted in part and denied in part the Company's motion to dismiss. On July 17, 2018, the court granted plaintiffs' motion for class certification in the consolidated securities action. The Company filed a motion for summary judgment on September 13, 2019, which was denied on April 17, 2020. The scheduled jury trial has been postponed due to the COVID-19 pandemic and is currently scheduled for September 2021. The outcome of this litigation is, and any potential losses therewith are, inherently uncertain, and the Company is, therefore, not able to estimate a reasonable range of possible loss, if any. The Company disputes the claims and intends to continue to defend the lawsuits vigorously.

Beginning in October 2019, putative class actions were filed in the U.S. District Court for the Northern District of California against the Company and certain of the Company's officers alleging violations of securities laws in connection with the Company's announcements that it had discovered and taken steps to remediate issues related to certain user settings designed to target advertising that were not working as expected and seeking unspecified damages. The Company disputes the claims and intends to defend the lawsuit vigorously.

From time to time the Company notifies the Irish Data Protection Commission, its designated European privacy regulator under the European Union General Data Protection Regulation, or GDPR, and other regulators, of certain personal data breaches and privacy issues, and is subject to inquiries and investigations regarding various aspects of our regulatory compliance. The Company is currently the subject of inquiries by the Irish Data Protection Commission with respect to its compliance with the GDPR.

On July 28, 2020, the Company received a draft complaint from the Federal Trade Commission (FTC) alleging violations of the Company's 2011 consent order with the FTC and the FTC Act. The allegations relate to the Company's use of phone number and/or email address data provided for safety and security purposes for targeted advertising during periods between 2013 and 2019. The Company estimates that the range of probable loss in this matter is \$150.0 million to \$250.0 million and recorded an accrual of \$150.0 million in the three months ended June 30, 2020. The accrual is included in accrued and other current liabilities in the consolidated balance sheet and in general and administrative expenses in the consolidated statements of operations. The matter remains unresolved, and there can be no assurance as to the timing or the terms of any final outcome.

The Company is also currently involved in, and may in the future be involved in, legal proceedings, claims, investigations, and government inquiries and investigations arising in the ordinary course of business. These proceedings, which include both individual and class action litigation and administrative proceedings, have included, but are not limited to matters involving content on the platform, intellectual property, privacy, data protection, consumer protection, securities, employment, and contractual rights. Legal fees and other costs associated with such actions are expensed as incurred. The Company assesses, in conjunction with its legal counsel, the need to record a liability for litigation and contingencies. Litigation accruals are recorded when and if it is determined that a loss related matter is both probable and reasonably estimable. Material loss contingencies that are reasonably possible of occurrence, if any, are subject to disclosure. As of September 30, 2020, except for the above referenced class actions, derivative actions and FTC matter, there was no litigation or contingency with at least a reasonable possibility of a material loss. Except for the aforementioned accrual of \$150.0 million recorded in relation to the FTC matter, no other material losses were recorded during the three and nine months ended September 30, 2020 and 2019 with respect to litigation or loss contingencies.

Non-Income Taxes

The Company is under various non-income tax audits by domestic and foreign tax authorities. These audits primarily revolve around routine inquiries, refund requests, and employee benefits. The Company accrues non-income taxes that may result from these audits when they are probable and can be reasonably estimated. Due to the complexity and uncertainty of some of these matters, however, as well as the judicial process in certain jurisdictions, the final outcome of these audits may be materially different from the Company's expectations.

Indemnification

In the ordinary course of business, the Company often includes standard indemnification provisions in its arrangements with its customers, partners, suppliers and vendors. Pursuant to these provisions, the Company may be obligated to indemnify such parties for losses or claims suffered or incurred in connection with its service, breach of representations or covenants, intellectual property infringement or other claims made against such parties. These provisions may limit the time within which an indemnification claim can be made. It is not possible to determine the maximum potential amount under these indemnification obligations due to the limited history of prior indemnification claims and the unique facts and circumstances involved in each particular agreement. The Company has never incurred significant expense defending its licensees against third-party claims, nor has it ever incurred significant expense under its standard service warranties or arrangements with its customers, partners, suppliers and vendors. Accordingly, the Company had no liabilities recorded for these provisions as of September 30, 2020 and December 31, 2019.

Item 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the consolidated financial statements and related notes thereto included in Item 1 "Financial Statements" in this Quarterly Report on Form 10-Q. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those discussed below. Factors that could cause or contribute to such differences include, but are not limited to, those identified below and those discussed in the section titled "Risk Factors" included elsewhere in this Quarterly Report on Form 10-Q.

Overview and Highlights of Quarterly Results

Revenue in the third quarter of 2020 totaled \$936.2 million, an increase of 14%, compared to the third quarter of 2019.

- Advertising revenue totaled \$808.4 million, an increase of 15% year over year.
- Data licensing and other revenue totaled \$127.8 million, an increase of 5% year over year.
- U.S. revenue totaled \$512.6 million, an increase of 10% year over year.
- International revenue totaled \$423.6 million, an increase of 18% year over year.

Net income was \$28.7 million for the three months ended September 30, 2020 compared to \$36.5 million for the three months ended September 30, 2019.

Income from operations was \$56.1 million, or 6% of total revenue, for the three months ended September 30, 2020, compared to \$44.1 million, or 5% of total revenue, for the three months ended September 30, 2019.

Cash, cash equivalents and short-term investments in marketable securities totaled \$7.68 billion as of September 30, 2020.

Average monetizable daily active usage (mDAU) for the three months ended September 30, 2020 was 187 million, an increase of 29% year over year.

COVID-19 Update

The COVID-19 pandemic has resulted in public health responses including travel bans, restrictions, social distancing requirements, and shelter-in-place orders, which have negatively impacted our business, operations, and financial performance. Despite these challenges, in the third quarter of 2020, our year-over-year growth in mDAU remained strong, primarily driven by external factors, including increased global conversation around the COVID-19 pandemic, the run-up to U.S. elections, and other current events. Our work to serve the public conversation, to help people find trusted sources of information, and to better organize and surface the many topics and interests that bring people to Twitter, helped us retain new and recently reactivated accounts in the third quarter of 2020. We also continue to benefit from the ongoing impact of product improvements, including continued increases in relevance across notifications, search, Explore, and the Home timeline.

In the third quarter of 2020, advertisers around the world significantly increased their investment on Twitter, seeking to engage our larger audience around the return of events as well as increased and previously delayed product launches. We experienced improved advertising demand from the second quarter of 2020, when the decrease in advertising spend led to our conclusion that the deferred tax assets in a foreign subsidiary are not more-likely-than-not to be realized and recorded a valuation allowance of \$1.10 billion. This valuation allowance would be reversed in the event, and to the extent, that it is more-likely-than-not that there will be sufficient taxable income in the foreign subsidiary to realize the tax benefit. Depending on the extent and severity of COVID-19's impact, we could have additional deferred tax asset valuation allowances in future periods. As of September 30, 2020, there have been no changes to our conclusion.

In light of the current operating and economic environment, we have shifted resources and priorities to increase focus on our revenue products. Expense growth in the third quarter of 2020 was slightly higher than our expectations as COVID-related operational constraints, that previously limited our ability to invest, abated in the third quarter of 2020 and we incurred more revenue-related expenses due to the outperformance of advertising revenue. Given improving business conditions, we intend to continue investing in our most important work and expect total costs and expenses to grow closer to 20% year over year in the fourth quarter of 2020. We have responded quickly and decisively to the challenges presented by the current environment, updating our policies, increasing our use of machine learning and automation to take actions on potentially abusive and manipulative content, ensuring the continuity of our service, and partnering with advertisers to adapt their campaigns to the current situation.

Given the continued and unprecedented uncertainty and rapidly shifting market conditions of the business environment, we cannot reasonably estimate the full impacts of the COVID-19 pandemic on our future financial and operational results. Our past results may not be indicative of our future performance, and historical trends in revenue, income (loss) from operations, net income (loss), and net income (loss) per share may differ materially. For example, to the extent the pandemic continues to disrupt economic activity globally, it could continue to adversely affect our business, operations and financial results through prolonged decreases in advertising spend, credit deterioration of our customers, depressed economic activity, or declines in capital markets. We continue to monitor the rapidly evolving situation and guidance from international and domestic authorities, including federal, state and local public health authorities, and there may be developments outside our control requiring us to adjust our operating plan. As such, given the unprecedented uncertainty around the duration and severity of the impact on market conditions and the business environment, we cannot reasonably estimate the full impacts of the COVID-19 pandemic on our operating results in the future.

The risks related to the COVID-19 pandemic on our business are further described in "Part II—Other Information, Item 1A. Risk Factors."

Key Metrics

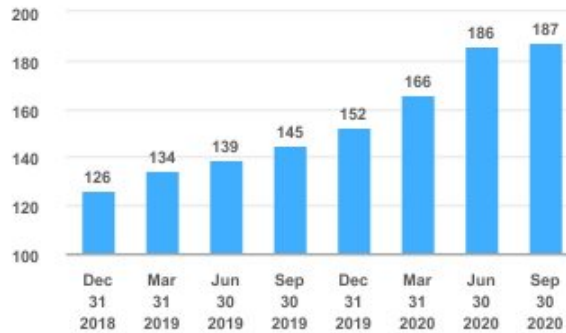
We review a number of metrics, including the following key metrics, to evaluate our business, measure our performance, identify trends affecting our business, formulate business plans and make strategic decisions.

Monetizable Daily Active Usage or Users (mDAU). We define mDAU as people, organizations, or other accounts who logged in or were otherwise authenticated and accessed Twitter on any given day through twitter.com or Twitter applications that are able to show ads. We believe that mDAU, and its related growth, is the best way to measure our success against our objectives and to show the size of our audience and engagement. Average mDAU for a period represents the number of mDAU on each day of such period divided by the number of days for such period. Changes in mDAU are a measure of changes in the size of our daily logged in or otherwise authenticated active total accounts. To calculate the year-over-year change in mDAU, we subtract the average mDAU for the three months ended in the previous year from the average mDAU for the same three months ended in the current year and divide the result by the average mDAU for the three months ended in the previous year. Additionally, our calculation of mDAU is not based on any standardized industry methodology and is not necessarily calculated in the same manner or comparable to similarly titled measures presented by other companies.

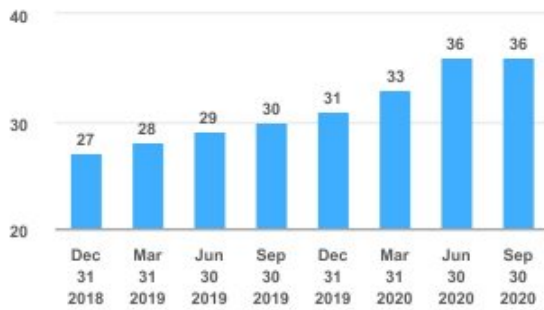
In the three months ended September 30, 2020, we had 187 million average mDAU, which represents an increase of 29% from the three months ended September 30, 2019. The increase was driven by global conversation around current events and ongoing product improvements. In the three months ended September 30, 2020, we had 36 million average mDAU in the United States and 152 million average mDAU in the rest of the world, which represent increases of 20% and 32%, respectively, from the three months ended September 30, 2019.

For additional information on how we calculate changes in mDAU and factors that can affect this metric, see the section titled “Note Regarding Key Metrics.”

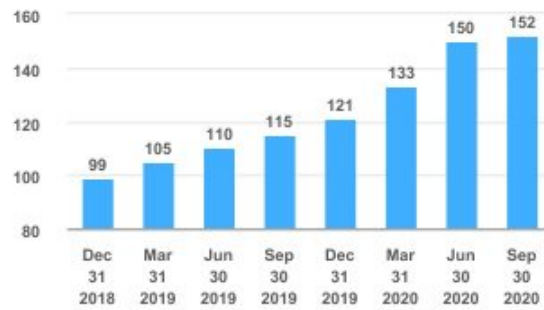
Monetizable Daily Active Usage: Worldwide
(quarterly average in millions)



Monetizable Daily Active Usage: United States
(quarterly average in millions)

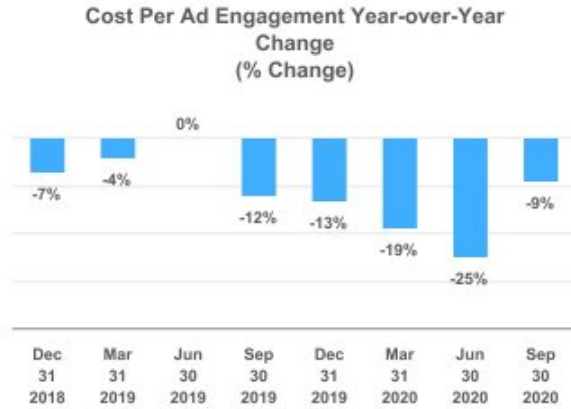
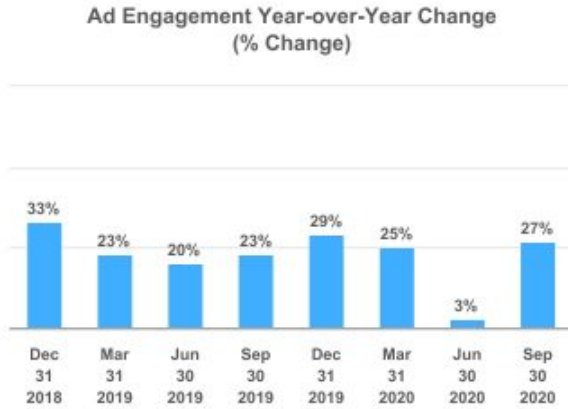


Monetizable Daily Active Usage: International
(quarterly average in millions)



Changes in Ad Engagements and Changes in Cost per Ad Engagement. We define an ad engagement as an interaction with one of our pay-for-performance advertising products. Ad engagements with our advertising products are based on the completion of an objective set out by an advertiser such as expanding, Retweeting, liking or replying to a Promoted Tweet, viewing an embedded video, downloading or engaging with a promoted mobile application, clicking on a website link, signing up for marketing emails from advertisers, following the account that Tweets a Promoted Tweet, or completing a transaction on an external website. We believe changes in ad engagements is one way to measure engagement with our advertising products. Cost per ad engagement is an output of our ads auction process, and will vary from one period to another based on geographic performance, auction dynamics, the strength of demand for various ad formats, and campaign objectives.

In the three months ended September 30, 2020, ad engagements increased 27% from the three months ended September 30, 2019, driven by strong growth in ad impressions due to our growing audience and increased demand for ads. In the three months ended September 30, 2020, cost per ad engagement decreased by 9% compared to the three months ended September 30, 2019, driven by price decreases across most ad formats.



Results of Operations

The following tables set forth our consolidated statements of operations data for each of the periods presented (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Revenue				
Advertising services	\$ 808,449	\$ 702,257	\$ 2,052,635	\$ 2,108,846
Data licensing and other	127,784	121,460	374,673	343,142
Total revenue	936,233	823,717	2,427,308	2,451,988
Costs and expenses ⁽¹⁾				
Cost of revenue	361,388	281,057	933,464	823,033
Research and development	208,877	178,553	625,071	484,041
Sales and marketing	215,285	226,204	643,858	672,252
General and administrative	94,576	93,758	450,181	259,173
Total costs and expenses	880,126	779,572	2,652,574	2,238,499
Income (loss) from operations	56,107	44,145	(225,266)	213,489
Interest expense	(39,614)	(36,226)	(112,712)	(111,803)
Interest income	17,167	40,348	75,077	123,776
Other income (expense), net	(3,977)	(504)	(12,057)	6,583
Income (loss) before income taxes	29,683	47,763	(274,958)	232,045
Provision (benefit) for income taxes	1,024	11,241	1,082,784	(1,114,841)
Net income (loss)	\$ 28,659	\$ 36,522	\$ (1,357,742)	\$ 1,346,886

(1) Costs and expenses include stock-based compensation expense as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Cost of revenue	\$ 8,581	\$ 5,757	\$ 23,333	\$ 16,778
Research and development	66,111	53,009	204,686	149,499
Sales and marketing	25,550	23,755	73,572	64,022
General and administrative	15,727	16,102	45,157	46,430
Total stock-based compensation expense	\$ 115,969	\$ 98,623	\$ 346,748	\$ 276,729

The following table sets forth our consolidated statements of operations data for each of the periods presented as a percentage of revenue:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Revenue				
Advertising services	86 %	85 %	85 %	86 %
Data licensing and other	14	15	15	14
Total revenue	100	100	100	100
Costs and expenses				
Cost of revenue	39	34	38	34
Research and development	22	22	26	20
Sales and marketing	23	27	27	27
General and administrative	10	11	19	11
Total costs and expenses	94	95	109	91
Income (loss) from operations	6	5	(9)	9
Interest expense	(4)	(4)	(5)	(5)
Interest income	2	5	3	5
Other income (expense), net	—	—	—	—
Income (loss) before income taxes	3	6	(11)	9
Provision (benefit) for income taxes	—	1	45	(45)
Net income (loss)	3 %	4 %	(56)%	55 %

Revenue

We generate the substantial majority of our revenue from the sale of advertising services. We also generate revenue by licensing our data to third parties and providing mobile advertising exchange services.

Advertising Services

We generate most of our advertising revenue by selling our Promoted Products. Currently, our Promoted Products consist of the following:

- **Promoted Tweets.** Promoted Tweets, which are labeled as “promoted,” appear within a timeline, search results or profile pages just like an ordinary Tweet regardless of device, whether it be desktop or mobile. Using our proprietary algorithms and understanding of the interests of each account, we can deliver Promoted Tweets that are intended to be relevant to a particular account. We enable our advertisers to target an audience based on an individual account’s interest graph. Our Promoted Tweets are pay-for-performance or pay-for-impression delivered advertising that are priced through an auction. Our Promoted Tweets include objective-based features that allow advertisers to pay only for the types of engagement selected by the advertisers, such as Tweet engagements (e.g., Retweets, replies and likes), website clicks, mobile application installs or engagements, obtaining new followers, or video views.
- **Promoted Accounts.** Promoted Accounts, which are labeled as “promoted,” provide a way for our advertisers to grow a community of people who are interested in their business, products or services. Our Promoted Accounts are pay-for-performance advertising priced through an auction.
- **Promoted Trends.** Promoted Trends, which are labeled as “promoted,” appear at the top of the list of trending topics or timeline for an entire day in a particular country or on a global basis. We sell our Promoted Trends on a fixed-fee-per-day basis.

While the majority of the Promoted Products we sell to our advertisers are placed on Twitter, we also generate advertising revenue by placing advertising products that we sell to advertisers on third-party publishers’ websites, applications or other offerings.

Data Licensing and Other

We generate data licensing and other revenue by (i) offering data products and data licenses that allow our data partners to access, search and analyze historical and real-time data on our platform (which consists of public Tweets and their content), and (ii) providing mobile advertising exchange services through our MoPub exchange. Our data partners generally purchase licenses to access all or a portion of our data for a fixed period. We recognize data licensing revenue as our data partners consume and benefit from their use of the licensed data. In addition, we operate a mobile ad exchange and receive service fees from transactions completed on the exchange. Our mobile ad exchange enables buyers and sellers to purchase and sell advertising inventory and matches buyers and sellers. We have determined we are not the principal as it relates to the purchase and sale of advertising inventory in transactions between third-party buyers and sellers on the exchange. Therefore, we report revenue related to our ad exchange services on a net basis.

	Three Months Ended September 30,			% Change	Nine Months Ended September 30,			% Change
	2020	2019	(in thousands)		2020	2019	(in thousands)	
Advertising services	\$ 808,449	\$ 702,257		15 %	\$ 2,052,635	\$ 2,108,846		(3) %
Data licensing and other	127,784	121,460		5 %	374,673	343,142		9 %
Total revenue	\$ 936,233	\$ 823,717		14 %	\$ 2,427,308	\$ 2,451,988		(1) %

Revenue in the three months ended September 30, 2020 increased by \$112.5 million or 14% compared to the three months ended September 30, 2019. Revenue in the nine months ended September 30, 2020 decreased by \$24.7 million or 1% compared to the nine months ended September 30, 2019.

Advertising revenue in the three months ended September 30, 2020 increased by \$106.2 million or 15% compared to the three months ended September 30, 2019. Advertising revenue in the nine months ended September 30, 2020 decreased by \$56.2 million or 3% compared to the nine months ended September 30, 2019.

The increase in advertising revenue in the three months ended September 30, 2020 reflects increased demand toward the end of the second quarter of 2020 that continued throughout the third quarter as advertisers around the world significantly increased their investment on Twitter, seeking to engage our larger audience around the return of events as well as increased and previously delayed product launches. The increase in advertising revenue was attributable to a 27% increase in the number of ad engagements, offset by a 9% decrease in cost per ad engagement compared to the same period in 2019. The increase in the number of ad engagements was driven by strong growth in ad impressions due to our growing audience and increased demand for ads. The decrease in cost per ad engagement reflects price decreases across most ad formats.

The decrease in advertising revenue in the nine months ended September 30, 2020 reflects widespread economic disruption related to the COVID-19 pandemic and a significant decrease in global advertising spend in the month of March and the second quarter of 2020. In the third quarter of 2020, we saw an increase in advertiser demand as advertisers around the world significantly increased their investment on Twitter, seeking to engage our larger audience around the return of events as well as increased and previously delayed product launches. The decrease in advertising revenue in the nine months ended September 30, 2020 was attributable to a 17% decrease in cost per ad engagement, offset by an 18% increase in the number of ad engagements compared to the same period in 2019. The decrease in cost per ad engagement was driven by price decreases across most ad formats. The increase in the number of ad engagements resulted primarily from strong growth in ad impressions due to our growing audience.

In the three and nine months ended September 30, 2020, data licensing and other revenue increased by 5% and 9% compared to the three and nine months ended September 30, 2019, respectively. The increases were attributable to expanded partnerships in Developer and Enterprise Solutions, and the timing of revenue recognition.

Cost of Revenue

Cost of revenue includes infrastructure costs, other direct costs including revenue share expenses, amortization of acquired intangible assets and amortization of capitalized labor costs for internally developed software, allocated facilities costs, as well as traffic acquisition costs, or TAC. Infrastructure costs consist primarily of data center costs related to our co-located facilities, which include lease and hosting costs, related support and maintenance costs and energy and bandwidth costs, public cloud hosting costs, as well as depreciation of servers and networking equipment; and personnel-related costs, including salaries, benefits and stock-based compensation, for our operations teams. TAC consists of costs we incur with third parties in connection with the sale to advertisers of our advertising products that we place on third-party publishers' websites, and applications or other offerings collectively resulting from acquisitions. Certain elements of our cost of revenue are fixed and cannot be reduced in the near term.

	Three Months Ended September 30,			% Change	Nine Months Ended September 30,		
	2020	2019	(in thousands)		2020	2019	(in thousands)
Cost of revenue	\$ 361,388	\$ 281,057		29 %	\$ 933,464	\$ 823,033	13 %
Cost of revenue as a percentage of revenue	39 %	34 %			38 %	34 %	

In the three months ended September 30, 2020, cost of revenue increased by \$80.3 million compared to the three months ended September 30, 2019. The increase was attributable to a \$78.4 million increase in direct costs, primarily driven by an increase in infrastructure costs and traffic acquisition costs, and a \$1.9 million increase in depreciation and amortization expense primarily related to additional acquired intangible assets, server and networking equipment.

In the nine months ended September 30, 2020, cost of revenue increased by \$110.4 million compared to the nine months ended September 30, 2019. The increase was attributable to a \$94.7 million increase in direct costs primarily driven by an increase in infrastructure costs and traffic acquisition costs offset by a decrease in revenue share expenses, and a \$15.7 million increase in depreciation and amortization expense primarily related to additional acquired intangible assets, server and networking equipment.

We plan to continue to scale the capacity and enhance the capability and reliability of our infrastructure to support mDAU growth and increased activity on our platform.

Research and Development

Research and development expenses consist primarily of personnel-related costs, including salaries, benefits and stock-based compensation, for our engineers and other employees engaged in the research and development of our products and services. In addition, research and development expenses include amortization of acquired intangible assets, allocated facilities costs, and other supporting overhead costs.

	Three Months Ended September 30,			% Change	Nine Months Ended September 30,		
	2020	2019	(in thousands)		2020	2019	(in thousands)
Research and development	\$ 208,877	\$ 178,553		17 %	\$ 625,071	\$ 484,041	29 %
Research and development as a percentage of revenue	22 %	22 %			26 %	20 %	

In the three months ended September 30, 2020, research and development expenses increased by \$30.3 million compared to the three months ended September 30, 2019. The increase was attributable to a \$16.4 million increase in personnel-related costs mainly driven by an increase in employee headcount as we continue to focus our investments on engineering, product, and design, an \$11.3 million net increase in facilities costs and other administrative expenses, and a \$2.6 million decrease in the capitalization of costs associated with developing software for internal use.

In the nine months ended September 30, 2020, research and development expenses increased by \$141.0 million compared to the nine months ended September 30, 2019. The increase was attributable to an \$86.1 million increase in personnel-related costs mainly driven by an increase in employee headcount as we continue to focus our investments on engineering, product, and design, a \$42.1 million net increase in facilities costs and other administrative expenses, and a \$12.8 million decrease in the capitalization of costs associated with developing software for internal use.

We plan to continue to invest in key areas of our business to ensure that we have an appropriate level of engineering, product management and design personnel and related resources to support our research and development efforts on key priorities.

Sales and Marketing

Sales and marketing expenses consist primarily of personnel-related costs, including salaries, commissions, benefits and stock-based compensation for our employees engaged in sales, sales support, business development and media, marketing, corporate communications and customer service functions. In addition, marketing and sales-related expenses also include advertising costs, market research, trade shows, branding, marketing, public relations costs, amortization of acquired intangible assets, allocated facilities costs, and other supporting overhead costs.

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	% Change	2020	2019	% Change
	(in thousands)			(in thousands)		
Sales and marketing	\$ 215,285	\$ 226,204	(5) %	\$ 643,858	\$ 672,252	(4) %
Sales and marketing as a percentage of revenue	23 %	27 %		27 %	27 %	

In the three months ended September 30, 2020, sales and marketing expenses decreased by \$10.9 million compared to the three months ended September 30, 2019. The decrease was attributable to a \$14.5 million decrease in marketing and sales-related expenses, primarily due to reduced marketing campaigns, customer events, and travel, offset by a \$3.6 million net increase in facilities costs and other administrative expenses.

In the nine months ended September 30, 2020, sales and marketing expenses decreased by \$28.4 million compared to the nine months ended September 30, 2019. The decrease was attributable to a \$60.4 million decrease in marketing and sales-related expenses, primarily due to reduced marketing campaigns and customer events, and travel, offset by a \$32.0 million net increase in facilities costs and other administrative expenses.

We continue to evaluate key areas in our business to ensure we have an appropriate level of sales and marketing expenses to execute on our key priorities and objectives.

General and Administrative

General and administrative expenses consist primarily of personnel-related costs, including salaries, benefits and stock-based compensation, for our executive, finance, legal, information technology, human resources and other administrative employees. In addition, general and administrative expenses include fees and costs for professional services, including consulting, third-party legal and accounting services and facilities costs and other supporting overhead costs that are not allocated to other departments.

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	% Change	2020	2019	% Change
	(in thousands)			(in thousands)		
General and administrative	\$ 94,576	\$ 93,758	1 %	\$ 450,181	\$ 259,173	74 %
General and administrative as a percentage of revenue	10 %	11 %		19 %	11 %	

In the three months ended September 30, 2020, general and administrative expenses increased by \$0.8 million compared to the three months ended September 30, 2019. The increase was attributable to a \$16.5 million increase in personnel-related costs mainly driven by an increase in employee headcount, offset by a net decrease of \$15.7 million in facilities costs and other administrative expenses.

In the nine months ended September 30, 2020, general and administrative expenses increased by \$191.0 million compared to the nine months ended September 30, 2019. The increase was attributable to a \$150.0 million legal accrual related to an ongoing Federal Trade Commission matter recorded in the second quarter of 2020, a \$68.4 million increase in personnel-related costs mainly driven by an increase in employee headcount, and an \$11.3 million increase in professional service fees, offset by a net decrease of \$38.7 million in facilities costs and other administrative expenses.

We plan to continue to invest in general and administrative functions to ensure we have an appropriate level of support for our key objectives.

Interest Expense

Interest expense consists primarily of interest expense incurred in connection with the \$935.0 million principal amount of 0.25% convertible senior notes due in 2019, or the 2019 Notes, which we repaid at maturity in September 2019, the \$954.0 million principal amount of 1.00% convertible senior notes due in 2021, or the 2021 Notes, the \$1.15 billion principal amount of 0.25% convertible senior notes due in 2024, or the 2024 Notes, the \$700.0 million principal amount of 3.875% senior notes due in 2027, or the 2027 Notes, and the \$1.0 billion principal amount of 0.375% convertible senior notes due in 2025, or the 2025 Notes, and interest expense related to finance leases and other financing facilities.

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	% Change	2020	2019	% Change
	(in thousands)			(in thousands)		
Interest expense	\$ 39,614	\$ 36,226	9 %	\$ 112,712	\$ 111,803	1 %

In the three and nine months ended September 30, 2020, interest expense increased by \$3.4 million and \$0.9 million compared to the three and nine months ended September 30, 2019, respectively. The increase was primarily attributable to the issuance of the 2027 Notes in December 2019 and the 2025 Notes in March 2020, offset by our repayment of the 2019 Notes at their maturity in September 2019.

Interest expense in the three and nine months ended September 30, 2020 comprised \$39.5 million and \$112.3 million, respectively, of total interest expense related to the Notes as well as the credit facility, and \$0.1 million and \$0.4 million, respectively, related to finance leases of equipment.

Interest Income

Interest income is generated from our cash equivalents and short-term investments net of the related amortization of premium paid on such investments.

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	% Change	2020	2019	% Change
	(in thousands)			(in thousands)		
Interest income	\$ 17,167	\$ 40,348	(57) %	\$ 75,077	\$ 123,776	(39) %

Interest income decreased by \$23.2 million and \$48.7 million in the three and nine months ended September 30, 2020, respectively, compared to the three and nine months ended September 30, 2019. The decrease was primarily attributable to lower interest rates.

Other Income (Expense), Net

Other income (expense), net, consists primarily of unrealized foreign exchange gains and losses due to re-measurement of monetary assets and liabilities denominated in non-functional currencies and realized foreign exchange gains and losses on foreign exchange transactions, and gains and losses on investments in privately-held companies. We expect our foreign exchange gains and losses will vary depending upon movements in the underlying exchange rates.

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	% Change	2020	2019	% Change
	(in thousands)			(in thousands)		
Other income (expense), net	\$ (3,977)	\$ (504)	689 %	\$ (12,057)	\$ 6,583	(283) %

Other expense, net, increased by \$3.5 million in the three months ended September 30, 2020 compared to the three months ended September 30, 2019. The increase was primarily attributable to less favorable foreign currency exchange impacts from foreign currency-denominated assets and liabilities.

Other expense, net, was \$12.1 million in the nine months ended September 30, 2020 compared to other income, net, of \$6.6 million in the nine months ended September 30, 2019. The change was primarily attributable to impairment charges of \$8.8 million on investments in privately-held companies in the nine months ended September 30, 2020 compared to an \$8.6 million gain net of impairment charge on investments in privately-held companies during the nine months ended September 30, 2019.

Provision (Benefit) for Income Taxes

Our provision (benefit) for income taxes consists of federal and state income taxes in the United States and income taxes in certain foreign jurisdictions. Our tax provision or benefit from income taxes for interim periods has been historically determined using an estimate of our annual effective tax rate, adjusted for discrete items, if any. Under certain circumstances where we are unable to make a reliable estimate of the annual effective tax rate, the accounting standard permits the use of the actual effective tax rate for the year-to-date period. In the third quarter of 2020, we used this approach because we were unable to reasonably estimate our annual effective rate due to the variability of the rate as a result of fluctuations in forecasted income, fluctuations in pre-tax income and loss between quarters, and the effects of being taxed in multiple tax jurisdictions.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in thousands)		(in thousands)	
Provision (benefit) for income taxes	\$ 1,024	\$ 11,241	\$ 1,082,784	\$ (1,114,841)

We recorded a net provision for income taxes of \$1.0 million and \$1.08 billion for the three and nine months ended September 30, 2020, respectively. For the nine months ended September 30, 2020, the net provision for income taxes consisted of a provision for income taxes related to the establishment of a valuation allowance against deferred tax assets of \$1.10 billion of a foreign subsidiary, which was offset by an income tax benefit of \$18.6 million. We recorded a net provision for income taxes of \$11.2 million and a net benefit from income taxes of \$1.11 billion for the three and nine months ended September 30, 2019, respectively. For the nine months ended September 30, 2019, the net benefit from income taxes consisted of income tax benefits from the establishment of deferred tax assets from intra-entity transfers of certain intangible assets of \$1.21 billion, which was offset by income tax provisions of \$92.0 million.

For the three and nine months ended September 30, 2020, the primary difference between the effective tax rate and the federal statutory tax rate relates to the valuation allowance establishment in the three months ended June 30, 2020, the accrual related to the ongoing Federal Trade Commission matter described in Note 14 - Commitments and Contingencies that is not expected to be tax-deductible if and when paid, research and development credits, stock-based compensation, and foreign tax rate differences. For the three and nine months ended September 30, 2019, the primary difference between the effective tax rate and the federal statutory tax rate relates to the deferred tax asset establishment, research and development credits, stock-based compensation, and foreign tax rate differences.

We reassessed the ability to realize deferred tax assets by considering the available positive and negative evidence. As of June 30, 2020, we concluded that the deferred tax assets in a foreign subsidiary are not more-likely-than-not to be realized and recorded a full valuation allowance against such deferred tax assets in the approximate amount of \$1.10 billion. In evaluating the need for a valuation allowance, we considered our recent operating results which resulted in a cumulative taxable loss in a foreign subsidiary for the twelve quarters ended June 30, 2020. The twelve quarters cumulative taxable losses from operations is considered a significant piece of negative evidence and outweighs other positive evidence, such as projections of future income. The twelve quarters cumulative taxable losses and projected near-term losses in the foreign subsidiary are largely driven by the negative impact from the COVID-19 pandemic as it has caused, and may continue to cause, decreased advertiser demand. If there are favorable changes to actual operating results or to projections of future income, we may determine that it is more-likely-than-not such deferred tax assets may be realizable. As of September 30, 2020, there have been no changes to our conclusion.

As of September 30, 2020, we had \$792.4 million of deferred tax assets for which we have not established a valuation allowance, related to the US federal, states other than Massachusetts and California, and international subsidiaries other than Ireland. The \$792.4 million deferred tax asset balance reflects the reduction in net deferred tax assets of \$1.10 billion in the nine months ended September 30, 2020. We completed our reassessment of the ability to realize these assets and concluded that a valuation allowance was not required. Depending on the extent and severity of COVID-19's impact, our forecasted earnings and expectations may change and could result in a material non-cash income tax charge to record additional valuation allowances to further reduce our deferred tax assets to the net amount we believe is more-likely-than-not to be realized.

On June 7, 2019, the Ninth Circuit Court of Appeals issued a new opinion in the case of Altera Corp. v. Commissioner, which upheld Department of Treasury regulations which require related parties in an intercompany cost-sharing arrangement to share expenses related to stock-based compensation. We have prepared the consolidated financial statements consistent with this opinion. In February 2020, Altera Corp. filed a petition to appeal the decision with the Supreme Court of the United States. On June 22, 2020, the Supreme Court denied the petition. We have considered the impact of the Supreme Court's denial and there were no material impacts to our consolidated financial statements as of September 30, 2020. Subsequent to September 30, 2020 but prior to the filing of this Form 10-Q, we filed our 2019 US Federal Tax Return and included certain adjustments related to the decision of the Ninth Circuit Court of Appeals in the case of Altera Corp. v. Commissioner for which we previously recognized a reserve. As a result, our unrecognized tax benefits will decrease by \$91.9 million with no impact to the effective tax rate in the fourth quarter of 2020.

Our effective tax rate could be affected by our jurisdictional mix of income (loss) before taxes, including our allocation of centrally incurred costs to foreign jurisdictions, changes in tax rates and tax regulations, the impact of tax examinations, the impact of business combinations, changes in our corporate structure, changes in the geographic location of business functions or assets, tax effects of stock-based compensation, and changes in management's assessment of the ability to realize deferred tax assets. In addition, the provision is impacted by deferred income taxes reflecting the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes.

Liquidity and Capital Resources

	Nine Months Ended September 30,	
	2020	2019
	(in thousands)	
Net income (loss)	\$ (1,357,742)	\$ 1,346,886
Net cash provided by operating activities	\$ 662,570	\$ 1,026,185
Net cash used in investing activities	\$ (1,232,889)	\$ (69,462)
Net cash provided by (used in) financing activities	\$ 981,270	\$ (979,360)

Our principal sources of liquidity are our cash, cash equivalents, and short-term investments in marketable securities. Our cash equivalents and marketable securities are invested primarily in short-term fixed income securities, including government and investment-grade debt securities and money market funds. In March 2020, we also received net proceeds of approximately \$985.3 million from the issuance of the 2025 Notes, after deducting the debt issuance costs.

In March 2020, our Board of Directors authorized a program to repurchase up to \$2.0 billion of our common stock over time. Repurchases may be made from time to time through open market purchases or through privately negotiated transactions subject to market conditions, applicable legal requirements and other relevant factors. The repurchase program does not obligate us to acquire any particular amount of our common stock and may be suspended at any time at our discretion. As of September 30, 2020, no shares have been repurchased under this program.

As of September 30, 2020, we had \$7.68 billion of cash, cash equivalents and short-term investments in marketable securities, of which \$209.5 million was held by our foreign subsidiaries. We do not plan to indefinitely reinvest these funds held by our foreign subsidiaries and have accrued the incremental taxes due as part of repatriation. While the global disruptions caused by the COVID-19 pandemic are currently expected to be temporary, there is uncertainty around its extent and duration. Our liquidity and working capital needs could be negatively impacted. We believe that our existing cash, cash equivalents and short-term investment balances, and our credit facility, together with cash generated from operations will be sufficient to meet our working capital and capital expenditure requirements for at least the next 12 months despite the uncertainty related to the COVID-19 pandemic.

Credit Facility

We have a revolving credit agreement with certain lenders which provides for a \$500.0 million revolving unsecured credit facility maturing on August 7, 2023. We are obligated to pay interest on loans under the credit facility and other customary fees for a credit facility of this size and type, including an upfront fee and an unused commitment fee. The interest rate for the credit facility is determined based on calculations using certain market rates as set forth in the credit agreement. In addition, the credit facility contains restrictions on payments including cash payments of dividends. As of September 30, 2020, no amounts had been drawn under the credit facility.

Operating Activities

Cash provided by operating activities consists of net income (loss) adjusted for certain non-cash items including depreciation and amortization, stock-based compensation, amortization of discount on our Notes, deferred income taxes, impairment of investments in privately-held companies, non-cash restructuring charges, as well as the effect of changes in working capital and other activities. We expect that cash provided by operating activities will fluctuate in future periods as a result of a number of factors, including fluctuations in our revenue, increases in operating expenses and costs related to acquisitions. For additional discussion, see "Part II—Other Information, Item 1A. Risk Factors."

Cash provided by operating activities in the nine months ended September 30, 2020 was \$662.6 million, a decrease in cash inflow of \$363.6 million compared to the nine months ended September 30, 2019. Cash provided by operating activities was driven by a net loss of \$1.36 billion, as adjusted for the exclusion of non-cash expenses and other adjustments totaling \$1.87 billion, of which \$1.10 billion was due to a provision for income taxes related to the establishment of a valuation allowance against deferred tax assets, \$366.5 million was related to depreciation and amortization expense, and \$346.7 million was related to stock-based compensation expense, and the effect of changes in working capital and other carrying balances that resulted in cash inflows of \$145.4 million.

Cash provided by operating activities in the nine months ended September 30, 2019 was \$1.03 billion. Cash provided by operating activities was driven by net income of \$1.35 billion, as adjusted for the exclusion of non-cash expenses and other adjustments totaling \$431.5 million, of which \$1.14 billion was due to a benefit from income taxes related to the establishment of deferred tax assets from intra-entity transfers of intangible assets, \$349.1 million was related to depreciation and amortization expense, and \$276.7 million was related to stock-based compensation expense, and the effect of changes in working capital and other carrying balances that resulted in cash inflows of \$110.8 million.

Investing Activities

Our primary investing activities consist of purchases of property and equipment, particularly purchases of servers and networking equipment, leasehold improvements for our facilities, purchases and disposal of marketable securities, strategic investments in privately-held companies, acquisitions of businesses and other activities.

Cash used in investing activities in the nine months ended September 30, 2020 was \$1.23 billion, an increase in cash outflow of \$1.16 billion compared to the nine months ended September 30, 2019. The increase was primarily due to a \$1.16 billion increase in purchases of marketable securities, a \$585.0 million decrease in proceeds from maturities of marketable securities, a \$188.8 million increase in purchases of property and equipment, a \$14.0 million increase in cash used in business combinations, and \$11.0 million of cash used in other investing activities in the nine months ended September 30, 2020 compared to \$2.3 million of cash generated from other investing activities in the nine months ended September 30, 2019, offset by a \$752.1 million increase in proceeds from sales of marketable securities, a \$47.3 million decrease in purchases of investments in privately-held companies, and a \$1.5 million increase in proceeds from sales of property and equipment. We expect capital expenditures to remain over \$250.0 million in the fourth quarter of 2020 as a result of our ongoing data center build-out.

Financing Activities

Our primary financing activities consist of issuance of securities, including common stock issued under our employee stock purchase plan, repayment of convertible notes, payments of finance lease obligations, and stock option exercises by employees and other service providers.

Cash provided by financing activities in the nine months ended September 30, 2020 was \$981.3 million, compared to \$979.4 million cash used in financing activities in the nine months ended September 30, 2019. The change was primarily due to \$985.3 million of net proceeds from the issuance of the 2025 Notes net of issuance costs in the nine months ended September 30, 2020, a \$935.0 million repayment of convertible notes in the nine months ended September 30, 2019, a \$33.1 million decrease in payments of finance lease obligations, and a \$9.2 million increase in proceeds from the issuance of shares of stock from the ESPP, offset by a \$1.6 million increase in tax payments related to net share settlements of equity awards and a \$0.3 million decrease in proceeds from option exercises.

Contractual Obligations

Our principal commitments consist of obligations under the Notes (including principal and coupon interest), finance and operating leases for equipment, office space and co-located data center facilities, as well as non-cancellable contractual commitments. Refer to Note 14 – Commitments and Contingencies for more details.

Off Balance Sheet Arrangements

We do not have any off-balance sheet arrangements and did not have any such arrangements as of September 30, 2020.

Critical Accounting Policies and Estimates

We prepare our consolidated financial statements and related notes in accordance with GAAP. In doing so, we make estimates and assumptions that affect our reported amounts of assets, liabilities, revenue and expenses, as well as related disclosure of contingent assets and liabilities. To the extent that there are material differences between these estimates and actual results, our financial condition or operating results would be affected. We base our estimates on past experience and other assumptions that we believe are reasonable under the circumstances, and we evaluate these estimates on an ongoing basis. We refer to accounting estimates of this type as critical accounting policies and estimates. Please refer to “Management’s Discussion and Analysis of Financial Condition and Results of Operations” contained in Part II, Item 7 of our Annual Report on Form 10-K for the fiscal year ended December 31, 2019 for a more complete discussion of our critical accounting policies and estimates.

There have been no material changes to our critical accounting policies and estimates as compared to the critical accounting policies and estimates described in our Annual Report on Form 10-K for the fiscal year ended December 31, 2019.

Recent Accounting Pronouncements

For information with respect to recent accounting pronouncements and the impact of these pronouncements on our consolidated financial statements, see Note 1 – “Description of Business and Summary of Significant Accounting Policies” in the notes to the consolidated financial statements included in Part I of this Quarterly Report on Form 10-Q.

Item 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We have operations both within the United States and internationally, and we are exposed to market risks in the ordinary course of our business. These risks include primarily interest rate and foreign exchange risks.

Interest Rate Fluctuation Risk

Our investment portfolio mainly consists of short-term fixed-income securities, including government and investment-grade debt securities and money market funds. These securities are classified as available-for-sale and, consequently, are recorded in the consolidated balance sheets at fair value with unrealized gains or losses, net of tax reported as a separate component of accumulated other comprehensive loss. Our investment policy and strategy is focused on the preservation of capital and supporting our liquidity requirements. We do not enter into investments for trading or speculative purposes. We continue to monitor the liquidity of our investments in light of the COVID-19 pandemic. Given the uncertainty surrounding the severity and duration of the COVID-19 pandemic, we could incur future unrealized losses on available-for-sale debt securities that are attributable to credit risk.

A rise in interest rates could have a material adverse impact on the fair value of our investment portfolio. Based on our investment portfolio balance as of September 30, 2020, a hypothetical increase in interest rates of 100 basis points would result in a decrease of approximately \$49.7 million in the fair value of our available-for-sale securities. We currently do not hedge these interest rate exposures.

As of September 30, 2020, we had \$3.10 billion aggregate principal amount of Convertible Notes outstanding and \$700.0 million aggregate principal amount of 2027 Notes outstanding. We carry the Notes at face value less amortized discount on the consolidated balance sheet. Since the Notes bear interest at fixed rates, we have no financial statement risk associated with changes in interest rates. However, the fair value of the Notes changes when the market price of our stock fluctuates or interest rates change.

Foreign Currency Exchange Risk

Transaction Exposure

We transact business in various foreign currencies and have international revenue, as well as costs denominated in foreign currencies, primarily the Euro, British Pound, Singapore Dollar and Japanese Yen. This exposes us to the risk of fluctuations in foreign currency exchange rates. Accordingly, changes in exchange rates, and in particular a continuing strengthening of the U.S. dollar, would negatively affect our revenue and other operating results as expressed in U.S. dollars.

We have experienced and will continue to experience fluctuations in our net income (loss) as a result of transaction gains or losses related to revaluing and ultimately settling certain asset and liability balances that are denominated in currencies other than the functional currency of the entities in which they are recorded. Foreign currency gains were immaterial for the three and nine months ended September 30, 2020 and 2019. We currently utilize foreign currency forward contracts with financial institutions to reduce the risk that our earnings may be adversely affected by the impact of exchange rate fluctuations on monetary assets or liabilities denominated in currencies other than the local currency of a subsidiary. These contracts are not designated as hedging instruments. We may in the future enter into other derivative financial instruments if it is determined that such hedging activities are appropriate to further reduce our foreign currency exchange risk. Based on our foreign currency exposures from monetary assets and liabilities net of our open hedge position, we estimated that a 10% change in exchange rates against the U.S. dollar would have resulted in a gain or loss of approximately \$17.4 million as of September 30, 2020.

Translation Exposure

We are also exposed to foreign exchange rate fluctuations as we translate the financial statements of our foreign subsidiaries into U.S. dollars in consolidation. If there is a change in foreign currency exchange rates, the translating adjustments resulting from the conversion of our foreign subsidiaries' financial statements into U.S. dollars would result in a gain or loss recorded as a component of accumulated other comprehensive loss which is part of stockholders' equity.

Item 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures as of the end of the period covered by this Quarterly Report on Form 10-Q. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. The design of disclosure controls and procedures and internal control over financial reporting must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of September 30, 2020, our disclosure controls and procedures were designed at a reasonable assurance level and were effective to provide reasonable assurance.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) or 15d-15(d) of the Exchange Act that occurred during the period covered by this Quarterly Report on Form 10-Q that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II – OTHER INFORMATION

Item 1. LEGAL PROCEEDINGS

We are currently involved in, and may in the future be involved in, legal proceedings, claims, investigations, and government inquiries and investigations arising in the ordinary course of business. These proceedings, which include both individual and class action litigation and administrative proceedings, have included, but are not limited to matters involving content on the platform, intellectual property, privacy, data protection, consumer protection, securities, employment, and contractual rights. Legal risk may be enhanced in jurisdictions outside the United States where our protection from liability for content published on our platform by third parties may be unclear and where we may be less protected under local laws than we are in the United States. Future litigation may be necessary, among other things, to defend ourselves, and the people on Twitter or to establish our rights. For information regarding legal proceedings in which we are involved, see “Legal Proceedings” in Note 14 of the accompanying notes to our consolidated financial statements, which is incorporated herein by reference.

Although the results of the legal proceedings, claims, investigations, and government inquiries and investigations in which we are involved cannot be predicted with certainty, we do not believe that there is a reasonable possibility that the final outcome of these matters will have a material adverse effect on our business, financial condition, operating results, or prospects. However, the final results of any current or future proceeding cannot be predicted with certainty, and until there is final resolution on any such matter that we may be required to accrue for, we may be exposed to loss in excess of the amount accrued. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources, and other factors.

Item 1A. RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described below, together with all of the other information in this Quarterly Report on Form 10-Q, including the section titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our consolidated financial statements and related notes, before making a decision to invest in our common stock. The risks and uncertainties described below may not be the only ones we face. If any of the risks actually occurs, our business, financial condition, operating results, cash flows and prospects could be materially and adversely affected. In that event, the market price of our common stock could decline, and you could lose part or all of your investment.

Risks Related to Our Business and Our Industry

The COVID-19 pandemic has disrupted and harmed, and is expected to continue to disrupt and harm, our business, financial condition and operating results. We are unable to predict the extent to which the pandemic and related impacts will continue to adversely impact our business, financial condition and operating results and the achievement of our strategic objectives.

Our business, operations and financial performance have been, and are expected to continue to be, negatively impacted by the COVID-19 pandemic and related public health responses, such as travel bans, restrictions, social distancing requirements and shelter-in-place orders. The pandemic and these related responses have caused, and are expected to continue to cause, decreased advertiser demand for our platform, global slowdown of economic activity (including the decrease in demand for a broad variety of goods and services) and significant volatility and disruption of financial markets.

The COVID-19 pandemic has subjected our operations, financial performance and financial condition to a number of risks, including, but not limited to, those discussed below:

- Declines in advertiser demand due to changes or uncertainty in the business operations and revenue of our advertisers because of the COVID-19 pandemic, including as a result of travel restrictions and declines in travel impacting the travel and hospitality industries, shelter-in-place orders and social distancing requirements impacting small and medium sized businesses and the sports and entertainment industries, and general economic uncertainty causing a number of businesses to cut costs or otherwise reduce advertising spend or focus advertising spend more on other platforms. As a result of the COVID-19 pandemic, we experienced a reduction in advertiser demand in the month of March and the second quarter of 2020 compared to the same period in 2019. In the third quarter of 2020, revenue increased compared to the same period in 2019 as advertisers increased their investment on Twitter, engaging our larger audience around the return of events as well as increased and previously delayed product launches. However, we may experience reduced advertiser demand and decreased advertising revenue in future quarters due to the ongoing and potential future impacts of the COVID-19 pandemic.
- Postponements, suspensions or cancellations of major events, such as sporting events and music festivals, may lead to people perceiving the content on Twitter as less relevant or useful or of lower quality, which could negatively affect mDAU growth, or may reduce monetization opportunities in connection with such events.

- Delays in payments or defaults by our customers or partners or if customers or partners terminate their relationships with us or do not renew their agreements on economic or other terms that are favorable to us.
- The responsive measures to the COVID-19 pandemic have caused us to modify our business practices by having employees work remotely, canceling all non-essential employee travel, and cancelling, postponing or holding virtual events and meetings. We may in the future be required to, or choose voluntarily to, take additional actions for the health and safety of our workforce, whether in response to government orders or based on our own determinations of what is in the best interests of our employees. While most of our operations can be performed remotely, there is no guarantee that we will be as effective while working remotely because our team is dispersed, many employees may have additional personal needs to attend to (such as looking after children as a result of school closures or family who become sick), and employees may become sick themselves and be unable to work. To the extent our current or future measures result in decreased productivity, harm our company culture or otherwise negatively affect our business, our financial condition and operating results could be adversely affected.

The severity, magnitude and duration of the COVID-19 pandemic, the public health responses and its economic consequences are uncertain, rapidly changing and difficult to predict. The pandemic's impact on our operations and financial performance, as well as its impact on our ability to successfully execute our business strategies and initiatives, also remain uncertain and difficult to predict. Further, the ultimate impact of the COVID-19 pandemic on people on Twitter, advertisers, employees, and on our business, operations and financial performance, depends on many factors that are not within our control, including, but not limited to: governmental, business and individuals' actions that have been and continue to be taken in response to the pandemic (including restrictions on travel and transport, prohibitions on, or voluntary cancellation of, large gatherings of people and social distancing requirements, and modified workplace activities); the impact of the pandemic and actions taken in response local or regional economies, travel, and economic activity; the availability of government funding programs; general economic uncertainty in key markets and financial market volatility, including the liquidity of marketable securities in which we may invest from time to time; volatility in our stock price, global economic conditions and levels of economic growth; and the pace of recovery when the COVID-19 pandemic subsides. While the spread of COVID-19 may eventually be contained or mitigated, there is no guarantee that future outbreaks of this or other widespread pandemics will not occur, or that the global economy will fully recover, either of which could seriously harm our business.

If we fail to increase our mDAU, ad engagement or other general engagement on our platform, our revenue, business and operating results may be harmed.

Our mDAU and their level of engagement with advertising are critical to our success and our long-term financial performance will continue to be significantly determined by our success in increasing the growth rate of our mDAU as well as the number of ad engagements. Our mDAU growth rate has fluctuated over time, and it may slow or decline. To the extent our mDAU growth rate slows or the absolute number of mDAU declines, our revenue growth will become dependent on our ability to increase levels of engagement on Twitter and increase revenue growth from third-party publishers' websites and applications, data licensing and other offerings. We generate a substantial majority of our revenue based upon engagement with the ads that we display. A number of factors have affected and could potentially negatively affect mDAU growth and engagement, including if:

- accounts, including influential accounts, such as those of world leaders, government officials, celebrities, athletes, journalists, sports teams, media outlets and brands or certain age demographics, do not contribute unique or engaging content, including as a result of the postponement, suspension or cancellation of major events in light of the COVID-19 pandemic, such as the postponement or suspension of major sports leagues or the 2020 Summer Olympics, or engage with other products, services or activities as an alternative to ours;
- we are unable to convince people of the value and usefulness of our products and services;
- there is a decrease in the perceived quality, usefulness, trustworthiness or relevance of the content generated by people on Twitter or content partners;
- our actions taken to better foster a healthy conversation or to improve relevancy negatively impact or are perceived to negatively impact people's experiences on the platform;
- there are concerns related to communication, privacy, data protection, safety, security, spam, manipulation or other hostile or inappropriate usage or other factors, or our health efforts result in the removal of certain accounts;
- there are concerns related to the security breach in July 2020 whereby attackers gained control of certain highly-visible accounts;
- our content partners terminate their relationships with us or do not renew their agreements on economic or other terms that are favorable to us;
- we fail to introduce new and improved products or services or if we introduce new or improved products or services that are not favorably received or that negatively affect engagement;
- technical or other problems prevent us from delivering our products or services in a rapid and reliable manner or otherwise affect people's experiences on Twitter;

- people have difficulty installing, updating, or otherwise accessing our products or services on mobile devices as a result of actions by us or third parties that we rely on to distribute our products and deliver our services;
- changes in our products or services that are mandated by, or that we elect to make to address, laws (such as the General Data Protection Regulation (GDPR)) or legislation, inquiries from legislative bodies, regulatory authorities or litigation (including settlements or consent decrees) adversely affect our products or services;
- we fail to provide adequate customer service; or
- we do not maintain our brand image or reputation.

If we are unable to increase our mDAU or engagement, or if these metrics decline, our products and services could be less attractive to people on Twitter, as well as to advertisers, content partners and platform partners, which would have a material and adverse impact on our business, financial condition and operating results.

We generate the substantial majority of our revenue from advertising. The loss of advertising revenue could harm our business.

The substantial majority of our revenue is currently generated from third parties advertising on Twitter. We generate substantially all of our advertising revenue through the sale of our Promoted Products: Promoted Tweets, Promoted Accounts and Promoted Trends. As is common in our industry, our advertisers do not have long-term advertising commitments with us. As a result of the COVID-19 pandemic, we experienced a reduction in advertiser demand in the month of March and the second quarter of 2020 compared to the same period in 2019. In the third quarter of 2020, revenue increased compared to the same period in 2019 as advertisers increased their investment on Twitter, engaging our larger audience around the return of events as well as increased and previously delayed product launches. However, we may experience reduced advertiser demand and decreased advertising revenue in future quarters due to the ongoing and potential future impacts of the COVID-19 pandemic.

In addition, many of our advertisers purchase our advertising services through one of several large advertising agencies' holding companies. To sustain or increase our revenue, we must add new advertisers and encourage existing advertisers to maintain or increase the amount of advertising inventory purchased through our platform and adopt new features and functionalities that we add to our platform. However, advertising agencies and potential new advertisers may view our Promoted Products or any new products or services we offer as experimental and unproven, and we may need to devote additional time and resources to educate them about our products and services. Further, our advertisers' ability to effectively target their advertising to our audience's interests may be impacted by the degree to which people on Twitter agree in our settings to certain types of personalization or ad targeting, which could have an impact on our revenue. People that already have accounts may change their choices as a result of changes to our privacy control settings that we have implemented or may implement in the future, and people new to Twitter may choose varied levels of personalization, whether in connection with future changes we make to product privacy settings, regulations, regulatory actions, the customer experience, or otherwise. Changes to operating systems' practices and policies, such as Apple's iOS updates that may impose heightened restrictions related to Apple device identifiers, may also reduce the quantity and quality of the data and metrics that can be collected or used by us and our partners. These limitations may adversely affect Twitter's and our advertisers' ability to effectively target advertisements and measure their performance, which could reduce the demand and pricing for our advertising products and harm our business. Over time, personalization rates will impact our ability to grow our performance advertising business. Advertisers also may choose to use our free products and services instead of our Promoted Products. Advertisers will not continue to do business with us, or they will reduce the prices they are willing to pay to advertise with us, if we do not deliver ads in an effective manner, or if they do not believe that their investment in advertising with us will generate a competitive return on investment relative to alternatives, including online, mobile and traditional advertising platforms. In addition, competition for advertising is becoming increasingly more intense and our advertising revenue could be further impacted by escalating competition for digital ad spending.

Our advertising revenue growth is primarily driven by increases in mDAU, increases in ad pricing or number of ads shown and increases in our clickthrough rate. Although we experienced increased mDAU and ad engagement growth since the start of the COVID-19 pandemic, we experienced a decline in revenue in the month of March and the second quarter of 2020 compared to the same period in 2019 due to a reduction in advertiser demand on our platform. In the third quarter of 2020, revenue increased compared to the same period in 2019 as advertisers increased their investment on Twitter. To date, however, our available advertising inventory has been greater than demand. Our future revenue growth, however, may be limited by available advertising inventory for specific ad types on certain days if we do not increase our mDAU or monetize our larger global audience. Our advertising revenue also could be affected by a number of other factors, including advertiser reaction to content published on our platform or our policies and responses thereto, bugs or other product issues that may impact our ability to effectively help advertisers target ads or share data with our measurement and ad partners. The occurrence of any of these factors could result in a reduction in demand for our ads, which may reduce the prices we receive for our ads, either of which would adversely impact our revenue, business, financial condition and operating results.

We cannot be certain of the extent of the global slowdown of economic activity, including the decrease in demand for a broad variety of goods and services (including advertiser demand for our platform), or the pace of recovery when the COVID-19 pandemic subsides.

If we are unable to compete effectively, our business and operating results could be harmed.

We face intense competition for people to use our platform, content and data partners and advertising spend. We compete for our audience against a variety of social networking platforms, messaging companies and media companies, some of which have greater financial resources, larger audiences or more established relationships with advertisers, such as Facebook (including Instagram and WhatsApp), Alphabet (including Google and YouTube), Microsoft (including LinkedIn), Snap, TikTok, and Verizon Media Group, or in certain regions WeChat, Kakao and Line. New or existing competitors may draw people towards their products or services and away from ours by introducing new product features, including features similar to those we offer, investing their greater resources in audience acquisition efforts, or otherwise developing products or services that audiences choose to engage with rather than Twitter, any of which could decrease mDAU growth or engagement and negatively affect our business.

We also compete with respect to content generated by our content partners and the availability of applications developed by platform partners. We may not establish and maintain relationships with content partners who publish on our platform or platform partners who develop applications that integrate with our platform. Our content and platform partners may choose to publish content on, or develop applications for, other platforms, and if they cease to utilize our platform or decrease their use of our platform, then mDAU, engagement, and advertising revenue may decline.

We believe that our ability to compete effectively for audiences and content partners depends upon many factors both within and beyond our control, including:

- the popularity, usefulness, ease of use, performance and reliability of our products and services compared to those of our competitors, as well as our reputation and brand, and our ability to adapt to continuously evolving preferences and expectations of people on Twitter, advertisers, content partners, platform partners and developers;
- the amount, quality and timeliness of content generated on our platform, including the relative mix of ads;
- the timing and market acceptance of our products and services;
- the prominence of our applications in application marketplaces and of our content in search engine results, as well as those of our competitors;
- our ability, in and of itself, and in comparison to the ability of our competitors, to develop new products and services and enhancements to existing products and services, and to maintain the reliability and security of our products and services as usage increases globally;
- our ability, and our ability in comparison to the ability of our competitors, to manage our business and operations during the COVID-19 pandemic and related governmental, business and individual actions that have been and continue to be taken in response to the pandemic (including restrictions on travel and modified workplace activities);
- concerns related to the security breach in July 2020 whereby attackers gained control of certain highly-visible accounts;
- changes mandated by, or that we elect to make to address legislation, regulatory authorities or litigation, including settlements, antitrust matters, consent decrees and privacy regulations, some of which may have a disproportionate effect on us compared to our competitors; and
- the continued adoption and monetization of our products and services internationally.

We also face significant competition for advertiser spend. We compete against online and mobile businesses and traditional media outlets, such as television, radio and print, for advertising budgets. We also compete with advertising networks, exchanges, demand side platforms and other platforms, such as Google AdSense, DoubleClick Ad Exchange, Nexage and Brightroll Ad Exchanges, Verizon Media Group, and Microsoft Media Network, for marketing budgets and in the development of the tools and systems for managing and optimizing advertising campaigns. In order to grow our revenue and improve our operating results, we must increase our share of spending on advertising relative to our competitors, many of which are larger companies that offer more traditional and widely accepted advertising products. In addition, some of our larger competitors have substantially broader product or service offerings and leverage their relationships based on other products or services to gain additional share of advertising budgets.

We believe that our ability to compete effectively for advertiser spend depends upon many factors both within and beyond our control, including:

- the size and composition of our audience relative to those of our competitors;
- our ad targeting and measurement capabilities, and those of our competitors;
- the timing and market acceptance of our advertising services, and those of our competitors, including our ability to demonstrate to advertisers the value of our advertising services, particularly during the periods in which they are determining their budgets, which may be annually or biannually;
- our marketing and selling efforts, and those of our competitors;
- our ability, and our ability in comparison to the ability of our competitors, to manage our business and operations during the COVID-19 pandemic;
- the pricing of our advertising services, including the actual or perceived return our advertisers receive from our advertising services, and those of our competitors; and
- our reputation and the strength of our brand relative to our competitors, including advertisers' perception of the health and safety of our platform and concerns related to the security breach in July 2020 whereby attackers gained control of certain highly-visible accounts.

Additionally, in recent years, there have been significant acquisitions and consolidation by and among our actual and potential competitors. We anticipate this trend of consolidation will continue, which will present heightened competitive challenges for our business. Acquisitions by our competitors may result in reduced functionality of our products and services. For example, following Facebook's acquisition of Instagram, Facebook disabled Instagram's photo integration with Twitter such that Instagram photos were no longer viewable within Tweets and people are instead re-directed to Instagram to view Instagram photos through a link within a Tweet. As a result, people who use Twitter may be less likely to click on links to Instagram photos in Tweets, and people who use Instagram may be less likely to Tweet or remain active on Twitter. Any similar elimination of integration with Twitter in the future, whether by Facebook or others, may adversely impact our business and operating results. Consolidation may also enable our larger competitors to offer bundled or integrated products that feature alternatives to our platform and provide alternative opportunities for advertisers.

If we are not able to compete effectively for audience, content and platform partners, and advertiser spend, our mDAU and engagement would decline and our business and operating results would be materially and adversely impacted.

Our prioritization on the long-term health of our service, and on product innovation may adversely impact our short-term operating results.

We believe that our long-term success depends on our ability to improve the health of the public conversation on Twitter. We have made this one of our top priorities and have focused our efforts on improving the quality of that conversation, including by devoting substantial internal resources to our strategy. These efforts include the reduction of abuse, harassment, spam, manipulation and malicious automation on the platform, as well as a focus on improving information quality, including information around the 2020 U.S. elections, and the health of conversation on Twitter. Some of the health initiatives that we have implemented as part of our ongoing commitment to a healthy public conversation have negatively impacted, and may in the future negatively impact, our publicly reported metrics in a few ways.

First, our health efforts include the removal of accounts pursuant to our terms and services that are abusive, spammy, fake or malicious, and these accounts may have been included in our mDAU, as well as actions taken to detect and challenge potentially automated, spammy, or malicious accounts during the sign-up process. For example, in the third and fourth quarters of 2018, year-over-year average mDAU growth was impacted by ongoing health efforts, both due to how we resourced and prioritized our work and the impact from ongoing success removing spammy and suspicious accounts.

Second, we are also making active decisions to prioritize health related initiatives over other near-term product improvements that may drive more usage of Twitter as a daily utility. These decisions may not be consistent with the short-term expectations of our advertising customers or investors and may not produce the long-term benefits that we expect, in which case our mDAU growth and engagement, our relationships with advertisers and our business and operating results could be harmed.

We also encourage employees to quickly develop and help us launch new and innovative features. We focus on improving the experience for people using our products and services, which includes protecting the privacy of people on Twitter, and on developing new and improved products and services for the advertisers on our platform. We prioritize innovation and the experience for people on Twitter and advertisers on our platform over short-term operating results. We frequently make product, product feature and service decisions that may reduce our short-term operating results if we believe that the decisions are consistent with our goals to improve the experience for people on Twitter and performance for advertisers, which we believe will improve our operating results over the long term. Our decisions to invest in the long-term health of our service and on product innovation rather than short-term results may not produce the long-term benefits that we expect, in which case our mDAU growth and engagement, our relationships with advertisers and our business and operating results would be adversely impacted, and may not be consistent with the expectations of investors, which could have a negative effect on the trading price of our common stock.

We depend on highly skilled personnel to grow and operate our business. If we are unable to hire, retain and motivate our personnel, we may not be able to grow effectively.

Our future success and strategy will depend upon our continued ability to identify, hire, develop, motivate and retain highly skilled personnel, including senior management, engineers, designers and product managers. We depend on contributions from our employees, and, in particular, our senior management team, to execute efficiently and effectively. We do not have employment agreements other than offer letters with any member of our senior management or other key employees, and we do not maintain key person life insurance for any employee. We also face significant competition for employees, particularly in the San Francisco Bay Area (where our headquarters is located) and other key markets, for engineers, designers and product managers from other Internet and high-growth companies, which include both publicly-traded and privately-held companies. As a result, we may not be able to retain our existing employees or hire new employees quickly enough to meet our needs.

From time to time, we have also experienced high voluntary attrition, and in those times, the resulting influx of new leaders and other employees has required us to expend time, attention and resources to recruit and retain talent, restructure parts of our organization, and train and integrate new employees. In addition, to attract and retain skilled personnel, we have had to offer, and believe we will need to continue to offer, highly competitive compensation packages. We may need to invest significant amounts of cash and equity to attract and retain new employees and we may not realize sufficient return on these investments. In addition, changes to U.S. immigration and work authorization laws and regulations can be significantly affected by political forces and levels of economic activity. Our business may be materially and adversely affected if legislative or administrative changes to immigration or visa laws and regulations impair our hiring processes or projects involving personnel who are not citizens of the country where the work is to be performed. If we are not able to effectively attract and retain employees, we may not be able to innovate or execute quickly on our strategy and our ability to achieve our strategic objectives will be adversely impacted, and our business will be harmed.

We also believe that our culture and core values have been, and will continue to be, a key contributor to our success and our ability to foster the innovation, creativity and teamwork we believe we need to support our operations. We recently announced that employees will be able to work from home permanently if they so desire and we expect that we will continue to hire employees that are not located where we have offices or will work from home. If we fail to effectively manage our hiring needs and successfully integrate our new hires, our efficiency and ability to meet our forecasts and our culture, employee morale, productivity and retention could suffer, and our business and operating results would be adversely impacted.

Our products, mDAU growth, and engagement depend upon the availability of a variety of third-party services and systems and the effective interoperation with operating systems, networks, devices, web browsers and standards. We do not control all of these systems and cannot guarantee their availability, and we cannot guarantee that third parties will not take action that harm our products or profitability.

One of the reasons people come to Twitter every day is for real-time information, and our products and the success of our business is dependent upon the ability of people to access the Internet and the proper functioning of the various operating systems, platforms, and services upon which we rely. These systems are provided and controlled by factors outside of our control, including nation-state actors who may suppress or censor our products, and broadband and Internet access marketplace, including incumbent telephone companies, cable companies, mobile communications companies, government-owned service providers, device manufacturers and operating system providers. Any of these actors could take actions that degrade, disrupt or increase the cost of access to our products or services, which would, in turn, negatively impact our business. The adoption or repeal of any laws or regulations that adversely affect the growth, popularity or use of the Internet, including laws or practices limiting Internet neutrality, could decrease the demand for, or the usage of, our products and services, increase our cost of doing business and adversely affect our operating results. For example, access to Twitter is blocked in China and has been intermittently blocked in Turkey in the past.

We also rely on other companies to maintain reliable network systems that provide adequate speed, data capacity and security. We utilize third-party cloud computing services in connection with certain aspects of our business and operations, and any disruption of, or interference with, our use of such cloud services could adversely impact our business and operations. As the Internet continues to experience growth in the number of consumers, frequency of use and amount of data transmitted, the Internet infrastructure that we rely on may be unable to support the demands placed upon it. The failure of the Internet infrastructure that we rely on, even for a short period of time, could undermine our operations and harm our operating results.

Furthermore, these systems, devices or software or services may experience changes, bugs or technical issues, that may affect the availability of services or the accessibility of our products. We have experienced, and may in the future experience, service disruptions, outages and other performance problems due to a variety of factors, including infrastructure changes, human or software errors, hardware failure, capacity constraints due to an overwhelming number of people accessing our products and services simultaneously, computer viruses and denial of service or fraud or security attacks. In the past, we have experienced brief service outages during which Twitter.com and Twitter mobile clients were inaccessible as a result, in part, of software misconfigurations. Additionally, although we are investing significantly to improve the capacity, capability and reliability of our infrastructure, we are not currently serving traffic equally through our co-located data centers that support our platform. Accordingly, in the event of a significant issue at the data center supporting most of our network traffic, some of our products and services may become inaccessible to the public or the public may experience difficulties accessing our products and services. Any disruption or failure in our infrastructure could hinder our ability to handle existing or increased traffic on our platform, which could significantly harm our business.

The availability of these services are also dependent upon our relationships with third parties, which may change, including if they change their terms of service or policies that diminish the functionality of our products and services, make it difficult for people to access our content, limit our ability to target or measure the effectiveness of ads, impose fees related to our products or services or give preferential treatment to competitive products or services could adversely affect usage of our products and services. Additionally, some of our mobile carriers have experienced infrastructure issues due to natural disasters, which have caused deliverability errors or poor quality communications with our products. Because a majority of people on Twitter access our products and services through mobile devices, we are particularly dependent on the interoperability of our products and services with mobile devices and operating systems in order to deliver our products and services. We also may not be successful in developing relationships with key participants in the mobile industry or in developing products or services that operate effectively with these operating systems, networks, devices, web browsers and standards. Further, if the number of platforms for which we develop our product expands, it will result in an increase in our operating expenses. In order to deliver high quality products and services, it is important that our products and services work well with a range of operating systems, networks, devices, web browsers and standards that we do not control. Any such errors, regardless of whether caused by our infrastructure or that of the service provider, may result in the loss of our existing accounts or may make it difficult to attract new people to Twitter. In the event that it is difficult for people to access and use our products and services, particularly on their mobile devices, our mDAU growth and engagement could be harmed, and our business and operating results could be adversely impacted.

Our new products, product features, services and initiatives and changes to existing products, services and initiatives could fail to attract new people to Twitter, content partners, advertisers and platform partners or generate revenue.

Our industry is subject to rapid and frequent changes in technology, evolving customer needs and the frequent introduction by our competitors of new and enhanced offerings. We must constantly assess the playing field and determine whether we need to improve or re-allocate resources amongst our existing products and services or create new ones (independently or in conjunction with third parties). Our ability to increase mDAU and engagement, attract content partners, advertisers and platform partners and generate revenue will depend on those decisions. We may introduce significant changes to our existing products and services or develop and introduce new and unproven products and services, including technologies with which we have little or no prior development or operating experience. For example, we are in the early stages of exploring additional potential revenue product opportunities that could, if successful, complement our advertising business in the future, although we do not expect any revenue attributable to these opportunities in the near-term and these opportunities may not prove successful at all. We are also continuing our work to increase the stability, performance and scale of our ads platform and our MAP product, and such work will take place over multiple quarters, and any positive revenue impact will be gradual in its impact. If new or enhanced products, product features or services fail to engage people on Twitter, content partners and advertisers, we may fail to attract or retain mDAU or to generate sufficient revenue or operating profit to justify our investments, and our business, financial condition and operating results would be adversely impacted.

Our business and operating results may be harmed by our failure to timely and effectively scale and adapt our existing technology and infrastructure.

As accounts generate more content, including photos and videos hosted by Twitter, we may be required to expand and adapt our technology and infrastructure to continue to reliably store, serve and analyze this content. It may become increasingly difficult to maintain and improve the performance of our products and services, especially during peak usage times, as our products and services become more complex and our account traffic increases. In addition, because we lease our data center facilities, we cannot be assured that we will be able to expand our data center infrastructure to meet demand in a timely manner, or on favorable economic terms. If people are unable to access Twitter or we are not able to make information available rapidly on Twitter, people may seek other channels to obtain the information, and may not return to Twitter or use Twitter as often in the future, or at all. This would negatively impact our ability to attract new people to Twitter, content partners and advertisers and increase the frequency of people returning to Twitter. We expect to continue to make significant investments to maintain and improve the capacity, capability and reliability of our infrastructure. To the extent that we do not effectively address capacity constraints, upgrade our systems as needed and continually develop our technology and infrastructure to accommodate actual and anticipated changes in technology, our business and operating results may be harmed.

We continue to scale the capacity of, and enhance the capability and reliability of, our infrastructure to support mDAU growth and increased activity on our platform. We expect that investments and expenses associated with our infrastructure will continue to grow, including the expansion and improvement of our data center operations and related operating costs, additional servers and networking equipment to increase the capacity of our infrastructure, increased utilization of third-party cloud computing and associated costs thereof, increased bandwidth costs, and costs to secure our customers' data. The improvement of our infrastructure requires a significant investment of our management's time and our financial resources. If we fail to efficiently scale and manage our infrastructure, our business, financial condition and operating results would be adversely impacted.

If we are unable to maintain and promote our brand, our business and operating results may be harmed.

We believe that maintaining and promoting our brand is critical to increasing mDAU, content partners and advertiser spend. Maintaining and promoting our brand will depend largely on our ability to continue to provide timely, useful, reliable and innovative products and services with a focus on a positive experience on Twitter, which we may not do successfully. We may introduce new features, products, services or terms of service that people on Twitter, content partners, advertisers or platform partners do not like, which may negatively affect our brand. Additionally, the actions of content partners may affect our brand if people do not have a positive experience using third-party applications or websites integrated with Twitter or that make use of Twitter content. We will also continue to experience media, legislative or regulatory scrutiny of our decisions regarding privacy, data protection, security, content and other issues, which may adversely affect our reputation and brand. For example, we previously announced our discovery of content (including some advertisements) displayed on our products that may be relevant to government investigations relating to Russian interference in the 2016 U.S. presidential election, which continues to draw media and regulatory scrutiny of our actions with respect to such content. Our brand may also be negatively affected by the actions of people that are hostile or inappropriate to other people, by accounts impersonating other people, by accounts identified as spam, by use or perceived use, directly or indirectly, of our products or services by people (including governments and government-sponsored actors) to disseminate information that may be viewed as misleading (or intended to manipulate people's opinions), by accounts introducing excessive amounts of spam on our platform, by third parties obtaining control over people's accounts, such as the security breach in July 2020 whereby attackers gained control of certain highly-visible accounts, or by other security or cybersecurity incidents. For example, certain actions taken by a social media marketing company in the past to sell followers and engagement, which were in violation of our policies, drew media and regulatory scrutiny on us. Maintaining and enhancing our brand may require us to make substantial investments and these investments may not achieve the desired goals.

Additionally, we and our executive leadership receive a high degree of media coverage around the world. Negative publicity about our company or executives, including about the quality and reliability of our products or of content shared on our platform, changes to our products, policies and services, our privacy, data protection, policy enforcement and security practices (including actions taken or not taken with respect to certain accounts or reports regarding government surveillance), litigation, regulatory activity, the actions of certain accounts (including actions taken by prominent accounts on our platform or the dissemination of information that may be viewed as misleading or manipulative), even if inaccurate, could adversely affect our reputation. Such negative publicity and reputational harm could adversely affect mDAU and their confidence in and loyalty to our platform and result in decreased revenue or increased costs to reestablish our brand, which would adversely impact our business, financial condition and operating results.

Spam and fake accounts could diminish the experience on our platform, which could damage our reputation and deter people from using our products and services.

"Spam" on Twitter refers to a range of abusive activities that are prohibited by our terms of service and is generally defined as unsolicited, repeated actions that negatively impact other people with the general goal of drawing attention to a given account, site, product or idea. This includes posting large numbers of unsolicited mentions of an account, duplicate Tweets, malicious automation, misleading links (e.g., to malware or "click-jacking" pages) or other false or misleading content, and aggressively following and un-following accounts, adding accounts to lists, sending invitations, Retweeting and liking Tweets to inappropriately attract attention. Our terms of service also prohibit the creation of serial or bulk accounts, both manually or using automation, for disruptive or abusive purposes, such as to Tweet spam or to artificially inflate the popularity of accounts seeking to promote themselves on Twitter. Although we continue to invest resources to reduce spam and fake accounts on Twitter, which includes our investments to improve the health of the public conversation on Twitter, we expect spammers will continue to seek ways to act inappropriately on our platform. In addition, we expect that increases in the number of accounts on our platform will result in increased efforts by spammers to misuse our platform. We continuously combat spam and fake accounts, including by suspending or terminating accounts we believe to be spammers and launching algorithmic changes focused on curbing abusive activities. Our actions to combat spam and fake accounts require significant resources and time. If spam and fake accounts increase on Twitter, this could hurt our reputation for delivering relevant content or reduce mDAU growth rate and mDAU engagement and result in continuing operational cost to us.

Our products may contain errors or our security measures may be breached, resulting in the exposure of private information. Our products and services may be subject to attacks that degrade or deny the ability of people to access our products and services. These issues may result in the perception that our products and services are not secure, and people on Twitter and advertisers may curtail or stop using our products and services and our business and operating results could be harmed.

Our products and services involve the storage and transmission of people's and advertisers' information, and security incidents, including those caused by unintentional errors and those intentionally caused by third parties, may expose us to a risk of loss of this information, litigation, increased security costs and potential liability. We and our third-party service providers experience cyber-attacks of varying degrees on a regular basis. We expect to incur significant costs in an effort to detect and prevent security breaches and other security-related incidents, and we may face increased costs in the event of an actual or perceived security breach or other security-related incident. In particular, the COVID-19 pandemic is increasing the opportunities available to criminals, as more companies and individuals work online, and as such, the risk of a cybersecurity incident potentially occurring is increasing. We cannot provide assurances that our preventative efforts will be successful. If an actual or perceived breach of our security occurs, the market perception of the effectiveness of our security measures could be harmed, people on Twitter and our advertisers may be harmed, lose trust and confidence in us, decrease the use of our products and services or stop using our products and services in their entirety. We may also incur significant legal and financial exposure, including legal claims, higher transaction fees and regulatory fines and penalties. Any of these actions could have a material and adverse effect on our business, reputation and operating results. While our insurance policies include liability coverage for certain of these matters, if we experienced a significant security incident, we could be subject to liability or other damages that exceed our insurance coverage.

Our products and services incorporate complex software and we encourage employees to quickly develop and help us launch new and innovative features. Our software, including any open source software that is incorporated into our code, has contained, and may now or in the future contain, errors, bugs or vulnerabilities. For example, in 2019, we discovered, and took steps to remediate, bugs that primarily affected our legacy MAP product, impacting our ability to target ads and share data with our measurement and ad partners. We also discovered that certain personalization and data settings were not operating as expected. As was the case with these errors, errors in our software code may only be discovered after the product or service has been released. Errors, vulnerabilities, or other design defects within the software on which we rely may result in a negative experience for people on Twitter, partners and advertisers who use our products, delay product introductions or enhancements, result in targeting, measurement, or billing errors, compromise our ability to protect the data of the people on Twitter and/or our intellectual property or lead to reductions in our ability to provide some or all of our services. Any errors, bugs or vulnerabilities discovered in our code after release could result in damage to our reputation, loss of accounts, loss of content or platform partners, loss of advertisers or advertising revenue or liability for damages or other relief sought in lawsuits, regulatory inquiries or other proceedings, any of which could adversely impact our business and operating results.

Our products operate in conjunction with, and we are dependent upon, third-party products and components across a broad ecosystem. If there is a security vulnerability, error, or other bug in one of these third-party products or components and if there is a security exploit targeting them, we could face increased costs, liability claims, reduced revenue, or harm to our reputation or competitive position. The natural sunset of third-party products and operating systems that we use requires that our infrastructure teams reallocate time and attention to migration and updates, during which period potential security vulnerabilities could be exploited. We also work with third-party vendors to process credit card payments by our customers and are subject to payment card association operating rules.

Unauthorized parties may also gain access to Twitter handles and passwords without attacking Twitter directly and, instead, access people's accounts by using credential information from other recent breaches, using malware on victim machines that are stealing passwords for all sites, or a combination of both. In addition, some of our developers or other partners, such as third-party applications to which people have given permission to Tweet on their behalf, may receive or store information provided by us or by people on Twitter through mobile or web applications integrated with us. If these third parties or developers fail to adopt or adhere to adequate data security practices, or in the event of a breach of their networks, our data or data of people on Twitter may be improperly accessed, used, or disclosed. Unauthorized parties have obtained, and may in the future obtain, access to our data, data of people on Twitter or our advertisers' data. Any systems failure or actual or perceived compromise of our security that results in the unauthorized access to or release of data of people on Twitter or our advertisers' data, such as credit card data, could significantly limit the adoption of our products and services, as well as harm our reputation and brand and, therefore, our business.

Our security measures may also be breached due to employee error, malfeasance or otherwise. Additionally, outside parties may attempt to fraudulently induce employees, people on Twitter, or advertisers to disclose sensitive information in order to gain access to our data, data of people on Twitter or advertisers' data, or may otherwise obtain access to such data or accounts. Since people on Twitter and our advertisers may use Twitter to establish and maintain online identities, unauthorized communications from Twitter accounts that have been compromised may damage their personal security, reputations and brands as well as our reputation and brand. Because the techniques used to obtain unauthorized access, disable or degrade service or sabotage systems change frequently and often are not recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures.

For example, in July 2020, we became aware of what we believe to be a coordinated social engineering attack by people who successfully targeted one or more of our employees with access to internal systems and tools. The attackers used this access to target a small group of accounts (130) and to gain control of a subset of these accounts and send Tweets from those accounts and access non-public information relating to at least some of those accounts. This security breach may have harmed the people and accounts affected by it. It may also impact the market perception of the effectiveness of our security measures, and people may lose trust and confidence in us, decrease the use of our products and services or stop using our products and services in their entirety. It may also result in damage to our reputation, loss of accounts, loss of content or platform partners, loss of advertisers or advertising revenue, or legal and financial exposure, including legal claims, regulatory inquiries or other proceedings. Any of these effects could have a material and adverse impact on our business, reputation and operating results.

Our international operations are subject to increased challenges and risks.

We have offices around the world and our products and services are available in multiple languages. However, our ability to manage our business, monetize our products and services and conduct our operations internationally requires considerable management attention and resources and is subject to the particular challenges of supporting a rapidly growing business in an environment of multiple languages, cultures, customs, legal and regulatory systems, alternative dispute systems and commercial markets. Our international operations have required and will continue to require us to invest significant funds and other resources. Operating internationally subjects us to new risks and may increase risks that we currently face, including risks associated with:

- recruiting and retaining talented and capable employees in foreign countries and maintaining our company culture across all of our offices;
- providing our products and services and operating across a significant distance, in different languages and among different cultures, including the potential need to modify our products, services, content and features to ensure that they are culturally relevant in different countries;
- increased competition from largely regional websites, mobile applications and services that provide real-time communications and have strong positions in particular countries, which have expanded and may continue to expand their geographic footprint;
- differing and potentially lower levels of mDAU growth, engagement and ad engagement in new and emerging geographies;
- different levels of advertiser demand, including fluctuations in advertiser demand due to regional activities, regional economic effects of the COVID-19 pandemic and political upheaval;
- greater difficulty in monetizing our products and services, including costs to adapt our products and services in light of the manner in which people access Twitter in such jurisdictions, such as the use of feature phones in certain emerging markets such as India and Pakistan, and challenges related to different levels of Internet access or mobile device adoption in different jurisdictions;
- compliance with applicable foreign laws and regulations, including laws and regulations with respect to privacy, data protection, data localization, data security, taxation, consumer protection, copyright, fake news, hate speech, spam and content, and the risk of penalties to the people who use our products and services and individual members of management if our practices are deemed to be out of compliance;
- actions by governments or others to restrict access to Twitter or censor content on Twitter, such as how domestic Internet service providers in China have blocked access to Twitter and other countries, including Iran, Libya, Pakistan, Turkey and Syria, have intermittently restricted access to Twitter, whether these actions are taken for political reasons, in response to decisions we make regarding governmental requests or content generated by people on Twitter, or otherwise;
- longer payment cycles in some countries;
- credit risk and higher levels of payment fraud;
- operating in jurisdictions that do not protect intellectual property rights to the same extent as the United States;
- compliance with anti-bribery laws including, without limitation, compliance with the Foreign Corrupt Practices Act and the U.K. Bribery Act, including by our business partners;
- currency exchange rate fluctuations, as we conduct business in currencies other than U.S. dollars but report our operating results in U.S. dollars and any foreign currency forward contracts into which we enter may not mitigate the impact of exchange rate fluctuations;
- foreign exchange controls that might require significant lead time in setting up operations in certain geographic territories and might prevent us from repatriating cash earned outside the United States;
- political and economic instability in some countries;

- double taxation of our international earnings and potentially adverse tax consequences due to changes in the tax laws of the United States or the foreign jurisdictions in which we operate; and
- higher costs of doing business internationally, including increased accounting, travel, infrastructure and legal compliance costs.

If our revenue from our international operations, and particularly from our operations in the countries and regions where we have focused our spending, does not exceed the expense of establishing and maintaining these operations, our business and operating results will suffer. In addition, mDAU may grow more rapidly than revenue in international regions where our monetization of our products and services is not as developed. For example, average mDAU outside the United States constituted 81% of our average mDAU in the three months ended September 30, 2020, but our international revenue, as determined based on the billing location of our customers, was approximately 45% of our consolidated revenue in the three months ended September 30, 2020. If we are unable to successfully expand our business, manage the complexity of our global operations or monetize our products and services internationally could adversely impact our business, financial condition and operating results.

Our business is subject to complex and evolving U.S. and foreign laws and regulations. These laws and regulations are subject to change and uncertain interpretation, and could result in claims, changes to our business practices, monetary penalties, increased cost of operations or declines in mDAU growth, mDAU engagement or ad engagement, or otherwise harm our business.

We are subject to a variety of laws and regulations in the United States and abroad that involve matters central to our business, including privacy, data protection, security, rights of publicity, content regulation, intellectual property, competition, protection of minors, consumer protection, credit card processing and taxation. Many of these laws and regulations are still evolving and being tested in courts. As a result, it is possible that these laws and regulations may be interpreted and applied in a manner that is inconsistent from country to country and inconsistent with our current policies and practices and in ways that could harm our business, particularly in the new and rapidly evolving industry in which we operate. Additionally, the introduction of new products or services may subject us to additional laws and regulations.

From time to time, governments, regulators and others have expressed concerns about whether our products, services or practices compromise the privacy or data protection rights of the people on Twitter and others. While we strive to comply with applicable privacy and data protection laws and regulations, our privacy policies and other obligations we may have with respect to privacy and data protection, the failure or perceived failure to comply may result, and in some cases has resulted, in inquiries and other proceedings or actions against us by governments, regulators or others. A number of proposals have recently been adopted or are currently pending before federal, state and foreign legislative and regulatory bodies that could significantly affect our business. For example, the California Consumer Privacy Act (CCPA) went into effect on January 1, 2020. The CCPA requires, among other things, covered companies to provide new disclosures to California consumers and afford such consumers new abilities to opt-out of certain sales of personal information. Similar legislation has been proposed or adopted in other states. Aspects of the CCPA and these other state laws and regulations, as well as their enforcement, remain unclear, and we may be required to modify our practices in an effort to comply with them. Additionally, a new privacy law, the California Privacy Rights Act (CPRA), recently was certified by the California Secretary of State to appear on the ballot for the November 3, 2020 election. If this initiative is approved by California voters, the CPRA would significantly modify the CCPA, potentially resulting in further uncertainty and requiring us to incur additional costs and expenses. Moreover, foreign data protection, privacy, consumer protection, content regulation and other laws and regulations are often more restrictive or burdensome than those in the United States. For example, the GDPR imposes stringent operational requirements for entities processing personal information and significant penalties for non-compliance, including fines of up to €20 million or 4% of total worldwide revenue, whichever is higher. Additionally, we have historically relied upon a variety of legal bases to transfer certain personal information outside of the European Economic Area, including the EU-U.S. Privacy Shield Framework, the Swiss-U.S. Privacy Shield Framework, and EU Standard Contractual Clauses, or SCCs. These legal bases all have been, and may be, the subject of legal challenges and on July 16, 2020, the Court of Justice of the European Union (CJEU) invalidated the U.S.-EU Privacy Shield framework and imposed additional obligations on companies when relying on the SCCs. This CJEU decision may result in different European Economic Area (EEA) data protection regulators applying differing standards for, or require ad hoc verification of measures taken with respect to, certain data flows. The CJEU's decision will require us to take additional steps to legitimize impacted personal data transfers, and we may find it necessary or desirable to modify our data handling practices in connection with this decision or future legal challenges relating to cross-border data transfers. This could result in increased costs of compliance and limitations on our customers, vendors, and us. This CJEU decision or future legal challenges also could result in us being required to implement duplicative, and potentially expensive, information technology infrastructure and business operations in Europe or could limit our ability to collect or process personal information in Europe, and may serve as a basis for our personal data handling practices, or those of our customers and vendors, to be challenged. Any of these changes with respect to EU data protection law could disrupt our business and otherwise adversely impact our business, financial condition and operating results.

Further, following a referendum in June 2016 in which United Kingdom (UK) voters approved an exit from the EU, the UK officially left the EU on January 31, 2020, with a transitional period set to end on December 31, 2020 (often referred to as "Brexit"). The effect of Brexit will depend on agreements, if any, the UK makes to retain access to EU markets. Brexit creates economic and legal uncertainty in the region and could adversely affect the tax, currency, operational, legal and regulatory regimes to which our business is subject. Brexit may adversely affect our revenues and subject us to new regulatory costs and challenges, in addition to other adverse effects that we are unable effectively to anticipate. The UK implemented a Data Protection Act, effective in May 2018 and statutorily amended in 2019, that substantially implements the GDPR. Brexit has created uncertainty with regard to the future regulation of data protection in the UK and requirements for data transfers between the UK and the EU and other jurisdictions.

Legislative changes in the United States, at both the federal and state level, could impose new obligations in areas such as privacy and moderation of content posted on our platform by third parties, including with respect to requests for removal based on claims of copyright. Further, there are various Executive and Congressional efforts to restrict the scope of the protections from legal liability for content moderation decisions and third-party content posted on online platforms that are currently available to online platforms under Section 230 of the Communications Decency Act, and our current protections from liability for content moderation decisions and third-party content posted on our platform in the United States could decrease or change, potentially resulting in increased liability for content moderation decisions and third-party content posted on our platform and higher litigation costs. Additionally, recent amendments to U.S. patent laws may affect the ability of companies, including us, to protect their innovations and defend against claims of patent infringement.

In April 2019, the EU passed the Directive on Copyright in the Digital Single Market (the EU Copyright Directive), which expands the liability of online platforms for third-party content posted on the platform. Each EU member state has two years to implement it. The EU Copyright Directive may increase our costs of operations, our liability for third-party content posted on our platform, and our litigation costs.

Additionally, we have relationships with third parties that perform a variety of functions such as payments processing, tokenization, vaulting, currency conversion, fraud prevention and data security audits. The laws and regulations related to online payments and other activities of these third parties, including those relating to the processing of data, are complex, subject to change, and vary across different jurisdictions in the United States and globally. As a result, we may be required to spend significant time, effort and expense to comply with applicable laws and regulations. Any failure or claim of our failure to comply, or any failure or claim of failure by the above-mentioned third parties to comply, could increase our costs or could result in liabilities. Additionally, because we accept payment via credit cards, we are subject to global payments industry operating rules and certification requirements governed by PCI Security Standards Council, including the Payment Card Industry Data Security Standard. Any failure by us to comply with these operating rules and certification requirements also may result in costs and liabilities and may result in us losing our ability to accept certain payment cards.

The U.S. and foreign laws and regulations described above, as well as any associated inquiries or investigations or any other regulatory actions, may be costly to comply with and may delay or impede the development of new products and services, result in negative publicity, increase our operating costs, require significant management time and attention, and subject us to remedies that may result in a loss of mDAU or advertisers and otherwise harm our business, including fines or demands or orders that we modify or cease existing business practices.

We currently allow use of our platform without the collection of extensive personal information. We may experience additional pressure to expand our collection of personal information in order to comply with new and additional legal or regulatory demands or we may independently decide to do so. If we obtain such additional personal information, we may be subject to additional legal or regulatory obligations.

Regulatory investigations and settlements could cause us to incur additional expenses or change our business practices in a manner material and adverse to our business.

From time to time we notify the Irish Data Protection Commission and other regulators of certain personal data breaches and privacy or data protection issues, and are subject to inquiries and investigations regarding various aspects of our regulatory compliance. We are currently the subject of inquiries by the Irish Data Protection Commission with respect to our compliance with the GDPR. In the past, we have been subject to regulatory investigations, and we expect to continue to be subject to regulatory scrutiny as our business grows and awareness of our brand increases.

In March 2011, to resolve an investigation into various incidents, we entered into a consent order with the FTC that, among other things, required us to establish an information security program designed to protect non-public consumer information and also requires that we obtain biennial independent security assessments. The obligations under the consent order remain in effect until the later of March 2, 2031, or the date 20 years after the date, if any, on which the U.S. government or the FTC files a complaint in federal court alleging any violation of the order. We expect to continue to be the subject of regulatory inquiries, investigations and audits in the future by the FTC and other regulators around the world. Violation of existing or future regulatory orders, settlements or consent decrees could subject us to substantial fines and other penalties that would adversely impact our financial condition and operating results. For example, on July 28, 2020, we received a draft complaint from the FTC alleging violations of the 2011 consent order with the FTC and the FTC Act. The allegations relate to our use of phone number and/or email address data provided for safety and security purposes for targeted advertising during periods between 2013 and 2019. We estimate that the range of probable loss in this matter is \$150.0 million to \$250.0 million. The matter remains unresolved, and there can be no assurance as to the timing or the terms of any final outcome.

It is possible that a regulatory inquiry, investigation or audit could cause us to incur substantial fines and costs, result in reputational harm, prevent us from offering certain products, services, features or functionalities, require us to change our policies or practices, divert management and other resources from our business, or otherwise materially and adversely impact our business, financial condition and operating results.

We may face lawsuits or incur liability as a result of content published or made available through our products and services.

We have faced and will continue to face claims relating to content that is published or made available through our products and services or third-party products or services. In particular, the nature of our business exposes us to claims related to defamation, intellectual property rights, rights of publicity and privacy, illegal content, misinformation, content regulation and personal injury torts. The laws relating to the liability of providers of online products or services for activities of the people who use them remains somewhat unsettled, both within the United States and internationally. This risk may be enhanced in certain jurisdictions outside the United States where we may be less protected under local laws than we are in the United States. For example, we are subject to legislation in Germany that may impose significant fines for failure to comply with certain content removal and disclosure obligations. Other countries, including Singapore, India, Australia, and the United Kingdom, have implemented or are considering similar legislation imposing penalties for failure to remove certain types of content. In addition, the public nature of communications on our platform exposes us to risks arising from the creation of impersonation accounts intended to be attributed to people on Twitter or our advertisers. We could incur significant costs investigating and defending these claims. If we incur material costs or liability as a result of these occurrences, our business, financial condition and operating results would be adversely impacted.

Our intellectual property rights are valuable, and any inability to protect them could reduce the value of our products, services and brand.

Intellectual property rights are important assets of our business and we seek protection for such rights as appropriate. To establish and protect our trade secrets, trademarks, copyrights, and patents as well as restrictions in confidentiality, license and intellectual property assignment agreements we enter into with our employees, consultants and third parties. Various circumstances and events outside of our control, however, pose threats to our intellectual property rights. We may fail to obtain effective intellectual property protection, effective intellectual property protection may not be available in every country in which our products and services are available, or such laws may provide only limited protection. Also, the efforts we have taken to protect our intellectual property rights may not be sufficient or effective, and any of our intellectual property rights may be challenged, circumvented, infringed or misappropriated which could result in them being narrowed in scope or declared invalid or unenforceable. There can be no assurance our intellectual property rights will be sufficient to protect against others offering products or services that are substantially similar to ours and compete with our business.

We rely on restrictions on the use and disclosure of our trade secrets and other proprietary information contained in agreements we sign with our employees, contractors, and other third parties to limit and control access to and disclosure of our trade secrets and confidential information. These agreements may be breached, or this intellectual property may otherwise be disclosed or become known to our competitors, including through hacking or theft, which could cause us to lose any competitive advantage resulting from these trade secrets and proprietary information.

We are pursuing registration of trademarks and domain names in the United States and in certain jurisdictions outside of the United States. Effective protection of trademarks and domain names is expensive and difficult to maintain, both in terms of application and registration costs as well as the costs of defending and enforcing those rights. We may be required to protect our rights in an increasing number of countries, a process that is expensive and may not be successful or which we may not pursue in every country in which our products and services are distributed or made available.

We are party to numerous agreements that grant licenses to third parties to use our intellectual property. For example, many third parties distribute their content through Twitter, or embed Twitter content in their applications or on their websites, and make use of our trademarks in connection with their services. We have a policy designed to assist third parties in the proper use of our trademarks, and an internal team dedicated to enforcing this policy and protecting our brand. This team routinely reviews reports of improper and unauthorized use of the Twitter trademarks and issues takedown notices or initiates discussions with the third parties to correct the issues. However, there can be no assurance that we will be able to protect against the unauthorized use of our brand or trademarks. If the licensees of our trademarks are not using our trademarks properly and we fail to maintain and enforce our trademark rights, we may limit our ability to protect our trademarks which could result in diminishing the value of our brand or in our trademarks being declared invalid or unenforceable. There is also a risk that one or more of our trademarks could become generic, which could result in such trademark being declared invalid or unenforceable. For example, there is a risk that the word "Tweet" could become so commonly used that it becomes synonymous with any short comment posted publicly on the Internet, and if this happens, we could lose protection of this trademark.

We also seek to obtain patent protection for some of our technology. We may be unable to obtain patent protection for our technologies. Even if patents are issued from our patent applications, which is not certain, our existing patents, and any patents that may be issued in the future, may not provide us with competitive advantages or distinguish our products and services from those of our competitors. In addition, any patents may be contested, circumvented, or found unenforceable or invalid, and we may not be able to prevent third parties from infringing or otherwise violating them. Effective protection of patent rights is expensive and difficult to maintain, both in terms of application and maintenance costs, as well as the costs of defending and enforcing those rights.

Our Innovator's Patent Agreement, or IPA, also can limit our ability to prevent infringement of our patents. In May 2013, we implemented the IPA, which we enter into with our employees and consultants, including our founders. The IPA, which applies to our current and future patents, allows us to assert our patents defensively. The IPA also allows us to assert our patents offensively with the permission of the inventors of the applicable patent. Under the IPA, an assertion of claims is considered to be for a defensive purpose if the claims are asserted: (i) against an entity that has filed, maintained, threatened or voluntarily participated in a patent infringement lawsuit against us or any people on Twitter, or any of our affiliates, customers, suppliers or distributors; (ii) against an entity that has used its patents offensively against any other party in the past ten years, so long as the entity has not instituted the patent infringement lawsuit defensively in response to a patent litigation threat against the entity; or (iii) otherwise to deter a patent litigation threat against us or people on Twitter, or any of our affiliates, customers, suppliers or distributors. In addition, the IPA provides that the above limitations apply to any future owner or exclusive licensee of any of our patents, which could limit our ability to sell or license our patents to third parties. In this case, while we may be able to claim protection of our intellectual property under other rights (such as trade secrets or contractual obligations with our employees not to disclose or use confidential information), we may be unable to assert our patent rights against third parties that we believe are infringing our patents, even if such third parties are developing products and services that compete with our products and services. For example, in the event that an inventor of one of our patents goes to work for another company and that company uses the inventor's patented invention to compete with us, we would not be able to assert that patent against such other company unless the assertion of the patent right is for a defensive purpose since it would be unlikely the employee would consent to offensive use of the patent against his or her current employer. In such event, we would need to rely on trade secret protection or the contractual obligation of the inventor to us not to disclose or use our confidential information. In addition, the terms of the IPA could affect our ability to monetize our intellectual property portfolio.

Significant impairments of our intellectual property rights, and limitations on our ability to assert our intellectual property rights against others, could harm our business and our ability to compete.

Also, obtaining, maintaining and enforcing our intellectual property rights is costly and time consuming. Any increase in the unauthorized use of our intellectual property would adversely impact our business, financial condition and operating results.

We are currently, and expect to be in the future, party to intellectual property rights claims that are expensive and time consuming to defend, and, if resolved adversely, would adversely impact our business, financial condition and operating results.

Companies in the internet, technology and media industries are subject to litigation based on allegations of infringement, misappropriation or other violations of intellectual property rights. Many companies in these industries, including many of our competitors, have substantially larger patent and intellectual property portfolios than we do, which could make us a target for litigation as we may not be able to assert counterclaims against parties that sue us for patent, or other intellectual property infringement. In addition, various "non-practicing entities" that own patents and other intellectual property rights often attempt to assert claims in order to extract value from technology companies. From time to time we receive claims from third parties which allege that we have infringed upon their intellectual property rights. Further, from time to time we may introduce new products, product features and services, including in areas where we currently do not have an offering, which could increase our exposure to patent and other intellectual property claims from competitors and non-practicing entities. In addition, although our standard terms and conditions for our Promoted Products and public APIs do not provide advertisers and platform partners with indemnification for intellectual property claims against them, some of our agreements with advertisers, content partners, platform partners and data partners require us to indemnify them for certain intellectual property claims against them, which could require us to incur considerable costs in defending such claims, and may require us to pay significant damages in the event of an adverse ruling. Such advertisers, content partners, platform partners and data partners may also discontinue use of our products, services and technologies as a result of injunctions or otherwise, which could result in loss of revenue and adversely impact our business.

We presently are involved in a number of intellectual property lawsuits, and as we face increasing competition and develop new products, we expect the number of patent and other intellectual property claims against us may grow. There may be intellectual property or other rights held by others, including issued or pending patents, that cover significant aspects of our products and services, and we cannot be sure that we are not infringing or violating, and have not infringed or violated, any third-party intellectual property rights or that we will not be held to have done so or be accused of doing so in the future. Any claim or litigation alleging that we have infringed or otherwise violated intellectual property or other rights of third parties, with or without merit, and whether or not settled out of court or determined in our favor, could be time-consuming and costly to address and resolve, and could divert the time and attention of our management and technical personnel. Some of our competitors have substantially greater resources than we do and are able to sustain the costs of complex intellectual property litigation to a greater degree and for longer periods of time than we could. The outcome of any litigation is inherently uncertain, and there can be no assurances that favorable final outcomes will be obtained in all cases. In addition, plaintiffs may seek, and we may become subject to, preliminary or provisional rulings in the course of any such litigation, including potential preliminary injunctions requiring us to cease some or all of our operations. We may decide to settle such lawsuits and disputes on terms that are unfavorable to us. Similarly, if any litigation to which we are a party is resolved adversely, we may be subject to an unfavorable judgment that may not be reversed upon appeal. The terms of such a settlement or judgment may require us to cease some or all of our operations or pay substantial amounts to the other party. In addition, we may have to seek a license to continue practices found to be in violation of a third-party's rights. If we are required, or choose to enter into royalty or licensing arrangements, such arrangements may not be available on reasonable terms, or at all, and may significantly increase our operating costs and expenses. As a result, we may also be required to develop or procure alternative non-infringing technology, which could require significant effort and expense or discontinue use of the technology. An unfavorable resolution of the disputes and litigation referred to above would adversely impact our business, financial condition and operating results.

We have incurred significant operating losses in the past, and we may not be able to maintain profitability or accurately predict fluctuations in our operating results from quarter to quarter.

In the nine months ended September 30, 2020, as well as other periods in the past, we have incurred significant operating losses. While we were profitable on a GAAP basis for 2018 and 2019, our quarterly operating results have fluctuated in the past and will fluctuate in the future. As a result, our past quarterly operating results are not necessarily indicators of future performance. Our operating results in any given quarter can be influenced by numerous factors, many of which we are unable to predict or are outside of our control, including:

- our ability to attract and retain mDAU, advertisers, content partners and platform partners;
- the occurrence of planned significant events or changes to the timing of events, such as major sporting events, political elections, or awards shows, or unplanned significant events, such as natural disasters and political revolutions, as well as seasonality which may differ from our expectations;
- the impacts of the COVID-19 pandemic and governmental and business actions in response thereto on the global economy;
- the pricing of our advertising services or data licensing, and our ability to maintain or improve revenue and margins;
- the development and introduction of new products or services, changes in features of existing products or services or de-emphasis or termination of existing products, product features or services;
- the actions of our competitors;
- increases in research and development, marketing and sales and other operating expenses that we may incur to grow and expand our operations and to remain competitive, including stock-based compensation expense and costs related to our technology infrastructure;
- costs related to the acquisition of businesses, talent, technologies or intellectual property, including potentially significant amortization costs;
- system failures resulting in the inaccessibility of our products and services;
- actual or perceived breaches of security or privacy, and the costs associated with remediating any such breaches;
- adverse litigation judgments, settlements or other litigation-related costs, and the fees associated with investigating and defending claims;
- changes in the legislative or regulatory environment, including with respect to security, tax, privacy, data protection, or content, or enforcement by government regulators, including fines, orders or consent decrees;
- changes in reserves or other non-cash credits or charges, such as establishment or releases of deferred tax assets valuation allowance, impairment charges or purchase accounting adjustments;
- changes in our expected estimated useful life of property and equipment and intangible assets;
- fluctuations in currency exchange rates and changes in the proportion of our revenue and expenses denominated in foreign currencies;
- changes in U.S. generally accepted accounting principles; and
- changes in global or regional business or macroeconomic conditions.

Given the rapidly evolving markets in which we compete, our historical operating results may not be useful to you in predicting our future operating results. If our revenue growth rate slows, we expect that the seasonality in our business may become more pronounced and may in the future cause our operating results to fluctuate. For example, advertising spending is traditionally seasonally strong in the fourth quarter of each year, and we believe that this seasonality affects our quarterly results, which generally reflect higher sequential advertising revenue growth from the third to fourth quarter compared to sequential advertising revenue growth from the fourth quarter to the subsequent first quarter. Additionally, certain new revenue products or product features may carry higher costs relative to our other products, which may decrease our margins, and we may incur increased costs to scale our operations if mDAU and engagement on our platform increase. If we are unable to generate adequate revenue growth and to manage our expenses, we may incur significant losses in future periods and may not be able to maintain profitability.

Many of our products and services contain open source software, and we license some of our software through open source projects, which may pose particular risks to our proprietary software, products, and services in a manner that could adversely impact our business.

We use open source software in our products and services and will use open source software in the future. In addition, we regularly contribute software source code to open source projects under open source licenses or release internal software projects under open source licenses, and anticipate doing so in the future. The terms of many open source licenses to which we are subject have not been interpreted by U.S. or foreign courts, and there is a risk that open source software licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to provide or distribute our products or services. Additionally, under some open source licenses, if we combine our proprietary software with open source software in a certain manner, third parties may claim ownership of, or demand release of, the open source software or derivative works that we developed using such software, which could include our proprietary source code. Such third parties may also seek to enforce the terms of the applicable open source license through litigation which, if successful, could require us to make our proprietary software source code freely available, purchase a costly license or cease offering the implicated products or services unless and until we can re-engineer them to avoid infringement. This re-engineering process could require significant additional research and development resources, and we may not be able to complete it successfully. In addition to risks related to open source license requirements, use of certain open source software may pose greater risks than use of third-party commercial software, since open source licensors generally do not provide warranties or controls on the origin of software. Any of these risks could be difficult to eliminate or manage, and, if not addressed, could adversely impact our business, financial condition and operating results.

We rely on assumptions and estimates to calculate certain of our key metrics, and real or perceived inaccuracies in such metrics may harm our reputation and negatively affect our business.

We calculate our mDAU using internal company data that has not been independently verified. While these numbers are based on what we believe to be reasonable calculations for the applicable period of measurement, there are inherent challenges in measuring mDAU and mDAU engagement. For example, there are a number of false or spam accounts in existence on our platform. We estimate that the average of false or spam accounts during the third quarter of 2020 continued to represent fewer than 5% of our mDAU during the quarter. However, this estimate is based on an internal review of a sample of accounts and we apply significant judgment in making this determination. As such, our estimation of false or spam accounts may not accurately represent the actual number of such accounts, and the actual number of false or spam accounts could be higher than we have currently estimated. We are continually seeking to improve our ability to estimate the total number of spam accounts and eliminate them from the calculation of our mDAU, but we otherwise treat multiple accounts held by a single person or organization as multiple accounts for purposes of calculating our mDAU because we permit people and organizations to have more than one account. Additionally, some accounts used by organizations are used by many people within the organization. As such, the calculations of our mDAU may not accurately reflect the actual number of people or organizations using our platform. We regularly review and may adjust our processes for calculating our internal metrics to improve their accuracy. Our measures of mDAU growth and engagement may differ from estimates published by third parties or from similarly-titled metrics of our competitors due to differences in methodology. If advertisers, content or platform partners or investors do not perceive our metrics to be accurate representations of our total accounts or mDAU engagement, or if we discover material inaccuracies in our metrics, our reputation may be harmed and content partners, advertisers and platform partners may be less willing to allocate their budgets or resources to our products and services, which could negatively affect our business and operating results. Further, as our business develops, we may revise or cease reporting metrics if we determine that such metrics are no longer accurate or appropriate measures of our performance. For example, we believe that mDAU, and its related growth, are the best ways to measure our success against our objectives and to show the size of our audience and engagement going forward, so we discontinued disclosing monthly active usage after the first quarter of 2019. If investors, analysts or customers do not believe our reported measures, such as mDAU, are sufficient or accurately reflect our business, we may receive negative publicity and our operating results may be adversely impacted.

Acquisitions, divestitures and investments could disrupt our business and harm our financial condition and operating results.

Our success will depend, in part, on our ability to expand our products, product features and services, and grow our business in response to changing technologies, demands of people on Twitter and our advertisers and competitive pressures. In some circumstances, we may determine to do so through the acquisition of complementary businesses and technologies rather than through internal development, including, for example, our acquisitions of Periscope, a live-streaming video mobile application, and MoPub, a mobile-focused advertising exchange. The identification of suitable acquisition candidates can be difficult, time-consuming and costly, and we may not be able to successfully complete identified acquisitions. The risks we face in connection with acquisitions include:

- diversion of management time and focus from operating our business to addressing acquisition integration challenges;
- retention of key employees from the acquired company;
- cultural challenges associated with integrating employees from the acquired company into our organization;
- integration of the acquired company's accounting, management information, human resources and other administrative systems and processes;

- the need to implement or improve controls, procedures, and policies at a business that prior to the acquisition may have lacked effective controls, procedures and policies;
- liability for activities of the acquired company before the acquisition, including intellectual property infringement claims, violations of laws, commercial disputes, tax liabilities and other known and unknown liabilities;
- unanticipated write-offs or charges; and
- litigation or other claims in connection with the acquired company, including claims from terminated employees, former stockholders or other third parties.

Our failure to address these risks or other problems encountered in connection with our past or future acquisitions and investments could cause us to fail to realize the anticipated benefits of these acquisitions or investments, cause us to incur unanticipated liabilities, and harm our business generally. Future acquisitions could also result in dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities, amortization expenses, incremental operating expenses or the impairment of goodwill, any of which could adversely impact our financial condition and operating results.

We also make investments in privately-held companies in furtherance of our strategic objectives. Many of the instruments in which we invest are non-marketable at the time of our initial investment. We may not realize a return and may recognize a loss on such investments.

In certain cases, we have also divested or stopped investing in certain products, including products that we acquired. In these cases, we have needed to and we may in the future need to restructure operations, terminate employees and/or incur other expenses. We may not realize the expected benefits and cost savings of these actions and our operating results may be adversely impacted.

If we fail to maintain an effective system of disclosure controls and internal control over financial reporting, our ability to produce timely and accurate financial statements or comply with applicable regulations could be impaired.

As a public company, we are subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, the Sarbanes-Oxley Act of 2002, as amended, or the Sarbanes-Oxley Act, and the listing standards of the New York Stock Exchange. The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal control over financial reporting. In order to maintain and improve the effectiveness of our disclosure controls and procedures and internal control over financial reporting, we have expended, and anticipate that we will continue to expend, significant resources, including accounting-related costs and significant management oversight.

Any failure to develop or maintain effective controls, or any difficulties encountered in their implementation or improvement, could cause us to be subject to one or more investigations or enforcement actions by state or federal regulatory agencies, stockholder lawsuits or other adverse actions requiring us to incur defense costs, pay fines, settlements or judgments. Any such failures could also cause investors to lose confidence in our reported financial and other information, which would likely have a negative effect on the trading price of our common stock. In addition, if we are unable to continue to meet these requirements, we may not be able to remain listed on the New York Stock Exchange.

Our debt obligations could adversely affect our financial condition.

In 2014, we issued \$954.0 million in aggregate principal amount of 1.00% convertible senior notes due 2021, or the 2021 Notes, in private placements to qualified institutional buyers. In 2018, we issued an additional \$1.15 billion in aggregate principal amount of 0.25% convertible senior notes due 2024, or the 2024 Notes, in a private placement to qualified institutional buyers. In December 2019, we issued \$700.0 million in aggregate principal amount of 3.875% senior notes due 2027, which we refer to as the 2027 Notes. In March 2020, we issued \$1.0 billion in aggregate principal amount of 0.375% convertible senior notes due 2025, or the 2025 Notes. We refer to the 2021 Notes, the 2024 Notes and the 2025 Notes as the Convertible Notes, and we refer to the Convertible Notes and the 2027 Notes as the Notes. As of September 30, 2020, we had \$3.80 billion in aggregate principal amount of outstanding Notes. As of September 30, 2020, we also had an undrawn unsecured revolving credit facility providing for loans in the aggregate principal amount of \$500.0 million.

Our debt obligations could adversely impact us. For example, these obligations could:

- require us to use a substantial portion of our cash flow from operations to pay principal and interest on debt, including the Notes, or to repurchase our Notes when required upon the occurrence of certain change of control events or otherwise pursuant to the terms thereof, which will reduce the amount of cash flow available to fund working capital, capital expenditures, acquisitions, and other business activities;
- require us to use cash and/or issue shares of our common stock to settle any conversion obligations of the Convertible Notes;
- result in certain of our debt instruments, including the Notes, being accelerated or being deemed to be in default if certain terms of default are triggered, such as applicable cross payment default and/or cross-acceleration provisions;
- adversely impact our credit rating, which could increase future borrowing costs;

- limit our future ability to raise funds for capital expenditures, strategic acquisitions or business opportunities, and other general corporate requirements;
- restrict our ability to create or incur liens and enter into sale-leaseback financing transactions;
- increase our vulnerability to adverse economic and industry conditions;
- with respect to indebtedness other than the Notes, increase our exposure to interest rate risk from variable rate indebtedness;
- dilute our earnings per share as a result of the conversion provisions in the Convertible Notes; and
- place us at a competitive disadvantage compared to our less leveraged competitors.

Our ability to meet our payment obligations under our debt instruments depends on our ability to generate significant cash flows in the future. This, to some extent, is subject to market, economic, financial, competitive, legislative, and regulatory factors as well as other factors that are beyond our control. There can be no assurance that our business will generate cash flow from operations, or that additional capital will be available to us, in amounts sufficient to enable us to meet our debt payment obligations and to fund other liquidity needs. Additionally, events and circumstances may occur which would cause us to not be able to satisfy applicable draw-down conditions and utilize our revolving credit facility. If we are unable to generate sufficient cash flows to service our debt payment obligations, we may need to refinance or restructure our debt, sell assets, reduce or delay capital investments, or seek to raise additional capital. If we are unable to implement one or more of these alternatives on commercially reasonable terms or at all, we may be unable to meet our debt payment obligations, which would materially and adversely impact our business, financial condition and operating results.

Our business is subject to the risks of earthquakes, fire, power outages, floods and other catastrophic events, and to interruption by man-made problems such as terrorism.

A significant natural disaster, such as the COVID-19 pandemic or an earthquake, fire, flood or significant power outage could have a material adverse impact on our business, operating results, and financial condition. For example, the COVID-19 pandemic has led to certain business disruptions as described in our other risk factors, including travel bans and restrictions, shelter-in-place orders and the postponement or cancellation of major events, which have adversely affected demand for our advertising products and the economy as a whole, and which may continue to have an adverse effect on our business, financial condition and operating results. Our headquarters and certain of our co-located data center facilities are located in the San Francisco Bay Area, a region known for seismic activity. Despite any precautions we may take, the occurrence of a natural disaster or other unanticipated problems at our data centers could result in lengthy interruptions in our services. In addition, acts of terrorism and other geo-political unrest could cause disruptions in our business. All of the aforementioned risks may be further increased if our disaster recovery plans prove to be inadequate. We have implemented a disaster recovery program, which allows us to move production to a back-up data center in the event of a catastrophe. Although this program is functional, we do not currently serve network traffic equally from each data center, so if our primary data center shuts down, there will be a period of time that our products or services, or certain of our products or services, will remain inaccessible or people may experience severe issues accessing our products and services. We do not carry business interruption insurance sufficient to compensate us for the potentially significant losses, including the potential harm to our business that may result from interruptions in our ability to provide our products and services. Any such natural disaster or man-made problem could adversely impact our business, financial condition and operating results.

We may have exposure to greater than anticipated tax liabilities, which could adversely impact our operating results.

Our income tax obligations are based in part on our corporate operating structure, including the manner in which we develop, value and use our intellectual property and the scope of our international operations. We are subject to review and audit by tax authorities in the United States (federal and state), Ireland, and other foreign jurisdictions and the laws in those jurisdictions are subject to interpretation. Tax authorities may disagree with and challenge some of the positions we have taken and any adverse outcome of such an audit could have a negative effect on our financial position and operating results. In addition, our future income taxes could be adversely affected by earnings being lower than anticipated in jurisdictions that have lower statutory tax rates and higher than anticipated in jurisdictions that have higher statutory tax rates, by changes in the valuation of our deferred tax assets and liabilities, or by changes in tax laws, regulations or accounting principles, as well as certain discrete items. For example, the legislation commonly referred to as the 2017 Tax Cuts and Jobs Act significantly affected U.S. tax law by changing how U.S. income tax is assessed on multinational corporations. The U.S. Department of Treasury has issued and will continue to issue regulations and interpretive guidance that may significantly impact how we will apply the law and impact our results of operations.

In addition, the Organization for Economic Cooperation and Development (OECD) has published proposals covering a number of issues, including country-by-country reporting, permanent establishment rules, transfer pricing rules, tax treaties and taxation of the digital economy. Future tax reform resulting from this development may result in changes to long-standing tax principles, which could adversely affect our effective tax rate or result in higher cash tax liabilities. In 2018, the European Commission proposed a series of measures aimed at ensuring a fair and efficient taxation of digital businesses operating within the European Union. Some countries, in the European Union and beyond, have unilaterally moved to introduce their own digital services tax (DST) to capture tax revenue on digital services more immediately. Notably France, Italy, Austria, the United Kingdom, Turkey, India and Spain have enacted or will soon enact a digital tax. Such laws may increase our tax obligations in those countries or change the manner in which we operate our business.

On June 7, 2019, the Ninth Circuit Court of Appeals issued a new opinion in the case of *Altera Corp. v. Commissioner*, which upheld Department of Treasury regulations which require related parties in an intercompany cost-sharing arrangement to share expenses related to stock-based compensation. We have prepared the consolidated financial statements consistent with this opinion. In February 2020, Altera Corp. filed a petition to appeal the decision with the Supreme Court of the United States. On June 22, 2020, the Supreme Court denied the petition. Subsequent to September 30, 2020 but prior to the filing of this Form 10-Q, we filed our 2019 US Federal Tax Return and included certain adjustments related to the decision of the Ninth Circuit Court of Appeals in the case of *Altera Corp. v. Commissioner* for which we previously recognized a reserve. As a result, our unrecognized tax benefits will decrease by \$91.9 million with no impact to the effective tax rate in the fourth quarter of 2020.

If our goodwill or intangible assets become impaired, we may be required to record a significant charge to earnings.

Under generally accepted accounting principles in the United States, or GAAP, we review our intangible assets for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. Goodwill is required to be tested for impairment at least annually. An adverse change in market conditions or financial results, particularly if such change has the effect of changing one of our critical assumptions or estimates, could result in a change to the estimation of fair value that could result in an impairment charge to our goodwill or intangible assets. Any such material charges may have a material and adverse impact on our operating results.

Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited.

As of December 31, 2019, we had U.S. federal net operating loss carryforwards of approximately \$2.34 billion and state net operating loss carryforwards of approximately \$1.26 billion. As of December 31, 2019, we had federal and state research and development credit carryforwards of \$345.2 million and \$264.8 million, respectively. Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an “ownership change,” the corporation’s ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes, such as research tax credits, to offset its post-change income and taxes may be limited. In general, an “ownership change” occurs if there is a cumulative change in our ownership by “5% shareholders” that exceeds 50 percentage points over a rolling three-year period. Similar rules may apply under state tax laws. In the event that we have experienced an ownership change, or if we experience one or more ownership changes in the future, then we may be limited in our ability to use our net operating loss carryforwards and other tax assets to reduce taxes owed on the net taxable income that we earn. Any such limitations on the ability to use our net operating loss carryforwards and other tax assets could adversely impact our business, financial condition and operating results.

Risks Related to Ownership of Our Common Stock

Anti-takeover provisions contained in our amended and restated certificate of incorporation and amended and restated bylaws, as well as provisions of Delaware law, could impair a takeover attempt.

Our amended and restated certificate of incorporation, amended and restated bylaws and Delaware law contain provisions which could have the effect of rendering more difficult, delaying, or preventing an acquisition deemed undesirable by our board of directors. Among other things, our amended and restated certificate of incorporation and amended and restated bylaws include provisions:

- creating a classified board of directors whose members serve staggered three-year terms;
- authorizing “blank check” preferred stock, which could be issued by our board of directors without stockholder approval and may contain voting, liquidation, dividend and other rights superior to our common stock;
- limiting the liability of, and providing indemnification to, our directors and officers;
- limiting the ability of our stockholders to call and bring business before special meetings;
- requiring advance notice of stockholder proposals for business to be conducted at meetings of our stockholders and for nominations of candidates for election to our board of directors; and
- controlling the procedures for the conduct and scheduling of stockholder meetings.

These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our management.

As a Delaware corporation, we are also subject to provisions of Delaware law, including Section 203 of the Delaware General Corporation law, which prevents certain stockholders holding more than 15% of our outstanding common stock from engaging in certain business combinations without approval of the holders of at least two-thirds of our outstanding common stock not held by such 15% or greater stockholder.

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

The market price of our common stock has been and will likely continue to be volatile, and you could lose all or part of your investment.

The market price of our common stock has been and may continue to be highly volatile in response to various factors, some of which are beyond our control. In addition to the factors discussed in this “Risk Factors” section and elsewhere in this Quarterly Report on Form 10-Q, factors that could cause fluctuations in the market price of our common stock include the following:

- price and volume fluctuations in the overall stock market from time to time, including fluctuations due to general economic uncertainty or negative market sentiment, in particular related to the COVID-19 pandemic;
- volatility in the market prices and trading volumes of technology stocks;
- changes in operating performance and stock market valuations of other technology companies generally, or those in our industry in particular;
- sales of shares of our common stock by us or our stockholders;
- rumors and market speculation involving us or other companies in our industry;
- failure of securities analysts to maintain coverage of us, changes in financial estimates by securities analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- the financial or non-financial metric projections we may provide to the public, any changes in those projections or our failure to meet those projections;
- announcements by us or our competitors of new products or services;
- the public’s reaction to our press releases, other public announcements and filings with the SEC;
- actual or anticipated changes in our operating results or fluctuations in our operating results;
- actual or anticipated developments in our business, our competitors’ businesses or the competitive landscape generally;
- our issuance of shares of our common stock, whether in connection with an acquisition or upon conversion of some or all of our outstanding Convertible Notes;
- litigation or regulatory action involving us, our industry or both, or investigations by regulators into our operations or those of our competitors;
- developments or disputes concerning our intellectual property or other proprietary rights;
- announced or completed acquisitions of businesses or technologies by us or our competitors;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;
- changes in accounting standards, policies, guidelines, interpretations or principles;
- any significant change in our management; and
- general economic conditions and slow or negative growth of our markets.

In addition, in the past, following periods of volatility in the overall market and the market price of a particular company’s securities, securities class action litigation has often been instituted against these companies. Any securities litigation can result in substantial costs and a diversion of our management’s attention and resources. We are currently subject to securities litigation and may experience more such litigation following any future periods of volatility.

The note hedge and warrant transactions may affect the value of our common stock.

Concurrent with the issuance of the 2021 Notes and 2024 Notes, we entered into note hedge transactions with certain financial institutions, which we refer to as the option counterparties. The note hedge transactions are generally expected to reduce the potential dilution upon any conversion of the 2021 Notes and 2024 Notes and/or offset any cash payments we are required to make in excess of the principal amount converted with respect to the 2021 Notes or 2024 Notes, as the case may be. We also entered into warrant transactions with the option counterparties. However, the warrant transactions could separately have a dilutive effect to the extent that the market price of our common stock exceeds the applicable strike price of the warrants.

The option counterparties or their respective affiliates may modify their initial hedge positions by entering into or unwinding various derivatives contracts with respect to our common stock and/or purchasing or selling our common stock or other securities of ours in secondary market transactions prior to the maturity of the 2021 Notes and 2024 Notes, as applicable (and are likely to do so during any applicable observation period related to a conversion of the 2021 Notes and 2024 Notes, as applicable, or following any repurchase of the 2021 Notes and 2024 Notes, as applicable, by us on any fundamental change repurchase date or otherwise). This activity could cause or avoid an increase or a decrease in the market price of our common stock.

In addition, if any such convertible note hedge and warrant transactions fail to become effective, the option counterparties or their respective affiliates may unwind their hedge positions with respect to our common stock, which could adversely affect the value of our common stock.

If securities or industry analysts change their recommendations regarding our common stock adversely, the price of our common stock and trading volume could decline.

The trading market for our common stock is influenced, to some extent, by the research and reports that securities or industry analysts publish about us, our business, our industry, our market or our competitors. If any of the analysts who cover us change their recommendation regarding our common stock adversely, or provide more favorable relative recommendations about our competitors, the price of our common stock would likely decline.

Item 6. EXHIBITS

The documents listed in the Exhibit Index of this Quarterly Report on Form 10-Q are incorporated by reference or are filed with this Quarterly Report on Form 10-Q, in each case as indicated therein (numbered in accordance with Item 601 of Regulation S-K).

EXHIBIT INDEX

Exhibit Number	Exhibit Description	Form	File No.	Incorporated by Reference Exhibit	Filing Date
10.1	Twitter, Inc. Amended and Restated Outside Director Compensation Policy				
31.1	Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				
31.2	Certification of Chief Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				
32.1†	Certifications of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				
101	The following financial statements from the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, formatted in Inline XBRL: (i) Consolidated Balance Sheets, (ii) Consolidated Statements of Operations, (iii) Consolidated Statements of Comprehensive Income (Loss), (iv) Consolidated Statements of Stockholders' Equity, (v) Consolidated Statements of Cash Flows, and (vi) Notes to Consolidated Financial Statements.				
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)				

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

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Quarterly Report on Form 10-Q to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: October 30, 2020

TWITTER, INC.

By: /s/ Jack Dorsey
Jack Dorsey
Chief Executive Officer
(Principal Executive Officer)

Date: October 30, 2020

By: /s/ Ned Segal
Ned Segal
Chief Financial Officer
(Principal Financial Officer)

TWITTER, INC.

OUTSIDE DIRECTOR COMPENSATION POLICY

Amended and Restated
September 24, 2020

Twitter, Inc. (the “**Company**”) believes that the granting of equity and cash compensation to members of its Board of Directors (the “**Board**,” and members of the Board, “**Directors**”) represents an important tool to attract, retain and reward Directors who are not employees of the Company (“**Outside Directors**”). This Outside Director Compensation Policy (the “**Policy**”) is intended to formalize the Company’s policy regarding compensation to its Outside Directors.

Unless otherwise defined herein, capitalized term(s) used in this Policy will have the meaning(s) given such term(s) in the Company’s 2013 Equity Incentive Plan (the “**Plan**”). Each Outside Director will be solely responsible for any tax obligations incurred by such Outside Director as a result of any payments such Outside Director receives under this Policy.

ANNUAL CASH COMPENSATION*Cash Retainer*

Each Outside Director will be paid a quarterly cash retainer of \$12,500 in arrears on a pro-rata basis based on the number of complete months during the prior quarter that the individual was an Outside Director. There are no per meeting attendance fees for attending Board meetings. In addition, quarterly compensation for any Outside Director who also serves as Board Chair will be \$12,500.

Audit Committee

In addition, quarterly compensation for Outside Directors who serve on the Audit Committee is:

Committee Chair: \$ 7,500

Committee Members: \$ 2,500

There are no per meeting attendance fees for attending Audit Committee meetings. Cash amounts will be paid quarterly in arrears on a pro-rata basis based on the number of complete months during the prior quarter that the individual was an Outside Director and served on the Audit Committee.

Compensation Committee

In addition, quarterly compensation for Outside Directors who serve on the Compensation Committee is:

Committee Chair: \$ 5,000

Committee Members: \$ 2,500

There are no per meeting attendance fees for attending Compensation Committee meetings. Cash amounts will be paid quarterly in arrears on a pro-rata basis based on the number of complete months during the prior quarter that the individual was an Outside Director and served on the Compensation Committee.

Nominating and Corporate Governance Committee

In addition, quarterly compensation for Outside Directors who serve on the Nominating and Corporate Governance Committee is:

Committee Chair: \$ 3,750

Committee Members: \$ 2,500

There are no per meeting attendance fees for attending Nominating and Corporate Governance Committee meetings. Cash amounts will be paid quarterly in arrears on a pro-rata basis based on the number of complete months during the prior quarter that the individual was an Outside Director and served on the Nominating and Governance Committee.

ANNUAL EQUITY AWARD

On the date of each annual meeting of stockholders (“**Annual Meeting**”), each Outside Director automatically will be granted an award of Restricted Stock Units under the Plan having a Value equal to \$225,000 with the number of Shares determined based on that Value rounded down (an “**Annual Award**”). Each Annual Award granted to an Outside Director pursuant to this Policy will be made in accordance with the following provisions:

(a) No Discretion. No person will have any discretion to select which Outside Directors will be granted Annual Awards under this Policy. In addition, no person will have any discretion to determine the number of Restricted Stock Units or Shares covered by such Award, other than with respect to elections to received additional Restricted Stock Units instead of cash.

(b) Value. For purposes of this Policy, “**Value**” means the fair value for financial accounting purposes on the grant date of such Annual Award.

(c) Vesting Schedule. Each Annual Award will vest in quarterly installments beginning on the first quarter following the grant date (on the same day of the month as the grant date), but will vest fully on the date of the next annual meeting of the stockholders of the Company held after the date of grant if not fully vested on such date, in each case, provided that the Outside Director continues to serve as a Service Provider through the vesting date. Annual Awards will be settled, as applicable, as soon as practicable following each vesting date.

(d) Limitations. If, as of the date of an Annual Meeting, an Outside Director holds an equity award to acquire shares of Company common stock that is unvested, the Value of the Annual Award granted at that Annual Meeting will be reduced to equal the product of: \$225,000 * ((1-Number of Months Until the Equity Award is Fully Vested)/12).

ELECTION TO RECEIVE CASH FEES IN STOCK

An Outside Director may elect to receive any cash fees that he or she would otherwise be entitled to under this Policy in the form of additional Restricted Stock Units. If an Outside Director chooses to make such an election it must be made no later than two weeks prior to the date of the Annual Meeting on which the Annual Award will be granted and the Value of the Annual Award (determined after applying any reduction by application of subsection (d) above) will be increased by the amount of fees that would have otherwise been paid in cash. The election shall be made in accordance with the practices and procedures determined by the Compensation Committee, in its sole discretion.

GENERAL

Notwithstanding anything to the contrary, no Awards made in equity may exceed the limitations set forth in Section 11 of the Plan.

The Compensation Committee in its discretion may change and otherwise revise the terms of Annual Awards granted under this Policy, including, without limitation, the number of Shares subject thereto, for Annual Awards of the same or different type granted on or after the date the Compensation Committee determines to make any such change or revision.

**CERTIFICATION OF PERIODIC REPORT UNDER SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002**

I, Jack Dorsey, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Twitter, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and;
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: October 30, 2020

/s/ Jack Dorsey

Jack Dorsey
Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION OF PERIODIC REPORT UNDER SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002**

I, Ned Segal, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Twitter, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and;
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: October 30, 2020

/s/ Ned Segal

Ned Segal
Chief Financial Officer
(Principal Financial Officer)

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

I, Jack Dorsey, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Quarterly Report on Form 10-Q of Twitter, Inc. for the fiscal quarter ended September 30, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Quarterly Report on Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of Twitter, Inc.

Date: October 30, 2020

By: /s/ Jack Dorsey
Name: Jack Dorsey
Title: Chief Executive Officer

I, Ned Segal, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Quarterly Report on Form 10-Q of Twitter, Inc. for the fiscal quarter ended September 30, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Quarterly Report on Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of Twitter, Inc.

Date: October 30, 2020

By: /s/ Ned Segal
Name: Ned Segal
Title: Chief Financial Officer