
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2019

OR

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

FOR THE TRANSITION PERIOD FROM _____ TO _____
Commission File Number 001-36164

Twitter, Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction
of incorporation or organization)

20-8913779

(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

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes No

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, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer", "smaller reporting company", and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant, based on the closing price of a share of the registrant's common stock on June 30, 2019 as reported by the New York Stock Exchange on such date was approximately \$26.35 billion.

The number of shares of the registrant's common stock outstanding as of February 6, 2020 was 782,287,089.

Portions of the registrant's Definitive Proxy Statement relating to the Annual Meeting of Stockholders are incorporated by reference into Part III of this Annual Report on Form 10-K where indicated. Such Definitive Proxy Statement will be filed with the Securities and Exchange Commission within 120 days after the end of the registrant's fiscal year ended December 31, 2019.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K 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 Annual Report on Form 10-K 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;
- 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 relating to infrastructure;
- 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;
- 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;
- 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;
- 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 Annual Report on Form 10-K.

You should not rely upon forward-looking statements as predictions of future events. We have based the forward-looking statements contained in this Annual Report on Form 10-K 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 Annual Report on Form 10-K. 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 Annual Report on Form 10-K. 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 Annual Report on Form 10-K 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 Annual Report on Form 10-K to reflect events or circumstances after the date of this Annual Report on Form 10-K 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. 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. 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.

The numbers of mDAU presented in this Annual Report on Form 10-K 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 fourth quarter of 2019 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. 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.

* Please note that in an effort to demonstrate more empathy for the people who use Twitter, we largely discontinued the use of the word "user" in our SEC filings. The underlying definitions for our metrics did not change.

PART I

Item 1. BUSINESS

Overview

Twitter is what's happening in the world and what people are talking about right now. From breaking news and entertainment, to sports, politics, and everyday interests, Twitter shows every side of the story. On Twitter you can join the open conversation and watch highlights, clips, or live-streaming events. Twitter is available in more than 40 languages around the world. The service can be accessed via twitter.com, an array of mobile devices via Twitter owned and operated mobile applications (e.g. Twitter for iPhone and Twitter for Android), and SMS.

Our primary product, Twitter, is a global platform for public self-expression and conversation in real time. Twitter allows people to consume, create, distribute and discover content and has democratized content creation and distribution. Through Topics, Trends, and Moments, we help people discover what's happening live. We also continue to implement live broadcasts across Twitter, including through partnerships with media outlets and our platform partners. Media outlets and our platform partners also help extend the reach of Twitter content by distributing Tweets beyond our products to complement their content. Periscope is a mobile application that lets anyone broadcast and watch video live with others. Periscope broadcasts can also be viewed through Twitter and on desktop or mobile web browsers.

In 2019, we improved our machine-learning models to provide more relevant content in people's Home timelines and notifications. We are making it easier for people to find what they are looking for when they come to Twitter by better organizing content around topics and events, and making it easier to follow and join conversations. We also continue to enhance the public conversation around events on Twitter with live and on-demand video content, including short videos and highlights, across sports, entertainment, news, and politics. In addition, we continued our work to innovate faster and deliver better returns for advertisers by shipping new ad platform services as part of our effort to rebuild our core ad server. In 2019, we also continued our efforts to improve the health of the platform, as we work to make sure that people feel safe being a part of the conversation and are able to find credible information on our service. Major areas of focus within health include working to proactively limit the visibility of unhealthy content, protecting the integrity of election-related conversations and giving people more control over their conversations. We also launched the Twitter Privacy Center to provide more clarity around what we are doing to protect the information people share with us.

Products and Services for Advertisers

Our Promoted Products enable our advertisers to launch products and services and promote their brands, amplify their visibility and reach, and connect with what's happening to extend the conversation around their advertising campaigns. We enable our advertisers to target an audience based on a variety of factors, including interest graphs. Interest graphs map, among other things, interests based on who an account follows and actions taken on our platform, such as Tweets created and engagement with Tweets. We believe a person's interest graph produces a clear and real-time signal of that person's interests, greatly enhancing the relevance of the ads we can display and enhancing our targeting capabilities for advertisers. Our Promoted Products are incorporated into our platform as native advertising and are designed to be as compelling and useful to people on Twitter as organic content on our platform.

Currently, our Promoted Products consist of:

- *Promoted Tweets.* Promoted Tweets appear within an individual's timeline, search results or profile pages just like an ordinary Tweet regardless of device. Promoted Tweets often include images and videos, such as Mobile App Cards and Website Cards. Using our proprietary algorithm and understanding of each individual's interest graph, we can deliver Promoted Tweets that are intended to be relevant to a particular person on Twitter. Our goal is to enable advertisers to create and optimize successful marketing campaigns - and pay either on impressions delivered or only for the actions taken by people on Twitter that are aligned with their marketing objectives. As a result, we have added product features to Promoted Tweets based on advertiser objectives, which may include Tweet engagements (e.g., Retweets, replies and likes), website clicks or conversions, mobile application installs or engagements, obtaining new followers, or video views.
- *Promoted Accounts.* Promoted Accounts appear in the same format and place as accounts suggested by our Who to Follow recommendation engine, or in some cases, in Tweets in an individual's timeline. Promoted Accounts provide a way for our advertisers to grow a community of people on Twitter who are interested in their business, products or services.

- *Promoted Trends.* Promoted Trends 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. When a person on Twitter clicks on a Promoted Trend, search results for that trend are shown in a timeline and a Promoted Tweet created by an advertiser is displayed to the individual at the top of those search results. We feature one Promoted Trend per day per geography. We also offer Promoted Trend Spotlight, our newest takeover ad product on Twitter, which enables brands to leverage video paired with a prominent location at the top of the Explore tab.

Advertisers can also run short video ads, such as In-Stream video ads, either before or around premium video content, such as during live premium video content from publishing partners or clips from a variety of interest categories such as news, sports and entertainment. Our technology dynamically inserts those advertisers' ads into the relevant videos and delivers the ads to the audience targeted by those advertisers. We may pay content partners a portion of our advertising revenue for the right to use and distribute their content on our platform. In addition, In-Stream Video Sponsorships allow advertisers to build brand association by sponsoring premium video content from a single publishing partner, including live video, video clips, and other storytelling formats like Sponsored Moments.

We continue to focus our investment on features that differentiate Twitter and capitalize on our value proposition for advertisers, including video and more organic ad formats.

Our technology platform and information database enable us to provide targeting capabilities based on audience attributes like geography, interests, keyword, conversation, content, and events that make it possible for advertisers to promote their brands, products and services, amplify their visibility and reach, and complement and extend the conversation around their advertising campaigns.

Our platform also enables customers to advertise across the mobile ecosystem, both on Twitter's owned and operated properties as well as off Twitter on third-party publishers' websites, applications and other offerings. We enable advertisers to extend their reach beyond Twitter through:

- MoPub, our mobile-focused advertising exchange, which combines ad serving, ad network mediation and a real-time bidding exchange into one comprehensive monetization platform.
- Twitter Audience Platform, an advertising offering that enables advertisers to extend their advertising campaigns with Twitter Promoted Products to audiences off Twitter while retaining access to Twitter's measurement, targeting and creative tools.

Content Partnerships

Video is an important way to stay informed on Twitter, enabling people on Twitter and content owners to better share experiences, engage in events, and converse with broader audiences. We continue to increase reach and engagement for content owners around the world through live-streaming, highlight video clips, and video-on-demand agreements designed to complement the content from people on Twitter and licensed live and on-demand video content already available on Twitter across a number of verticals including sports, news, gaming and entertainment.

Products for Developers and Data Partners

We provide developers with a platform which they can use to access a set of tools and public application programming interfaces (APIs) to build applications and other products that leverage Twitter data, contribute their content to our platform, and syndicate and distribute Twitter content across their properties. In addition, the developer platform is also used by academic researchers who seek to study the public conversation. We believe this work has the potential to help us improve the health of the public conversation. Websites and applications integrating with our publicly available APIs expands Twitter's value and reach for brands engaging with people who use Twitter, as well as helps to improve the experience people have on Twitter. Many applications have been registered by developers to enable them to integrate with our platform and leverage Twitter content to enhance and extend their applications in new and creative ways. The goal of our platform product development is to make it easy for developers to integrate seamlessly with Twitter, while protecting the privacy and safety of the people who use Twitter.

We also offer paid enterprise access to our public data feed for partners who wish to access more data beyond our free public API. Our enterprise data products and services offer more sophisticated data sets and better data enrichment to allow developers and businesses to utilize our public content to derive business insights and build products using the unique content that is shared on Twitter. We have grown our data licensing revenue with a more customer-centric approach to channels, markets, products, and pricing. We believe this approach positions both Twitter and our key channel partners for greater growth and monetization, and we are investing in deeper partnerships with a few select solution providers to help businesses and organizations realize greater value from our data and platform.

Competition

Our business is characterized by rapid technological change, frequent product innovation and the continuously evolving preferences and expectations of people on Twitter, advertisers, content partners, platform partners and developers. We face significant competition in every aspect of our business, including from companies that provide tools to facilitate communications and the sharing of information, companies that enable marketers to display advertising, and other online ad networks, exchanges and platforms. We also compete to attract, engage, and retain people who use our products, and to attract and retain marketers, content and platform partners, and developers. We have seen escalating competition for digital ad spending and expect this trend to continue. We also compete to attract and retain employees, especially software engineers, designers, and product managers.

We compete with the following companies for people's attention and for advertisers' budgets:

- Companies that offer products that enable people to create and share ideas, videos, and other content and information. These offerings include, for example, Facebook (including Instagram and WhatsApp), Alphabet (including Google and YouTube), Microsoft (including LinkedIn), Snap, TikTok, and Verizon Media Group, as well as largely regional social media and messaging companies that have strong positions in particular countries (including WeChat, Kakao, and Line). Although we often seek differentiated content from other licensors, we face competition for live premium video content rights from other digital distributors and traditional television providers, which may limit our ability to secure such content on economic and other terms that are acceptable to us in the future.
- Companies that offer advertising inventory and opportunities to advertisers.
- Companies that develop applications, particularly mobile applications, that create, syndicate and distribute content across internet properties.
- Traditional, online, and mobile businesses that enable people to consume content or marketers to reach their audiences and/or develop tools and systems for managing and optimizing advertising campaigns.

As we introduce new products, as our existing products evolve, or as other companies introduce new products and services, we may become subject to additional competition.

Our industry is evolving rapidly and is highly competitive. See the sections titled "Risk Factors—if we are unable to compete effectively, our business and operating results could be harmed" and "Risk Factors—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."

Technology, Research and Development

Twitter is composed of a set of core, scalable and distributed services that are built from proprietary and open source technologies. These systems are capable of delivering billions of messages, including images and video, to hundreds of millions of people a day in an efficient and reliable way. We continue to invest in our existing products and services as well as develop new products and services through research and product development. We also continue to invest in protecting the safety, security and integrity of our platform by investing in both people and technology, including machine learning.

Sales and Marketing

We have a global sales force and sales support staff that is focused on attracting and retaining advertisers while certain advertisers use our self-serve advertising platform to launch and manage their advertising campaigns. Our sales force and sales support staff assist advertisers throughout the advertising campaign cycle, from pre-purchase decision making to real-time optimizations as they utilize our campaign management tools, and to post-campaign analytics reports to assess the effectiveness of their advertising campaigns.

We use marketing campaigns to help drive audiences to our platform. In 2019, we delivered marketing campaigns focused on celebrating and highlighting the voices of the people who make Twitter unique.

We also continued to highlight our value proposition for advertisers, including how brands turn to Twitter to launch something new, and connect with what's happening. Advertisers start their campaigns with our audience because Twitter has the most valuable audiences when they are most receptive.

Intellectual Property

We seek to protect our intellectual property rights by relying on federal, state and common law rights in the United States and other countries, as well as contractual restrictions. We generally enter into confidentiality and invention assignment agreements with our employees and contractors, and confidentiality agreements with other third parties, in order to limit access to, and disclosure and use of, our confidential information and proprietary technology. In addition to these contractual arrangements, we also rely on a combination of trademarks, trade dress, domain names, copyrights, trade secrets and patents to help protect our brand and our other intellectual property.



Government Regulation

We are subject to a number of U.S. federal and state and foreign laws and regulations that involve matters central to our business. These laws and regulations may involve privacy, data protection, security, rights of publicity, content regulation, intellectual property, competition, protection of minors, consumer protection, credit card processing, taxation or other subjects. Many of these laws and regulations are still evolving and being tested in courts and could 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. In addition, the application and interpretation of these laws and regulations often are uncertain, particularly in the new and rapidly evolving industry in which we operate.

We are also subject to federal, state and foreign laws regarding privacy and data protection. For example, the California Consumer Privacy Act, or CCPA, went into effect on January 1, 2020. The CCPA requires covered companies to, among other things, 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. 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 General Data Protection Regulation, or the GDPR, imposes stringent operational requirements for entities processing personal information and significant penalties for non-compliance. There are also a number of legislative proposals pending before the U.S. Congress, various state legislative bodies and foreign governments concerning content regulation and data protection that could affect us.

In March 2011, to resolve an investigation into various incidents, we entered into a settlement agreement with the Federal Trade Commission, or FTC, that, among other things, requires 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 settlement agreement 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. Violation of existing or future regulatory orders, settlements, or consent decrees could subject us to substantial monetary fines and other penalties that could negatively affect our financial condition and results of operations.

People may be restricted from accessing Twitter from certain countries, and other countries have intermittently restricted access to Twitter. For example, Twitter is not directly accessible in China and has been blocked in the past in Turkey and certain of our SMS messages have been blocked in Saudi Arabia. It is possible that other governments may seek to restrict access to or block our website or mobile applications, censor content available through our products or impose other restrictions that may affect the accessibility or usability of Twitter for an extended period of time or indefinitely. For instance, some countries have enacted laws that allow websites to be blocked for hosting certain types of content.

For additional information, see the section titled “Risk Factors—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.”

Seasonality

Advertising spending is traditionally strongest in the fourth quarter of each year. Historically, this seasonality in advertising spending has affected our quarterly results, with higher sequential advertising revenue growth from the third quarter to the fourth quarter compared to sequential advertising revenue from the fourth quarter to the subsequent first quarter.

Backlog

As of December 31, 2019, our backlog primarily consists of long-term data licensing contracts. We generate the substantial majority of our revenue from our advertising services. As such, we do not believe that our backlog, as of any particular date, is necessarily indicative of actual revenue for any future period. Refer to Note 3 of the Notes to Consolidated Financial Statements under Part II, Item 8 of this Annual Report on Form 10-K regarding the amount of remaining performance obligations, which represents the significant majority of our contracted backlog.

Employees

As of December 31, 2019, we had approximately 4,900 full-time employees.

Corporate Information

We were incorporated in Delaware in April 2007. Our principal executive offices are located at 1355 Market Street, Suite 900, San Francisco, California 94103, and our telephone number is (415) 222-9670. We completed our initial public offering in November 2013 and our common stock is listed on the New York Stock Exchange under the symbol “TWTR.” Unless the context requires otherwise, the words “Twitter,” “we,” “Company,” “us” and “our” refer to Twitter, Inc. and our wholly-owned subsidiaries.

Available Information

Our website is located at <https://www.twitter.com>, and our investor relations website is located at <https://investor.twitterinc.com>. Copies of our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, are available, free of charge, on our investor relations website as soon as reasonably practicable after we file such material electronically with or furnish it to the Securities and Exchange Commission, or the SEC. The SEC also maintains a website that contains our SEC filings. The address of the SEC website is <https://www.sec.gov>.

We webcast our earnings calls and certain events we participate in or host with members of the investment community on our investor relations website. Additionally, we provide notifications of news or announcements regarding our financial performance, including SEC filings, investor events, press and earnings releases, and blogs as part of our investor relations website. We have used, and intend to continue to use, our investor relations website, as well as certain Twitter accounts (@jack, @nedsegal, @twitter and @twitterIR), as means of disclosing material non-public information and for complying with our disclosure obligations under Regulation FD. Further corporate governance information, including our certificate of incorporation, bylaws, corporate governance guidelines, board committee charters, and code of business conduct and ethics, is also available on our investor relations website under the heading "Corporate governance." The contents of our websites are not intended to be incorporated by reference into this Annual Report on Form 10-K or in any other report or document we file with the SEC, and any references to our websites are intended to be inactive textual references only.

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 Annual Report on Form 10-K, 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

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 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, 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;
- 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;



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- 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. 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. 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. To date, 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 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.

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.

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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;
- 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;
- 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.

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 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 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. 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, and certain of our SMS messages have been blocked in Saudi Arabia.

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. For example, many of our relationships with our mobile carriers to deliver our SMS messages were originally negotiated as free or low-cost connections, but recently some of the mobile carriers have been proposing fee increases for these arrangements, which may not be cost-effective for us. This may, in turn, adversely affect the number of people who receive our SMS messages. 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. 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 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. 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 sunsetting 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.

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 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 80% of our average mDAU in the three months ended December 31, 2019, but our international revenue, as determined based on the billing location of our customers, was approximately 41% of our consolidated revenue in the three months ended December 31, 2019. Our inability 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. 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 rely on 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 they may be modified or invalidated. This 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. Any of these changes with respect to EU data protection law could disrupt our business.

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 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, that could impose new obligations in areas such as privacy and liability for copyright infringement or content by third parties such as various Congressional efforts to restrict the scope of the protections available to online platforms under Section 230 of the Communications Decency Act, and our current protections from liability for third-party content in the United States could decrease or change. 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 user-generated content. Each EU member state has two years to implement it. The EU Copyright Directive may increase our costs of operations, our liability for user-generated content, 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 settlement agreement 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 settlement agreement 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.

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 adversely impact our business. 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.

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.

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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 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, 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 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 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 fourth quarter of 2019 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, which we refer to as the Convertible Notes when taken together with the 2021 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 or, when taken together with the Convertible Notes, the Notes. As of December 31, 2019, we had \$2.80 billion in aggregate principal amount of outstanding Notes. As of December 31, 2019, 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 an earthquake, fire, flood or significant power outage could have a material adverse impact on our business, operating results, and financial condition. 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 (the "Tax 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 have unilaterally moved to introduce their own digital service tax ("DST") to capture tax revenue on digital services more immediately. Notably France, Italy, Austria, the United Kingdom and Turkey have enacted or will soon enact this tax. Such laws would 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. During the year ended December 31, 2019, we evaluated the Court's ruling and recorded an increase in the tax provision of \$80.0 million. In February 2020, Altera Corp. filed a petition to appeal the decision with the Supreme Court of the United States. We will continue to monitor future developments in this case to determine if there will be further impacts to the consolidated financial statements.

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 Annual Report on Form 10-K, 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;
- 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 Convertible 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 Convertible Notes and/or offset any cash payments we are required to make in excess of the principal amount of converted Convertible 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 Convertible Notes (and are likely to do so during any observation period related to a conversion of Convertible Notes or following any repurchase of Convertible Notes 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 1B. UNRESOLVED STAFF COMMENTS

None.

Item 2. PROPERTIES

Facilities

As of December 31, 2019, we leased office facilities around the world totaling approximately 1,600,000 square feet, including approximately 800,000 square feet for our corporate headquarters in San Francisco, California. We also lease data center facilities in the United States pursuant to various lease agreements and co-location arrangements with data center operators. While we believe our facilities are sufficient for our current needs, we are investing to build out a new data center to add capacity to support further growth.

Item 3. LEGAL PROCEEDINGS

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, 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 16 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 4. MINE SAFETY DISCLOSURE

Not applicable.

PART II

Item 5. MARKET FOR REGISTRANT'S COMMON EQUITY RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information for Common Stock

Our common stock has been listed on the New York Stock Exchange under the symbol "TWTR" since November 7, 2013. Prior to that date, there was no public trading market for our common stock.

Holders of Record

As of February 6, 2020, there were 825 holders of record of our common stock. Because many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividend Policy

We have never declared or paid any cash dividends on our capital stock. We intend to retain any future earnings and do not expect to pay any dividends in the foreseeable future. Any future determination to declare cash dividends will be made at the discretion of our board of directors, subject to applicable laws, and will depend on a number of factors, including our financial condition, results of operations, capital requirements, contractual restrictions, general business conditions and other factors that our board of directors may deem relevant. In addition, the credit facility contains restrictions on payments including cash payments of dividends.

Unregistered Sales of Equity Securities

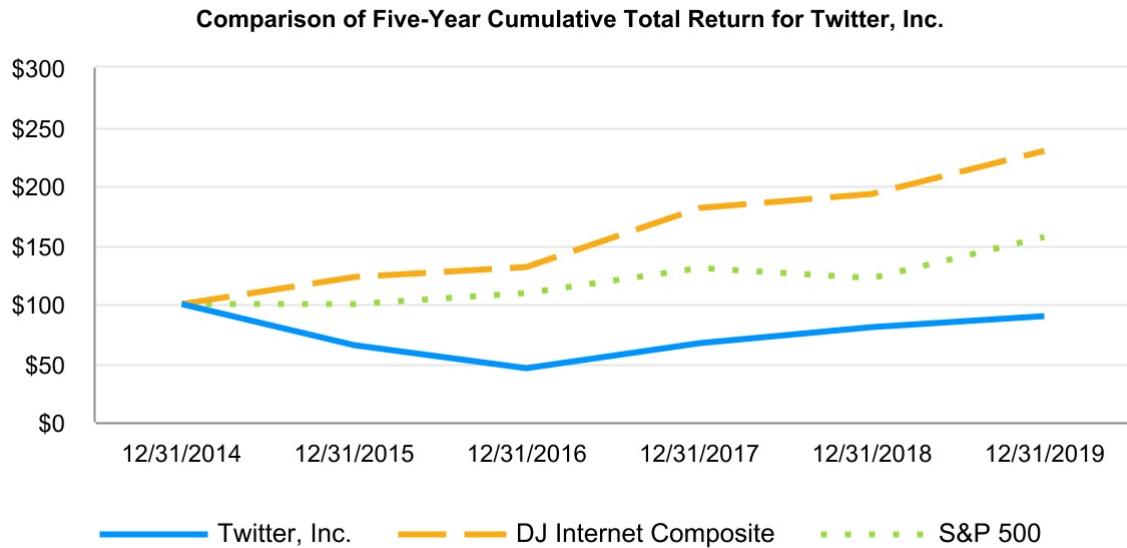
During the three months ended December 31, 2019, we issued a total of 164,742 shares of our common stock in connection with the acquisition of one company.

The foregoing transaction did not involve any underwriters, any underwriting discounts or commissions, or any public offering. We believe the offer, sale, and issuance of the above securities was exempt from registration under the Securities Act of 1933, as amended (the "Act") by virtue of Section 4(a)(2) of the Act and Regulation S promulgated under the Act, because the issuance of securities to the recipients did not involve a public offering. The recipients of the securities in this transaction represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed upon the stock certificates issued in this transaction. All recipients had adequate access, through their relationships with us or otherwise, to information about us. The issuance of these securities was made without any general solicitation or advertising.

Performance Graph

This performance graph shall not be deemed “soliciting material” or to be “filed” with the SEC for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (Exchange Act), or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of Twitter, Inc. under the Securities Act of 1933, as amended, or the Exchange Act.

The following graph compares the cumulative 5-year total return to stockholders on our common stock relative to the cumulative total returns of the Standard & Poor’s 500 Index, or S&P 500, and the Dow Jones Internet Composite Index, or DJ Internet Composite. An investment of \$100 (with reinvestment of all dividends) is assumed to have been made in our common stock and in each index at the market close on the last trading day for the fiscal year ended December 31, 2014 and its relative performance is tracked through December 31, 2019. The returns shown are based on historical results and are not intended to suggest future performance.



Item 6. SELECTED FINANCIAL DATA

The following selected historical consolidated financial data should be read in conjunction with Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations", our consolidated financial statements and the related notes included in Item 8, "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K.

The consolidated statements of operations data for the years ended December 31, 2019, 2018 and 2017 and the consolidated balance sheet data as of December 31, 2019 and 2018 are derived from our audited consolidated financial statements included in Part II, Item 8, "Financial Statements and Supplementary Data" in this Annual Report on Form 10-K. The consolidated statements of operations data for the years ended December 31, 2016 and 2015 and the consolidated balance sheet data as of December 31, 2017, 2016 and 2015 are derived from our audited consolidated financial statements not included in this Annual Report on Form 10-K. Our historical results are not necessarily indicative of the results that may be expected in the future.

	Year Ended December 31,				
	2019	2018	2017	2016	2015
	(In thousands, except per share data)				
Consolidated Statement of Operations Data:					
Revenue ⁽¹⁾	\$ 3,459,329	\$ 3,042,359	\$ 2,443,299	\$ 2,529,619	\$ 2,218,032
Costs and expenses ⁽²⁾					
Cost of revenue	1,137,041	964,997	861,242	932,240	729,256
Research and development	682,281	553,858	542,010	713,482	806,648
Sales and marketing	913,813	771,361	717,419	957,829	871,491
General and administrative	359,821	298,818	283,888	293,276	260,673
Total costs and expenses	3,092,956	2,589,034	2,404,559	2,896,827	2,668,068
Income (loss) from operations	366,373	453,325	38,740	(367,208)	(450,036)
Interest expense	(138,180)	(132,606)	(105,237)	(99,968)	(98,178)
Interest income	157,703	111,221	44,383	24,277	9,073
Other income (expense), net	4,243	(8,396)	(73,304)	2,065	5,836
Income (loss) before income taxes	390,139	423,544	(95,418)	(440,834)	(533,305)
Provision (benefit) for income taxes ⁽³⁾	(1,075,520)	(782,052)	12,645	16,039	(12,274)
Net income (loss)	\$ 1,465,659	\$ 1,205,596	\$ (108,063)	\$ (456,873)	\$ (521,031)
Net income (loss) per share attributable to common stockholders:					
Basic	\$ 1.90	\$ 1.60	\$ (0.15)	\$ (0.65)	\$ (0.79)
Diluted	\$ 1.87	\$ 1.56	\$ (0.15)	\$ (0.65)	\$ (0.79)
Weighted-average shares used to compute net income (loss) per share attributable to common stockholders:					
Basic	770,729	754,326	732,702	702,135	662,424
Diluted	785,531	772,686	732,702	702,135	662,424

(1) We adopted the new revenue standard on January 1, 2018 using the modified retrospective method. Revenue for the year ended December 31, 2018 was not materially impacted by the application of the new revenue standard.

(2) Costs and expenses include stock-based compensation expense as follows:

	Year Ended December 31,				
	2019	2018	2017	2016	2015
	(In thousands)				
Cost of revenue	\$ 22,797	\$ 17,289	\$ 23,849	\$ 29,502	\$ 40,705
Research and development	209,063	183,799	240,833	335,498	401,537
Sales and marketing	85,739	71,305	94,135	160,935	156,904
General and administrative	60,426	53,835	74,989	89,298	82,972
Total stock-based compensation	\$ 378,025	\$ 326,228	\$ 433,806	\$ 615,233	\$ 682,118

- (3) Provision (benefit) for income taxes includes the impact of the Tax Act. Refer to Note 15 of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K for further information. In the year ended December 31, 2019, we recorded an income tax benefit of \$1.21 billion related to the establishment of deferred tax assets from intra-entity transfers of intangible assets. In the year ended December 31, 2018, we recorded an income tax benefit of \$845.1 million associated with the release of the valuation allowance related to Brazil and most of the United States federal and all states deferred tax assets with the exception of California and Massachusetts.

	As of December 31,				
	2019	2018	2017	2016	2015
	(In thousands)				
Consolidated Balance Sheet Data:					
Cash and cash equivalents	\$ 1,799,082	\$ 1,894,444	\$ 1,638,413	\$ 988,598	\$ 911,471
Short-term investments	\$ 4,839,970	\$ 4,314,957	\$ 2,764,689	\$ 2,785,981	\$ 2,583,877
Property and equipment, net	\$ 1,031,781	\$ 885,078	\$ 773,715	\$ 783,901	\$ 735,299
Total assets	\$ 12,703,389	\$ 10,162,572	\$ 7,412,477	\$ 6,870,365	\$ 6,442,439
Convertible notes	\$ 1,816,833	\$ 2,628,250	\$ 1,627,460	\$ 1,538,967	\$ 1,455,095
Senior notes	\$ 691,967	\$ —	\$ —	\$ —	\$ —
Total liabilities	\$ 3,999,003	\$ 3,356,978	\$ 2,365,259	\$ 2,265,430	\$ 2,074,392
Total stockholders' equity	\$ 8,704,386	\$ 6,805,594	\$ 5,047,218	\$ 4,604,935	\$ 4,368,047

Item 7. 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 8 "Financial Statements and Supplementary Data" in this Annual Report on Form 10-K. 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 Annual Report on Form 10-K.

FY 2019 Overview and Highlights

Total revenue was \$3.46 billion, an increase of 14%, or 15% on a constant currency basis, compared to 2018.

- Advertising revenue totaled \$2.99 billion, an increase of 14%, or 15% on a constant currency basis, compared to 2018.
- Data licensing and other revenue totaled \$465.9 million, an increase of 10% compared to 2018.
- U.S. revenue totaled \$1.94 billion, an increase of 18% compared to 2018.
- International revenue totaled \$1.52 billion, an increase of 8% compared to 2018.
- Total ad engagements increased 24% compared to 2018.
- Cost per engagement decreased 8% compared to 2018.

Net income was \$1.47 billion, compared to \$1.21 billion in 2018.

Stock-based compensation for the year was \$378.0 million, or 11% of revenue, representing an increase of 16% compared to 2018.

Cash, cash equivalents and short-term investments in marketable securities totaled \$6.64 billion as of December 31, 2019.

Average monetizable daily active users (mDAU) were 152 million for the three months ended December 31, 2019, an increase of 21% year-over-year.



Key Metrics

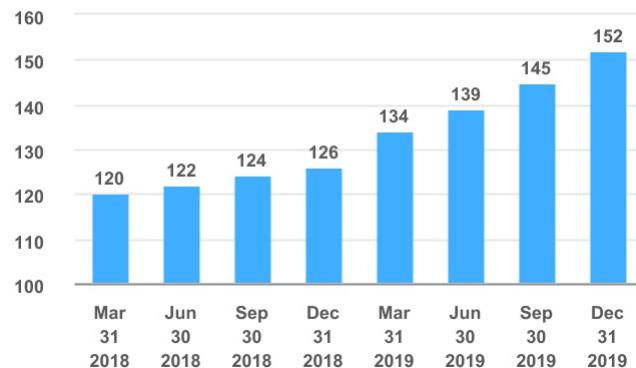
We review a number of metrics, including the key metrics discussed below, to evaluate our business, measure our performance, identify trends affecting our business, formulate business plans and make strategic decisions.

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.

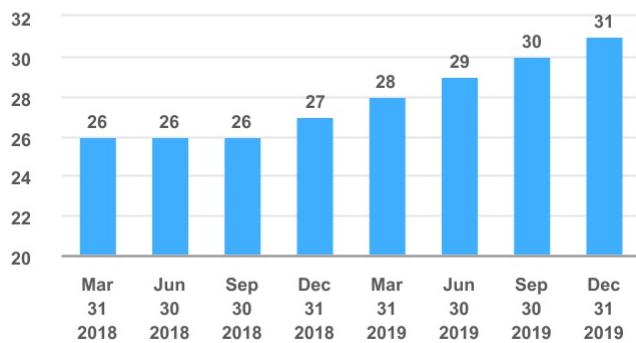
In the three months ended December 31, 2019, we had 152 million average mDAU, which represents an increase of 21% from the three months ended December 31, 2018. The increase was primarily driven by product improvements including increased relevance in the Home timeline and notifications. In the three months ended December 31, 2019, we had 31 million average mDAU in the United States and 121 million average mDAU in the rest of the world, which represent increases of 15% and 22%, respectively, from the three months ended December 31, 2018.

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."

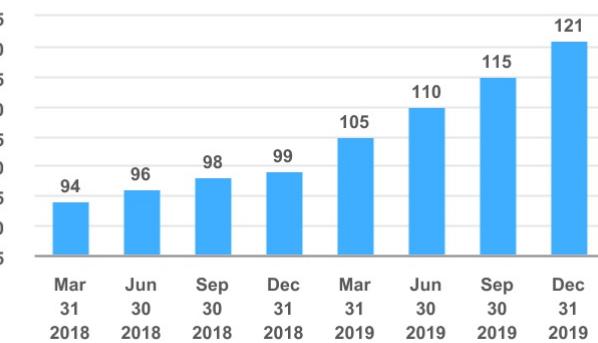
**Monetizable Daily Active Usage: Worldwide
(quarterly average in millions)**



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

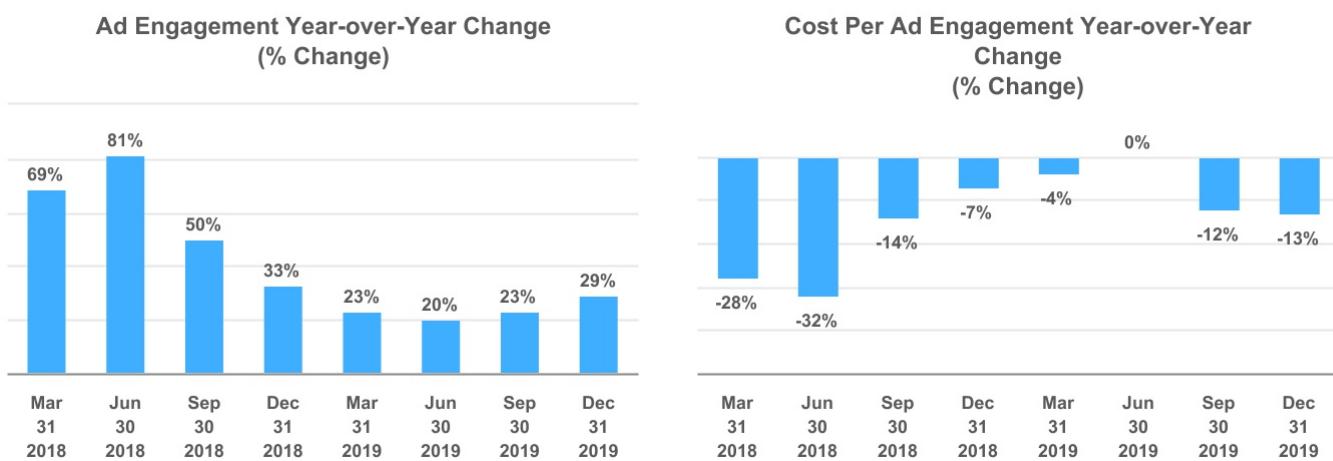


**Monetizable Daily Active Usage:
International
(quarterly average in millions)**



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. We believe changes in cost per ad engagement is one way to measure demand.

In the three months ended December 31, 2019, ad engagements increased 29% from the three months ended December 31, 2018. The increase was primarily driven by increased impressions driven by audience growth and improved clickthrough rates (CTR), which grew on a year-over-year basis across the majority of ad types due to ongoing improvements in ad relevance. In the three months ended December 31, 2019, cost per ad engagement decreased by 13% compared to the three months ended December 31, 2018, reflecting a continued mix shift to video ad formats (which have a lower cost per ad engagement) and like-for-like price decreases across most ad formats.



Factors Affecting Our Future Performance

mDAU Growth and Monetization. Growth trends reflected in the growth rate of mDAU and monetization trends reflected in advertising engagements are key factors that affect our revenue. As our audience and their level of engagement grow, we believe the potential to increase our revenue grows.

mDAU Growth. We have generally experienced growth in our mDAU over the last several years. We have the most mDAU in the United States, Japan, and the United Kingdom. Accordingly, in the future we expect our mDAU growth rate in certain international markets to continue to be higher than our mDAU growth rate in these countries. However, we expect to continue to face challenges in entering some markets, such as China, where access to Twitter is blocked, as well as certain other countries that have intermittently restricted access to Twitter. Restrictions or limitations on access to Twitter will adversely impact our ability to increase the size of our audience and generate additional revenue in certain markets.

We intend to grow mDAU by building and shipping product changes more rapidly to make Twitter safer and investing in our core use case and in new product areas that further strengthen our unique position as the best and fastest place to see and talk about what's happening in the world. Our mDAU growth rate has fluctuated over time, and it may slow or decline. To the extent our mDAU growth or 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 to increase revenue growth from third-party publishers' websites and applications, data licensing and other offerings.

Monetization. There are many variables that impact the monetization of our platform, such as the number of total accounts, the level of engagement with our platform, ad load (which is a function of the amount of advertising we choose to display), the level of engagement with our Promoted Products, advertiser demand and cost per ad engagement. Generally, we design our algorithms for our pay-for-performance Promoted Products to optimize the overall experience on Twitter and the value we deliver to advertisers. Advertising revenue growth may be impacted by escalating competition for digital ad spending and the reevaluation of our revenue product feature portfolio, which could result in the de-emphasis of certain product features. In 2019, we experienced bugs that primarily affected our legacy MAP product and other issues with certain personalization and data settings not working as expected. While we have taken steps to remediate these issues and will continue to work to improve our ad products, and to help our audience realize the benefits of a more personalized experience on Twitter, the resulting impact continues to affect our ability to target advertising and share data with our measurement and ad partners and, therefore, will continue to negatively impact our revenue growth. Furthermore, we may see a decline in the number of advertisers on a year-over-year basis, which may also impact overall demand for our ads products. We have increased, and may in the future increase, ad load to the extent that we are able to continue to reach the right balance of advertiser value and the overall experience on Twitter. In order to improve monetization, we plan to increase the value of our advertising services by continuing to increase the size and engagement of our audience as well as improve our ability to target advertising to our audience's interests and the ability of our advertisers to optimize their campaigns and measure the results of their campaigns.

Although the majority of the Promoted Products we sell to our advertisers are placed on Twitter, we have augmented our advertising revenue by selling products that we place on third-party publishers' websites, applications or other offerings. When we place ads off our owned and operated properties, we incur additional costs, particularly traffic acquisition costs, to fulfill our services to advertisers.

We intend to continue to increase the monetization of our platform by improving the targeting capabilities of our advertising services to enhance the value of our Promoted Products for advertisers, delivering differentiated products to advertisers, and developing new ad formats for advertisers.

Effectiveness of Our Advertising Services. Advertisers can use Twitter to communicate directly with their followers for free, but many choose to purchase our advertising services to reach a broader audience and further promote their brands, products and services. We believe that increasing the effectiveness of our Promoted Products for advertisers, as well as providing better measurement tools and improving creative capabilities, will increase the amount that advertisers spend with us. We aim to increase the value of our Promoted Products by increasing the size and engagement of our audience, improving our ability to target advertising to our audience's interests and improving the ability of our advertisers to optimize their campaigns and measure the results of their campaigns. We may also develop new advertising products and services.

Investment in International Operations. We intend to continue to strategically invest in our international operations in order to expand our audience and advertiser base and increase engagement and monetization internationally. In the three months ended December 31, 2019, we had 121 million average mDAU internationally compared to 31 million average mDAU in the United States. International growth of mDAU has been faster than growth in the United States; however, we derive approximately half of our advertising revenue from advertisers in the United States.

We face challenges in increasing our advertising revenue internationally, including local competition, differences in advertiser demand, differences in the digital advertising market and conventions, differences in the manner in which Twitter is accessed and used internationally, and restrictions on access to Twitter in certain markets. We face competition from well-established competitors in certain international markets. In addition, certain international markets are not as familiar with digital advertising in general, or with new forms of digital advertising, such as our Promoted Products. In these jurisdictions we are investing to educate advertisers about the benefits of our advertising services. However, we expect that it may require a significant investment of time and resources to educate advertisers in many international markets. We also face challenges in providing certain advertising products, features or analytics in certain international markets, such as the European Union, due to government regulation.

Competition. We face significant competition in every aspect of our business, including from companies that provide tools to facilitate communications and the sharing of information, companies that enable marketers to display advertising, and other online ad networks, exchanges and platforms. We also compete to attract, engage, and retain people who use our products, and to attract and retain marketers, content and platform partners, and developers. We have seen escalating competition for digital ad spending and expect this trend to continue. We also compete to attract and retain employees, especially software engineers, designers, and product managers. We compete against many companies for advertiser spend, including companies with greater financial resources and substantially larger audiences which offer a variety of Internet and mobile device-based products, services and content. In recent years there has been a significant number of acquisitions and consolidation activity by and among our actual and potential competitors. We must compete effectively for audiences and advertisers in order to grow our business and increase our revenue, which depends upon a number of factors, including the quality of our products and services and the actual or perceived return our advertisers receive on their investment in our products and services. Our ability to compete effectively for advertisers also depends upon a number of factors, including our ability to offer attractive advertising products with unique targeting capabilities, the size of our audience, and our ability to have the most valuable audience when they are most receptive. We have seen competition for digital ad spending and expect this trend to continue. In addition, many advertisers, particularly branded advertisers use marketing mix analyses to determine how to allocate their advertising budgets on an annual or bi-annual basis. As a result, we need to demonstrate to those advertisers during the appropriate time period that we provide a better return on investment than our competitors do in order to secure, increase or sustain our share of the advertising budget allocated for a significant portion of the year until the next budget cycle. We intend to continue to invest in research and development to improve our products and services and to grow our audience in order to address the competitive challenges in our industry. As part of our strategy to improve our products and services, we may acquire other companies to add engineering talent or complementary products and technologies.

Investment in Infrastructure. We strive to optimize the capacity and enhance the capability and reliability of our infrastructure. Our infrastructure is critical to providing people on Twitter, platform partners, advertisers and data partners access to our platform, particularly during major planned and unplanned events, such as elections, sporting events or natural disasters, when activity on our platform increases dramatically. As our mDAU and the activity on our platform grow, we expect that investments and expenses associated with our infrastructure will continue to grow and are planning significant capital expenditures in fiscal year 2020 to support a new data center and make certain other investments. These investments and expenses include 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 bandwidth costs, and costs to secure our customers' data.

Products and Services Innovation. Our ability to increase the size and engagement of our audience, attract advertisers and increase our revenue will depend, in part, on our ability to improve existing products and services and to successfully develop or acquire new products and services. We will continue to invest in revenue products as we work to improve our ads platform and ad formats to help our ad partners launch new products and services and connect with what's happening on Twitter. We plan to continue to make significant investments in research and development and, from time to time, we may acquire companies to enhance our products, services and technical capabilities. In addition, we continue to invest in health as we continue our work to help people find credible information on our service and feel safe participating in the conversation on Twitter.

Investment in Talent. We intend to continue to invest in hiring key engineering roles and retaining talented employees to grow our business. We have seen reduced levels of attrition in 2019, but we need to continue to focus on hiring and employee retention to be successful. We have also made, and intend to continue to make, acquisitions that add engineers, designers, product managers and other personnel with specific technology expertise. In addition, we must retain our high-performing personnel in order to continue to develop, sell and market our products and services and manage our business.

Seasonality. Advertising spending is traditionally strongest in the fourth quarter of each year. Historically, this seasonality in advertising spending has affected our quarterly results, with higher sequential advertising revenue growth from the third quarter to the fourth quarter compared to sequential advertising revenue growth from the fourth quarter to the subsequent first quarter. For example, our advertising revenue increased 28%, 22%, and 26% between the third and fourth quarters of 2017, 2018 and 2019, respectively, while advertising revenue for the first quarter of 2018 and 2019 decreased 11% and 14% compared to the fourth quarter of 2017 and 2018, respectively.

Stock-Based Compensation Expense. We have historically utilized, and intend to continue to utilize, various forms of stock-based awards in order to hire and retain talented employees. During the years ended December 31, 2019 and 2018, we recognized \$378.0 million and \$326.2 million of expense related to stock-based compensation, respectively. As of December 31, 2019, we had unrecognized stock-based compensation expense of approximately \$874.7 million related to outstanding equity awards, which we expect to recognize over a weighted-average period of approximately three years. The stock-based compensation expenses related to our outstanding equity awards have a significant impact on the amount of net income we generate on a GAAP basis.

Non-GAAP Financial Measures

To supplement our consolidated financial statements presented in accordance with generally accepted accounting principles in the United States, or GAAP, we consider certain financial measures that are not prepared in accordance with GAAP, including revenue excluding foreign exchange effect and advertising revenue excluding foreign exchange effect. These non-GAAP financial measures are not intended to be considered in isolation or as a substitute for, or superior to, financial information prepared and presented in accordance with GAAP, and are not necessarily comparable to similarly-titled measures presented by other companies.

Revenue Measures Excluding the Impact of Changes in Foreign Exchange Rates (Constant Currency)

In order to present revenue and advertising revenue excluding the impact of changes in foreign exchange rates for the year ended December 31, 2019, we translated the applicable measure using the prior year's monthly exchange rates for our settlement currencies other than the U.S. dollar, which is also referred to as constant currency.

We use non-GAAP financial measures of revenue excluding foreign exchange effect and advertising revenue excluding foreign exchange effect in evaluating our operating results and for financial and operational decision-making purposes. We believe that revenue excluding foreign exchange effect and advertising revenue excluding foreign exchange effect provide useful information about our operating results, enhance the overall understanding of our past performance and future prospects and allow for greater transparency with respect to key metrics used by our management in its financial and operational decision-making. We also use these measures to establish budgets and operational goals for managing our business and evaluating our performance, and we believe that revenues excluding foreign exchange effect is a useful metric that facilitates comparison to our historical performance.

Results of Operations

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

	Year Ended December 31,		
	2019	2018	2017
Revenue			
Advertising services	\$ 2,993,392	\$ 2,617,397	\$ 2,109,987
Data licensing and other	465,937	424,962	333,312
Total revenue	3,459,329	3,042,359	2,443,299
Costs and expenses ⁽¹⁾			
Cost of revenue	1,137,041	964,997	861,242
Research and development	682,281	553,858	542,010
Sales and marketing	913,813	771,361	717,419
General and administrative	359,821	298,818	283,888
Total costs and expenses	3,092,956	2,589,034	2,404,559
Income from operations	366,373	453,325	38,740
Interest expense	(138,180)	(132,606)	(105,237)
Interest income	157,703	111,221	44,383
Other income (expense), net	4,243	(8,396)	(73,304)
Income (loss) before income taxes	390,139	423,544	(95,418)
Provision (benefit) for income taxes	(1,075,520)	(782,052)	12,645
Net income (loss)	\$ 1,465,659	\$ 1,205,596	\$ (108,063)

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

	Year Ended December 31,		
	2019	2018	2017
Cost of revenue	\$ 22,797	\$ 17,289	\$ 23,849
Research and development	209,063	183,799	240,833
Sales and marketing	85,739	71,305	94,135
General and administrative	60,426	53,835	74,989
Total stock-based compensation expense	\$ 378,025	\$ 326,228	\$ 433,806

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

	Year Ended December 31,		
	2019	2018	2017
Revenue			
Advertising services	87 %	86 %	86 %
Data licensing and other	13	14	14
Total revenue	100	100	100
Costs and expenses			
Cost of revenue	33	32	35
Research and development	20	18	22
Sales and marketing	26	25	29
General and administrative	10	10	12
Total costs and expenses	89	85	98
Income from operations	11	15	2
Interest expense	(4)	(4)	(4)
Interest income	5	4	2
Other income (expense), net	0	0	(3)
Income (loss) before income taxes	11	14	(4)
Provision (benefit) for income taxes	(31)	(26)	1
Net income (loss)	42 %	40 %	(4)%

Years Ended December 31, 2019, 2018 and 2017

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.

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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.

	Year Ended December 31,			2018 to 2019	2017 to 2018
	2019	2018	2017	% Change	% Change
	(in thousands)				
Advertising services	\$ 2,993,392	\$ 2,617,397	\$ 2,109,987	14 %	24 %
Data licensing and other	465,937	424,962	333,312	10 %	27 %
Total revenue	\$ 3,459,329	\$ 3,042,359	\$ 2,443,299	14 %	25 %

2019 Compared to 2018. Revenue in 2019 increased by \$417.0 million or 14% compared to 2018. On a constant currency basis, revenue in 2019 would have increased by \$442.3 million or 15% compared to 2018.

In 2019, advertising revenue increased by \$376.0 million or 14% compared to 2018. On a constant currency basis, advertising revenue in 2019 would have increased by \$401.3 million or 15% compared to 2018.

The overall increase in advertising revenue was primarily attributable to a 24% increase in the number of ad engagements offset by an 8% decrease in cost per ad engagement in 2019 compared to 2018. The increase in ad engagements was primarily driven by increased impressions from audience growth and improved clickthrough rates, which grew on a year-over-year basis across the majority of ad types due to ongoing improvements in ad relevance. The decrease in cost per ad engagement was driven by a continued mix shift to video ad formats (which have lower cost per ad engagement) and like-for-like price decreases across most ad formats.

Looking ahead, we believe our core value propositions of launching something new and connecting with what's happening on Twitter continue to resonate very strongly with advertisers. We continue to invest in revenue product as we work to improve our ads platform and ad formats to deliver increased value to advertisers around the world. Advertising revenue continued to be driven by sales momentum with advertisers, built around our differentiated ad formats, better relevance, and improved ROI. As our mDAU and the level of engagement of our mDAU grows, we believe the potential to increase our revenue grows.

In 2019, data licensing and other revenue increased by 10% compared to 2018. Growth in Developer and Enterprise Solutions (DES) moderated in 2019 as we have now transitioned many of our largest partners to market pricing.

Looking ahead, we expect quarterly variability in year-over-year growth rates for data licensing and other revenue given various factors including the timing and size of new data enterprise solutions contracts and renewals, as compared to the same period in the prior year. On a full-year basis, we expect year-over-year data licensing and other revenue growth to moderate as we have largely worked through our multi-year enterprise renewal cycle.

2018 Compared to 2017. Revenue in 2018 increased by \$599.1 million compared to 2017.

In 2018, advertising revenue increased by 24% compared to 2017. The substantial majority of our advertising revenue was generated from our owned and operated platform.

The overall increase in advertising revenue was primarily attributable to a 55% increase in the number of ad engagements offset by a 20% decrease in cost per ad engagement in 2018 compared to 2017. The increase in ad engagements was driven by increased demand and improved clickthrough rates. The decrease in cost per ad engagement reflects the ongoing mix shift to video ad engagements (which have overall lower cost per ad engagement compared to other ad formats), higher clickthrough rates, and a slight compression in like for like pricing.

The decrease in advertising revenue from the sale of our advertising products placed on third-party publishers' websites, applications and other offerings in 2018 was driven primarily by the lack of contribution from TellApart (which was deprecated in 2017). TellApart revenue contributed \$44.6 million in revenue in 2017, mainly in the first half of 2017, and was fully deprecated in the fourth quarter of 2017.

In 2018, data licensing and other revenue increased by 27% compared to 2017. A majority of the increase was attributable to expanded and new partnerships in Developer and Enterprise Solutions.

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.

	Year Ended December 31,			2018 to 2019	2017 to 2018
	2019	2018	2017	% Change	% Change
	(in thousands)				
Cost of revenue	\$ 1,137,041	\$ 964,997	\$ 861,242	18 %	12 %
Cost of revenue as a percentage of revenue	33 %	32 %	35 %		

2019 Compared to 2018. In 2019, cost of revenue increased by \$172.0 million compared to 2018. The increase was attributable to \$127.5 million increase in direct costs, primarily driven by an increase in infrastructure costs and revenue share expenses, and a \$44.5 million increase in depreciation expense primarily related to additional internally developed software, server and networking equipment.

2018 Compared to 2017. In 2018, cost of revenue increased by \$103.8 million compared to 2017. The increase was attributable to an \$89.3 million increase in direct costs, primarily driven by an increase in revenue share expenses and a \$50.4 million increase in depreciation and amortization expense primarily related to additional internally developed software, server and networking equipment. These increases were offset by a \$35.3 million decrease in TAC substantially due to the lack of advertising revenue generated from TellApart (which we deprecated in 2017), and a \$0.6 million decrease in other expenses.

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. We expect that cost of revenue will increase in absolute dollar amounts and vary as a percentage of revenue.

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.

	Year Ended December 31,			2018 to 2019	2017 to 2018
	2019	2018	2017	% Change	% Change
	(in thousands)				
Research and development	\$ 682,281	\$ 553,858	\$ 542,010	23 %	2 %
Research and development as a percentage of revenue	20 %	18 %	22 %		

2019 Compared to 2018. In 2019, research and development expenses increased by \$128.4 million compared to 2018. The increase was attributable to a \$90.6 million increase in personnel-related costs mainly driven by an increase in employee headcount, and a \$37.8 million net increase in allocated facilities costs and other supporting overhead expenses.

2018 Compared to 2017. In 2018, research and development expenses increased by \$11.8 million compared to 2017. The increase was attributable to a \$15.4 million net increase in allocated facilities costs, other supporting overhead expenses, and other expenses, and the absence of a \$12.1 million one-time nonrecurring gain on sale of assets that occurred in the year ended December 31, 2017. These increases were offset by an \$8.7 million net decrease in personnel-related costs driven by a decrease in stock-based compensation expense due partially to forfeitures offset in part by an increase in average employee headcount, and a \$7.0 million increase 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. We expect that research and development costs will increase in absolute dollar amounts and vary as a percentage of revenue.

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.

	Year Ended December 31,			2018 to 2019	2017 to 2018
	2019	2018	2017	% Change	% Change
	(in thousands)				
Sales and marketing	\$ 913,813	\$ 771,361	\$ 717,419	18 %	8 %
Sales and marketing as a percentage of revenue	26 %	25 %	29 %		

2019 Compared to 2018. In 2019, sales and marketing expenses increased by \$142.5 million compared to 2018. The increase was attributable to an \$83.9 million increase in personnel-related costs mainly driven by an increase in employee headcount, a \$52.0 million net increase in allocated facilities costs and other supporting overhead expenses, and a \$6.6 million increase in marketing and sales-related expenses.

2018 Compared to 2017. In 2018, sales and marketing expenses increased by \$53.9 million compared to 2017. The increase was attributable to a \$36.2 million net increase in allocated facilities costs and other supporting overhead expenses, a \$9.3 million increase in marketing and sales-related expenses, and a \$23.9 million net increase in personnel-related costs driven by an increase in average employee headcount offset in part by a decrease in stock-based compensation expense. These increases were offset by a \$15.5 million decrease in amortization of acquired intangible assets due to certain intangible assets becoming fully amortized.

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. We expect that sales and marketing costs will increase in absolute dollar amounts and vary as a percentage of revenue.

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.

	Year Ended December 31,			2018 to 2019	2017 to 2018
	2019	2018	2017	% Change	% Change
	(in thousands)				
General and administrative	\$ 359,821	\$ 298,818	\$ 283,888	20 %	5 %
General and administrative as a percentage of revenue	10 %	10 %	12 %		

2019 Compared to 2018. In 2019, general and administrative expenses increased by \$61.0 million compared to 2018. The increase was attributable to a \$58.9 million increase in personnel-related costs mainly driven by an increase in employee headcount, a \$6.9 million increase in professional service fees, offset by a \$4.8 million decrease in allocated facilities and other supporting overhead expenses.

2018 Compared to 2017. In 2018, general and administrative expenses increased by \$14.9 million compared to 2017. The increase was attributable to a \$24.6 million net increase in personnel-related costs driven by an increase in average employee headcount offset in part by a decrease in stock-based compensation expense, and a \$7.9 million increase in professional service fees. These increases were offset by a \$17.6 million decrease in allocated facilities costs, other supporting overhead expenses, and other expenses.

We plan to continue to invest in general and administrative functions to ensure we have an appropriate level of support for our key priorities and objectives. We expect that general and administrative expenses will increase in absolute dollar amounts and vary as a percentage of revenue.

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, and the \$700.0 million principal amount of 3.875% senior notes due in 2027, or the 2027 Notes, and interest expense related to finance leases and other financing facilities.

	Year Ended December 31,		
	2019	2018	2017
	(in thousands)		
Interest expense	\$ 138,180	\$ 132,606	\$ 105,237

2019 Compared to 2018. In 2019, interest expense increased by \$5.6 million compared to 2018 primarily due to the offering of our 2024 Notes in June 2018 and our 2027 Notes in December 2019, offset by the repayment of our 2019 Notes in September 2019.

2018 Compared to 2017. In 2018, interest expense increased by \$27.4 million compared to 2017 primarily due to the issuance of the 2024 Notes in June 2018. Interest expense in 2018 was comprised of \$127.7 million of total interest expense related to the Convertible Notes as well as our credit facility (described below) and \$4.9 million 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.

	Year Ended December 31,		
	2019	2018	2017
	(in thousands)		
Interest income	\$ 157,703	\$ 111,221	\$ 44,383

2019 Compared to 2018. In 2019, interest income increased by \$46.5 million compared to 2018. The increase was primarily attributable to higher invested cash and cash equivalents and short-term investment balances and higher interest rates.

2018 Compared to 2017. In 2018, interest income increased by \$66.8 million compared to 2017. The increase was primarily attributable to higher invested cash balances and higher 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.

	Year Ended December 31,		
	2019	2018	2017
	(in thousands)		
Other income (expense), net	\$ 4,243	\$ (8,396)	\$ (73,304)

2019 Compared to 2018. In 2019, other income, net, was \$4.2 million compared to other expense, net, of \$8.4 million in 2018. The change was primarily attributable to an \$8.6 million gain net of impairment charge on investments in privately-held companies during the year ended December 31, 2019, compared to a \$3.0 million impairment charge on our investment in a privately-held company during the year ended December 31, 2018, offset by less favorable foreign currency exchange impacts from foreign currency-denominated assets and liabilities.

2018 Compared to 2017. In 2018, other expense, net, was \$8.4 million compared to other expense, net, of \$73.3 million in 2017. The change was primarily attributable to a \$3.0 million impairment charge in the year ended December 31, 2018, compared to a \$62.4 million impairment charge in the year ended December 31, 2017, and the more favorable foreign currency exchange impacts from foreign currency-denominated assets and liabilities as well as derivative financial instruments.

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.

	Year Ended December 31,		
	2019	2018	2017
	(in thousands)		
Provision (benefit) for income taxes	\$ (1,075,520)	\$ (782,052)	\$ 12,645

2019 Compared to 2018. In 2019, our benefit for income taxes was \$1.08 billion, compared to a benefit from income taxes of \$782.1 million in 2018. The change is primarily due to an income tax benefit of \$1.21 billion related to the establishment of deferred tax assets from intra-entity transfers of intangible assets in 2019, an income tax benefit of \$845.1 million resulting from deferred tax assets valuation allowance release in 2018, the jurisdictional mix of income before taxes, changes to our uncertain tax positions, and the effects of tax law changes.

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. During the year ended December 31, 2019, we evaluated the Court's ruling and recorded an increase in the tax provision of \$80.0 million. In February 2020, Altera Corp. filed a petition to appeal the decision with the Supreme Court of the United States. We will continue to monitor future developments in this case to determine if there will be further impacts to the consolidated financial statements.

2018 Compared to 2017. Our benefit for income taxes in the year ended December 31, 2018 was \$782.1 million, compared to a provision for income taxes of \$12.6 million in 2017. The change is due to the release of our valuation allowance of \$845.1 million related to Brazil and most of the United States federal and all states deferred tax assets with the exception of California and Massachusetts, offset by the income tax expense of \$63.0 million, compared to a provision of \$12.6 million in 2017. Excluding the release of our deferred tax assets valuation allowance, the change was primarily due to the increase in pre-tax profitability offset by an increase to the benefit of share-based compensation.

Our effective tax rate could be affected by our jurisdictional mix of income 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 share-based compensation, and changes in management's assessment of the realizability of 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.

Quarterly Results of Operations

The following table sets forth our unaudited consolidated statement of operations data for each of the eight quarters in the period ended December 31, 2019. The unaudited quarterly statement of operations data set forth below have been prepared on a basis consistent with our audited annual consolidated financial statements in this Annual Report on Form 10-K and include, in our opinion, all normal recurring adjustments necessary for a fair statement of the financial information contained in those statements. Our historical results are not necessarily indicative of the results that may be expected in the future. The following quarterly financial data should be read in conjunction with our audited consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K.

	Three Months Ended							
	Dec 31, 2019	Sep 30, 2019	Jun 30, 2019	Mar 31, 2019	Dec 31, 2018	Sep 30, 2018	Jun 30, 2018	Mar 31, 2018
(Unaudited, in thousands, except per share data)								
Consolidated Statement of Operations Data:								
Revenue								
Advertising services	\$ 884,546	\$ 702,257	\$ 727,123	\$ 679,466	\$ 791,365	\$ 649,816	\$ 601,060	\$ 575,156
Data licensing and other	122,795	121,460	114,258	107,424	117,471	108,295	109,481	89,715
Total revenue	<u>1,007,341</u>	<u>823,717</u>	<u>841,381</u>	<u>786,890</u>	<u>908,836</u>	<u>758,111</u>	<u>710,541</u>	<u>664,871</u>
Costs and expenses ⁽¹⁾								
Cost of revenue	314,008	281,057	277,965	264,011	268,345	243,644	230,185	222,823
Research and development	198,240	178,553	159,242	146,246	141,174	150,764	138,574	123,346
Sales and marketing	241,561	226,204	240,249	205,799	211,774	193,496	188,032	178,059
General and administrative	100,648	93,758	88,239	77,176	80,635	78,339	74,126	65,718
Total costs and expenses	<u>854,457</u>	<u>779,572</u>	<u>765,695</u>	<u>693,232</u>	<u>701,928</u>	<u>666,243</u>	<u>630,917</u>	<u>589,946</u>
Income from operations	152,884	44,145	75,686	93,658	206,908	91,868	79,624	74,925
Interest expense	(26,377)	(36,226)	(38,317)	(37,260)	(37,273)	(38,336)	(29,982)	(27,015)
Interest income	33,927	40,348	42,887	40,541	37,013	36,067	21,960	16,181
Other income (expense), net	(2,340)	(504)	7,523	(436)	(111)	(2,341)	(5,735)	(209)
Income before income taxes	158,094	47,763	87,779	96,503	206,537	87,258	65,867	63,882
Provision (benefit) for income taxes ⁽²⁾	<u>39,321</u>	<u>11,241</u>	<u>(1,031,781)</u>	<u>(94,301)</u>	<u>(48,766)</u>	<u>(701,921)</u>	<u>(34,250)</u>	<u>2,885</u>
Net income	<u>\$ 118,773</u>	<u>\$ 36,522</u>	<u>\$ 1,119,560</u>	<u>\$ 190,804</u>	<u>\$ 255,303</u>	<u>\$ 789,179</u>	<u>\$ 100,117</u>	<u>\$ 60,997</u>
Net income per share attributable to common stockholders:								
Basic	\$ 0.15	\$ 0.05	\$ 1.46	\$ 0.25	\$ 0.34	\$ 1.04	\$ 0.13	\$ 0.08
Diluted	<u>\$ 0.15</u>	<u>\$ 0.05</u>	<u>\$ 1.43</u>	<u>\$ 0.25</u>	<u>\$ 0.33</u>	<u>\$ 1.02</u>	<u>\$ 0.13</u>	<u>\$ 0.08</u>

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

	Three Months Ended							
	Dec 31, 2019	Sep 30, 2019	Jun 30, 2019	Mar 31, 2019	Dec 31, 2018	Sep 30, 2018	Jun 30, 2018	Mar 31, 2018
	(Unaudited, in thousands)							
Cost of revenue	\$ 6,019	\$ 5,757	\$ 5,973	\$ 5,048	\$ 4,905	\$ 4,247	\$ 3,338	\$ 4,799
Research and development	59,564	53,009	50,229	46,261	43,589	53,195	45,069	41,946
Sales and marketing	21,717	23,755	22,202	18,065	18,624	19,634	18,225	14,822
General and administrative	13,996	16,102	16,211	14,117	14,769	14,530	12,837	11,699
Total stock-based compensation expense	<u>\$ 101,296</u>	<u>\$ 98,623</u>	<u>\$ 94,615</u>	<u>\$ 83,491</u>	<u>\$ 81,887</u>	<u>\$ 91,606</u>	<u>\$ 79,469</u>	<u>\$ 73,266</u>

(2) In the first and second quarter of 2019, we recognized tax benefits of \$124.4 million and \$1.08 billion, respectively, related to the establishment of deferred tax assets from intra-entity transfers of intangible assets. In the second quarter of 2018, we recorded a tax benefit of \$42.0 million primarily associated with the release of the valuation allowance related to deferred tax assets of our Brazil operations. In the third quarter of 2018, we recorded a tax benefit of \$683.3 million associated with the release of the valuation allowance related to most of the United States federal and all states deferred tax assets with the exception of California and Massachusetts. In the fourth quarter of 2018, we recorded a tax benefit of \$119.8 million related to a deferred tax asset valuation release resulting from the change in estimate for the full-year realization of our deferred tax assets.

Liquidity and Capital Resources

	Year Ended December 31,		
	2019	2018	2017
	(in thousands)		
Consolidated Statements of Cash Flows Data:			
Net income (loss)	\$ 1,465,659	\$ 1,205,596	\$ (108,063)
Net cash provided by operating activities	\$ 1,303,364	\$ 1,339,711	\$ 831,209
Net cash used in investing activities	\$ (1,115,974)	\$ (2,055,513)	\$ (116,526)
Net cash provided by (used in) financing activities	\$ (286,175)	\$ 978,116	\$ (78,373)

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 December 2019, we also received net proceeds of approximately \$691.9 million from the issuance of the 2027 Notes, after deducting the debt issuance costs.

As of December 31, 2019, we had \$6.64 billion of cash, cash equivalents and short-term investments in marketable securities, of which \$200.4 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. 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.

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 December 31, 2019, 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 I, Item 1A, "Risk Factors."

Cash provided by operating activities in 2019 was \$1.30 billion, a decrease in cash inflow of \$36.3 million compared to 2018. Cash provided by operating activities was driven by net income of \$1.47 billion, as adjusted for the exclusion of non-cash expenses and other adjustments totaling \$181.0 million, of which the most significant items were a \$1.21 billion income tax benefits related to the establishment of deferred tax assets from intra-entity transfers of intangible assets, \$465.5 million of depreciation and amortization expense, and \$378.0 million of stock-based compensation expense, and the effect of changes in working capital and other carrying balances that resulted in cash inflows of \$18.7 million.

Cash provided by operating activities in 2018 was \$1.34 billion, an increase in cash inflow of \$508.5 million compared to 2017. Cash provided by operating activities was driven by net income of \$1.21 billion, as adjusted for the exclusion of non-cash expenses and other adjustments totaling \$44.8 million, of which the most significant items were a \$845.1 million net benefit to tax expense associated with the release of the valuation allowance related to deferred tax assets, \$425.5 million of depreciation and amortization expense, and \$326.2 million of stock-based compensation expense, and the effect of changes in working capital and other carrying balances that resulted in cash inflows of \$89.3 million, which was in part driven by a one-time refund of prepaid employment taxes of \$147.5 million.

Cash provided by operating activities in 2017 was \$831.2 million, an increase in cash inflow of \$68.2 million compared to 2016. Cash provided by operating activities was driven by a net loss of \$108.1 million, as adjusted for the exclusion of non-cash expenses and other adjustments totaling \$971.5 million, of which the most significant items were \$433.8 million of stock-based compensation expense, \$395.9 million of depreciation and amortization expense and \$62.4 million of impairment charges on an investment in a privately-held company, and the effect of changes in working capital and other carrying balances that resulted in cash outflows of \$32.2 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 2019 was \$1.12 billion, a decrease in cash outflow of \$939.5 million compared to 2018. The decrease was primarily due to a \$1.20 billion increase in proceeds from maturities of marketable securities, a \$308.4 million increase in proceeds from sales of marketable securities, an \$11.8 million increase in proceeds from sales of long-lived assets, and a \$3.9 million decrease in cash used in business combinations, offset by a \$463.7 million increase in purchases of marketable securities, a \$56.8 million increase in purchases of property and equipment, a \$47.8 million increase in purchases of investments in privately-held companies, a \$6.9 million decrease in proceeds from sales of property and equipment, and a \$4.5 million increase in cash used in other investing activities.

Cash used in investing activities in 2018 was \$2.06 billion, an increase in cash outflow of \$1.94 billion compared to 2017. The change was primarily due to a \$2.65 billion increase in purchases of marketable securities, a \$323.2 million increase in purchases of property and equipment, an absence of \$35.0 million in proceeds from sale of long-lived assets, and a net increase of \$33.6 million in cash used in business combinations, offset by a \$1.09 billion net increase in proceeds from sales and maturities of marketable securities, a \$2.6 million decrease in expenditures on other investing activities and a \$10.3 million increase in proceeds from sales of property and equipment.

Cash used in investing activities in 2017 was \$116.5 million, a decrease in cash outflow of \$476.7 million compared to 2016. The change was primarily due to a \$221.4 million decrease in the purchases of marketable securities, a \$80.7 million decrease in purchases of investments in privately-held companies, a net \$85.1 million decrease in cash used in business combinations, a \$57.9 million decrease in purchases of property and equipment, a \$35.0 million increase in proceeds from sale of long-lived assets, a \$2.8 million increase in net proceeds from sales and maturities of marketable securities, and a \$2.8 million increase in proceeds from sales of property and equipment, offset by a \$8.9 million increase in expenditures on other investing activities.

We anticipate making capital expenditures in 2020 of approximately \$775.0 million to \$825.0 million as we continue to expand our co-located data centers.

Financing Activities

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

Cash used in financing activities in 2019 was \$286.2 million, compared to \$978.1 million cash provided by financing activities in 2018. The change was primarily due to \$1.14 billion of net proceeds from the issuance of the 2024 Notes net of issuance costs in 2018, which was reduced by a net cash outflow of \$81.2 million from the purchase of convertible note hedges and sale of warrants closed in connection with the issuance of the 2024 Notes, a use of \$935.0 million to repay, in full, the 2019 Notes at maturity, a \$2.6 million decrease in proceeds from option exercises, and a \$0.3 million increase in tax payments related to net share settlements of equity awards, offset by \$691.9 million of net proceeds from the issuance of the 2027 Notes in 2019, a \$23.7 million decrease in payments of finance lease obligations, and a \$13.1 million increase in proceeds from the issuance of shares of stock from the employee stock purchase plan (ESPP).

Cash provided by financing activities in 2018 was \$978.1 million, compared to \$78.4 million cash used in financing activities in 2017. The change was due to net proceeds of \$1.14 billion from the issuance of the 2024 Notes net of issuance costs, reduced by the net cash outflow of \$81.2 million from the purchase of convertible note hedges and sale of warrants closed in connection with the issuance of the 2024 Notes, a \$12.4 million decrease in payments of finance lease obligations, and a \$5.4 million increase in proceeds from the issuance of shares of stock from the ESPP, offset by a \$10.3 million increase in tax payments related to net share settlements of equity awards and a \$6.0 million decrease in proceeds from option exercises.

Cash used in financing activities in 2017 was \$78.4 million, a decrease in cash outflow of \$5.6 million compared to 2016. The decrease in cash outflow was due to a \$6.4 million decrease in taxes paid related to net share settlement of equity awards and other activities and a \$1.9 million increase in proceeds from option exercises. These decreases were offset by a \$2.2 million increase in payments of finance lease obligations and a \$0.5 million decrease in proceeds from the issuance of shares of stock from ESPP.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements and did not have any such arrangements in 2019, 2018, or 2017.

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 16 – Commitments and Contingencies for more details, including a table of our contractual obligations.

As of December 31, 2019, we had recorded liabilities of \$23.3 million related to uncertain tax positions. Due to uncertainties in the timing of potential tax audits, the timing of the resolution of these positions is uncertain and we are unable to make a reasonably reliable estimate of the timing of payments in individual years beyond 12 months. As a result, this amount is not included in the contractual obligation table in Note 16.

Critical Accounting Policies and Estimates

We prepare our consolidated financial statements and related notes in accordance with GAAP. In doing so, we have to 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, which we discuss further below.

Revenue Recognition

We generate the substantial majority of our revenue from the sale of advertising services with the remaining balance from data licensing and other arrangements.

We generate our advertising revenue primarily from the sale of our Promoted Products: (i) Promoted Tweets, (ii) Promoted Accounts and (iii) Promoted Trends. Promoted Tweets and Promoted Accounts are pay-for-performance advertising products or pay-for-impressions delivered, each priced through an auction. Promoted Trends are featured by geography and offered on a fixed-fee-per-day basis. Advertisers are obligated to pay when a person engages with a Promoted Tweet, follows a Promoted Account, when an impression is delivered, or when a Promoted Trend is displayed for an entire day in a particular country or on a global basis. These advertising services may be sold in combination as a bundled arrangement or separately on a stand-alone basis.

For our Promoted Product arrangements, significant judgments are (i) identifying the performance obligations in the contract, (ii) determining the basis for allocating contract consideration to performance obligations, (iii) determining whether we are the principal or the agent in arrangements where another party is involved in providing specified services to a customer, and (iv) estimating the transaction price to be allocated for contracts with tiered rebate provisions.

We may generate revenue from the sale of certain Promoted Tweets through placement by Twitter of advertiser ads against third-party publisher content. We will pay the third-party publisher a revenue share fee for our right to monetize their content. In such transactions, advertisers are contracting to obtain a single integrated advertising service, the Promoted Tweet combined with the third-party publisher content, and we obtain control of the third-party publisher content displayed on Twitter that we then combine with the advertiser ads within the Promoted Tweet. Therefore, we report advertising revenue generated from these transactions on a gross basis and record the related third-party content monetization fees as cost of revenue.

We also generate advertising revenue by selling services in which we place ads on third-party publishers' websites, applications or other offerings. To fulfill these transactions, we purchase advertising inventory from third-party publishers' websites and applications where we have identified the advertisers' targeted audience and therefore incur traffic acquisition costs prior to transferring the advertising service to our customers. At such point, we have the sole ability to monetize the third-party publishers advertising inventory. In such transactions, we obtain control of a right to a service to be performed by the third-party publishers, which gives us the ability to direct those publishers to provide the services to our customers on our behalf. Therefore, we report advertising revenue generated from these transactions on a gross basis, and we record the related traffic acquisition costs as cost of revenue.

Fees for the advertising services above are recognized in the period when advertising is delivered as evidenced by a person engaging with a Promoted Tweet or an ad on a third-party publisher website or application in a manner satisfying 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, following a Promoted Account, delivery of impressions, or through the display of a Promoted Trend on our platform.



We have concluded that our data licensing arrangements, which grant customers a right to Twitter's intellectual property ("IP") for a defined period of time, may contain a single performance obligation satisfied at a point in time ("Historical IP") or over time ("Future IP"), or may contain two or more performance obligations satisfied separately at a point in time (Historical IP) and over time (Future IP). In some of our data licensing arrangements, pricing is a fixed monthly fee over a specified term. In arrangements with a single performance obligation satisfied over time, data licensing revenue is recognized on a straight-line basis over the period in which we provide data as the customer consumes and benefits from the continuous data available on an ongoing basis. In arrangements with at least two performance obligations, we allocate revenue on a relative basis between the performance obligations based on standalone selling price ("SSP") and recognize revenue as the performance obligations are satisfied.

In other data licensing arrangements, we charge customers based on the amount of sales they generate from downstream customers using Twitter data. Certain of those royalty-based data licensing arrangements are subject to minimum guarantees. For such arrangements with a minimum guarantee and a single Future IP performance obligation, we recognize revenue for minimum guarantees on a straight-line basis over the period in which we provide data. For such arrangements with a minimum guarantee and two or more performance obligations, we allocate revenue on a relative basis between the performance obligations based on SSP and recognize revenue as the performance obligations are satisfied. Royalties in excess of minimum guarantees, if any, are recognized as revenue over the contract term, on a straight-line, cumulative catch-up basis. This reflects the nature of the Company's performance obligation, which is a series of distinct monthly periods of providing a license of IP.

For data licensing arrangements involving two or more performance obligations, we use directly observable standalone transactions to determine SSP of Historical IP. We use standalone transactions and consider all other reasonably available observable evidence to estimate SSP of Future IP.

Other revenue is primarily generated from service fees from transactions completed on our mobile ad exchange. Our mobile ad exchange enables buyers and sellers to purchase and sell advertising inventory by matching them in the exchange. We have determined we are not the principal in the purchase and sale of advertising inventory in transactions between third-party buyers and sellers on the exchange because we do not obtain control of the advertising inventory. We report revenue related to our ad exchange services on a net basis for the fees paid by buyers, net of costs related to acquiring the advertising inventory paid to sellers.

Arrangements involving multiple performance obligations primarily consist of combinations of our pay-for-performance products, Promoted Tweets and Promoted Accounts, which are priced through an auction, and Promoted Trends, which are priced on a fixed-fee-per day, per geography basis. For arrangements that include a combination of these products, we develop an estimate of the standalone selling price for these products in order to allocate any potential discount to all performance obligations in the arrangement. The estimate of standalone selling price for pay-for-performance auction based products is determined based on the winning bid price. The estimate of standalone selling price for Promoted Trends is based on Promoted Trends sold on a standalone basis and/or separately priced in a bundled arrangement by reference to a list price by geography, which is updated and approved periodically. For other arrangements involving multiple performance obligations where neither auction pricing nor standalone sales provide sufficient evidence of standalone selling price, we estimate standalone selling price using either an adjusted market assessment approach or an expected cost plus margin approach. We believe the use of our estimation approach and allocation of the transaction price on a relative standalone selling price basis to each performance obligation results in revenue recognition in a manner consistent with the underlying economics of the transaction and the allocation principle included in Topic 606. We have elected to exclude certain sales and indirect taxes from the determination of the transaction price.

Income Taxes

We are subject to income taxes in the United States and several foreign jurisdictions. Significant judgment is required in determining our provision (benefit) for income taxes and income tax assets and liabilities, including evaluating uncertainties in the application of accounting principles and complex tax laws.

We record a provision (benefit) for income taxes for the anticipated tax consequences of the reported results of operations using the asset and liability method. Under this method, we recognize deferred income tax assets and liabilities for the expected future tax consequences of temporary differences between the financial reporting and tax bases of assets and liabilities, as well as for loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using the tax rates that are expected to apply to taxable income for the years in which those tax assets and liabilities are expected to be realized or settled. We recognize the deferred income tax effects of a change in tax rates in the period of the enactment. We record a valuation allowance to reduce our deferred tax assets to the net amount that we believe is more likely than not to be realized.

We recognize tax benefits from uncertain tax positions if we believe that it is more likely than not that the tax position will be sustained upon examination by the taxing authorities based on the technical merits of the position. Although we believe we have adequately reserved for our uncertain tax positions (including net interest and penalties), we can provide no assurance that the final tax outcome of these matters will not be different. We make adjustments to these reserves in accordance with income tax accounting guidance when facts and circumstances change, such as the closing of a tax audit. To the extent that the final tax outcome of these matters is different from the amounts recorded, such differences may impact the provision (benefit) for income taxes in the period in which such determination is made. We record interest and penalties related to our uncertain tax positions in our provision (benefit) for income taxes.

The establishment of deferred tax assets from intra-entity transfers of intangible assets requires management to make significant estimates and assumptions to determine the fair value of such intangible assets. Critical estimates in valuing the intangible assets include, but are not limited to, internal revenue and expense forecasts, the estimated life of the intangible assets, and discount rates. The discount rates used in the income method to discount expected future cash flows to present value are adjusted to reflect the inherent risks related to the cash flow. Although we believe the assumptions and estimates we have made are reasonable and appropriate, they are based, in part, on historical experience and are inherently uncertain. Unanticipated events and circumstances may occur that could affect either the accuracy or validity of such assumptions, estimates or actual results.

Loss Contingencies

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. Certain of these matters include speculative claims for substantial or indeterminate amounts of damages. We record a liability when we believe that it is both probable that a loss has been incurred and the amount or range can be reasonably estimated. Significant judgment is required to determine both probability and the estimated amount. We review these provisions on a quarterly basis and adjust these provisions accordingly to reflect the impact of negotiations, settlements, rulings, advice of legal counsel, and updated information.

We believe that the amount or estimable range of reasonably possible loss, will not, either individually or in the aggregate, have a material adverse effect on our business, consolidated financial position, results of operations, or cash flows with respect to loss contingencies for legal and other contingencies as of December 31, 2019. However, the outcome of litigation is inherently uncertain. Therefore, if one or more of these legal matters were resolved against us for amounts in excess of management's expectations, our results of operations and financial condition, including in a particular reporting period, could be materially adversely affected.

Business Combinations

We account for acquisitions of entities that include inputs and processes and have the ability to create outputs as business combinations. The purchase price of the acquisition is allocated to the tangible and intangible assets acquired and liabilities assumed based on their estimated fair values at the acquisition dates. The excess of the purchase price over those fair values is recorded as goodwill. During the measurement period, which may be up to one year from the acquisition date, we may record adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the consolidated statements of operations.

Accounting for business combinations requires our management to make significant estimates and assumptions at the acquisition date, including estimated fair value of acquired intangible assets, estimated fair value of stock awards assumed from the acquirees that are included in the purchase price, estimated income tax assets and liabilities assumed from the acquirees, and determination of the fair value of contractual obligations, where applicable. The estimates of fair value require management to also make estimates of, among other things, future expected cash flows, discount rates or expected costs to reproduce an asset. Although we believe the assumptions and estimates we made at the time were reasonable and appropriate, these estimates are based on historical experience and information obtained from the management of the acquired companies and are inherently uncertain.

Impact of Recently Issued Accounting Standards

The impact of recently issued accounting standards is set forth in Note 2, Summary of Significant Accounting Policies, of the Notes to Consolidated Financial Statements under Part II, Item 8 of this Annual Report on Form 10-K.

Item 7A. 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.

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 December 31, 2019, a hypothetical increase in interest rates of 100 basis points would result in a decrease of approximately \$35.1 million in the fair value of our available-for-sale securities. We currently do not hedge these interest rate exposures.

As of December 31, 2019, we had \$2.10 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 each series of Notes bears interest at a fixed rate, we have no financial statement risk associated with changes in interest rates. However, the fair value of each series of 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 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 and losses were immaterial for 2019 and 2018. 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 \$6.4 million as of December 31, 2019.

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 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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The supplementary financial information required by this Item 8 is included in Item 7 under the caption "Quarterly Results of Operations."

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Twitter, Inc. and its subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of operations, of comprehensive income (loss), of stockholders' equity and of cash flows for each of the three years in the period ended December 31, 2019, including the related notes and financial statement schedules listed in the index appearing under Item 15 (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue Recognition – identification of performance obligations

As described in Notes 2 and 3 to the consolidated financial statements, the Company generated \$3.0 billion of its revenue from the sale of advertising services, with \$0.5 billion from data licensing and other arrangements, for the year ended December 31, 2019. Significant judgments made by management are (i) identifying the performance obligations in the contract, (ii) determining the basis for allocating contract consideration to performance obligations, (iii) determining whether the Company is the principal or the agent in arrangements where another party is involved in providing specified services to a customer, and (iv) estimating the transaction price to be allocated for contracts with tiered rebate provisions.

The principal considerations for our determination that performing procedures relating to revenue recognition, specifically related to the identification of performance obligations, is a critical audit matter are that there was a significant amount of judgment by management in identifying performance obligations. This in turn resulted in significant audit effort and a high degree of subjectivity in performing procedures and evaluating audit evidence.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the revenue recognition process, including controls over the identification of performance obligations. These procedures also included, among others, examining revenue arrangements on a test basis and testing management's process for (i) determining whether the criteria for revenue recognition have been met based on the terms and performance under the arrangement, and (ii) identifying performance obligations and, where applicable, determining whether the Company is the principal or agent for the performance obligation identified.

Income Taxes - valuation of deferred tax assets related to intra-entity transfers of intangible assets

As described in Notes 2 and 15 to the consolidated financial statements, the Company transferred certain intangible assets among its wholly-owned subsidiaries, which resulted in the establishment of deferred tax assets and the recognition of a deferred tax benefit from income tax of \$1.2 billion as of and for the year ended December 31, 2019. The establishment of deferred tax assets from intra-entity transfers of intangible assets required management to make significant estimates and assumptions to determine the fair value of such intangible assets. Critical estimates in valuing the intangible assets include, but are not limited to, internal revenue and expense forecasts, the estimated life of the intangible assets, and discount rates.

The principal considerations for our determination that performing procedures relating to the valuation of deferred tax assets related to the intangible assets transferred intra-entity is a critical audit matter are that there was significant judgment by management in developing the estimates and assumptions to determine the fair value of the intangible assets transferred, which management used as the basis for the recording of the deferred tax assets. This led to significant auditor judgment, subjectivity, and effort in performing procedures to evaluate the estimates and assumptions in valuing the intangible assets, including internal revenue and expense forecasts and discount rates. In addition, the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the valuation of intangible assets transferred, including controls over the development of the estimates and assumptions, including internal revenue and expense forecasts and discount rates. These procedures also included, among others, testing management's process for developing the fair value of the intangible assets transferred; testing the completeness, accuracy, and relevance of underlying data used in the model; and evaluating the significant assumptions used by management, including internal revenue and expense forecasts and discount rates. Professionals with specialized skill and knowledge were used to assist in the evaluation of the Company's model and certain significant assumptions, including discount rates.

/s/ PricewaterhouseCoopers LLP

San Francisco, California

February 18, 2020

We have served as the Company's auditor since 2009.

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

	December 31, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	\$ 1,799,082	\$ 1,894,444
Short-term investments	4,839,970	4,314,957
Accounts receivable, net of allowance for doubtful accounts of \$2,401 and \$3,559	850,184	788,700
Prepaid expenses and other current assets	130,839	112,935
Total current assets	7,620,075	7,111,036
Property and equipment, net	1,031,781	885,078
Operating lease right-of-use assets	697,095	—
Intangible assets, net	55,106	45,025
Goodwill	1,256,699	1,227,269
Deferred tax assets, net	1,908,086	808,459
Other assets	134,547	85,705
Total assets	<u>\$ 12,703,389</u>	<u>\$ 10,162,572</u>
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$ 161,148	\$ 145,186
Accrued and other current liabilities	500,893	405,751
Convertible notes, short-term	—	897,328
Operating lease liabilities, short-term	146,959	—
Finance lease liabilities, short-term	23,476	68,046
Total current liabilities	832,476	1,516,311
Convertible notes, long-term	1,816,833	1,730,922
Senior notes, long-term	691,967	—
Operating lease liabilities, long-term	609,245	—
Finance lease liabilities, long-term	205	24,394
Deferred and other long-term tax liabilities, net	24,170	17,849
Other long-term liabilities	24,107	67,502
Total liabilities	<u>3,999,003</u>	<u>3,356,978</u>
Commitments and contingencies (Note 16)		
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; 779,619 and 764,257 shares issued and outstanding	4	4
Additional paid-in capital	8,763,330	8,324,974
Accumulated other comprehensive loss	(70,534)	(65,311)
Retained earnings (accumulated deficit)	11,586	(1,454,073)
Total stockholders' equity	<u>8,704,386</u>	<u>6,805,594</u>
Total liabilities and stockholders' equity	<u>\$ 12,703,389</u>	<u>\$ 10,162,572</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)

	Year Ended December 31,		
	2019	2018	2017
Revenue	\$ 3,459,329	\$ 3,042,359	\$ 2,443,299
Costs and expenses			
Cost of revenue	1,137,041	964,997	861,242
Research and development	682,281	553,858	542,010
Sales and marketing	913,813	771,361	717,419
General and administrative	359,821	298,818	283,888
Total costs and expenses	<u>3,092,956</u>	<u>2,589,034</u>	<u>2,404,559</u>
Income from operations	366,373	453,325	38,740
Interest expense	(138,180)	(132,606)	(105,237)
Interest income	157,703	111,221	44,383
Other income (expense), net	4,243	(8,396)	(73,304)
Income (loss) before income taxes	390,139	423,544	(95,418)
Provision (benefit) for income taxes	(1,075,520)	(782,052)	12,645
Net income (loss)	<u>\$ 1,465,659</u>	<u>\$ 1,205,596</u>	<u>\$ (108,063)</u>
Net income (loss) per share attributable to common stockholders:			
Basic	\$ 1.90	\$ 1.60	\$ (0.15)
Diluted	<u>\$ 1.87</u>	<u>\$ 1.56</u>	<u>\$ (0.15)</u>
Weighted-average shares used to compute net income (loss) per share attributable to common stockholders:			
Basic	770,729	754,326	732,702
Diluted	<u>785,531</u>	<u>772,686</u>	<u>732,702</u>

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

TWITTER, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(In thousands)

	Year Ended December 31,		
	2019	2018	2017
Net income (loss)	\$ 1,465,659	\$ 1,205,596	\$ (108,063)
Other comprehensive income (loss), net of tax:			
Change in unrealized gain (loss) on investments in available-for-sale securities	13,785	(393)	(1,325)
Change in foreign currency translation adjustment	(19,008)	(33,339)	38,999
Net change in accumulated other comprehensive income (loss)	(5,223)	(33,732)	37,674
Comprehensive income (loss)	<u>\$ 1,460,436</u>	<u>\$ 1,171,864</u>	<u>\$ (70,389)</u>

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

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

	Year Ended December 31,					
	2019		2018		2017	
	Shares	Amount	Shares	Amount	Shares	Amount
Common stock						
Balance, beginning of period	764,257	\$ 4	746,902	\$ 4	721,572	\$ 4
Issuance of common stock in connection with RSU vesting	13,519	—	15,026	—	20,855	—
Issuance of common stock in connection with acquisitions	—	—	119	—	—	—
Issuance of restricted stock in connection with acquisitions accounted for as stock-based compensation	471	—	655	—	—	—
Exercise of stock options	361	—	634	—	3,733	—
Issuance of common stock upon purchases under employee stock purchase plan	1,592	—	1,539	—	1,735	—
Shares withheld related to net share settlement of equity awards	(579)	—	(610)	—	(531)	—
Other activities	(2)	—	(8)	—	(462)	—
Balance, end of period	<u>779,619</u>	<u>\$ 4</u>	<u>764,257</u>	<u>\$ 4</u>	<u>746,902</u>	<u>\$ 4</u>
Additional paid-in capital						
Balance, beginning of period	—	\$ 8,324,974	—	\$ 7,750,522	—	\$ 7,224,534
Cumulative-effect adjustment from adoption of stock-based compensation expense simplification rule	—	—	—	—	—	13,316
Issuance of common stock in connection with acquisitions	—	—	—	5,405	—	—
Issuance of stock options in connection with acquisitions	—	—	—	917	—	—
Issuance of restricted stock in connection with acquisitions	—	—	—	12,843	—	—
Exercise of stock options	—	788	—	3,442	—	9,515
Issuance of common stock upon purchases under employee stock purchase plan	—	42,378	—	29,288	—	23,920
Shares withheld related to net share settlement of equity awards	—	(19,594)	—	(19,256)	—	(8,962)
Stock-based compensation	—	414,784	—	367,668	—	488,123
Equity component of the convertible note issuance, net	—	—	—	252,248	—	—
Purchase of convertible note hedge	—	—	—	(267,950)	—	—
Issuance of warrants	—	—	—	186,760	—	—
Other activities	—	—	—	3,087	—	76
Balance, end of period	<u>—</u>	<u>\$ 8,763,330</u>	<u>—</u>	<u>\$ 8,324,974</u>	<u>—</u>	<u>\$ 7,750,522</u>
Accumulated other comprehensive loss						
Balance, beginning of period	—	\$ (65,311)	—	\$ (31,579)	—	\$ (69,253)
Other comprehensive income (loss)	—	(5,223)	—	(33,732)	—	37,674
Balance, end of period	<u>—</u>	<u>\$ (70,534)</u>	<u>—</u>	<u>\$ (65,311)</u>	<u>—</u>	<u>\$ (31,579)</u>
Retained earnings (accumulated deficit)						
Balance, beginning of period	—	\$ (1,454,073)	—	\$ (2,671,729)	—	\$ (2,550,350)
Cumulative-effect adjustment from adoption of revenue recognition rule	—	—	—	12,060	—	—
Cumulative-effect adjustment from adoption of stock-based compensation expense simplification rule	—	—	—	—	—	(13,316)
Net income (loss)	—	1,465,659	—	1,205,596	—	(108,063)
Balance, end of period	<u>—</u>	<u>\$ 11,586</u>	<u>—</u>	<u>\$ (1,454,073)</u>	<u>—</u>	<u>\$ (2,671,729)</u>
Total stockholders' equity	<u>779,619</u>	<u>\$ 8,704,386</u>	<u>764,257</u>	<u>\$ 6,805,594</u>	<u>746,902</u>	<u>\$ 5,047,218</u>

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

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,		
	2019	2018	2017
Cash flows from operating activities			
Net income (loss)	\$ 1,465,659	\$ 1,205,596	\$ (108,063)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization expense	465,549	425,498	395,867
Stock-based compensation expense	378,025	326,228	433,806
Amortization of discount on convertible notes	113,298	105,926	80,061
Deferred income taxes	84,369	43,409	(6,415)
Deferred tax assets valuation allowance release	—	(845,129)	—
Deferred tax assets establishment related to intra-entity transfers of intangible assets	(1,206,880)	—	—
Impairment of investments in privately-held companies	1,550	3,000	62,439
Other adjustments	(16,906)	(14,139)	5,753
Changes in assets and liabilities, net of assets acquired and liabilities assumed from acquisitions:			
Accounts receivable	(67,000)	(130,871)	2,668
Prepaid expenses and other assets	(29,602)	126,470	(13,974)
Operating lease right-of-use assets	149,880	—	—
Accounts payable	2,946	(1,533)	8,371
Accrued and other liabilities	92,681	95,256	(29,304)
Operating lease liabilities	(130,205)	—	—
Net cash provided by operating activities	<u>1,303,364</u>	<u>1,339,711</u>	<u>831,209</u>
Cash flows from investing activities			
Purchases of property and equipment	(540,688)	(483,934)	(160,742)
Proceeds from sales of property and equipment	6,158	13,070	2,783
Purchases of marketable securities	(5,798,111)	(5,334,396)	(2,687,214)
Proceeds from maturities of marketable securities	4,928,097	3,732,973	2,579,747
Proceeds from sales of marketable securities	367,116	58,721	124,826
Purchases of investments in privately-held companies	(51,163)	(3,375)	(825)
Proceeds from sales of long-lived assets	11,781	—	35,000
Business combinations, net of cash acquired	(29,664)	(33,572)	—
Other investing activities	(9,500)	(5,000)	(10,101)
Net cash used in investing activities	<u>(1,115,974)</u>	<u>(2,055,513)</u>	<u>(116,526)</u>
Cash flows from financing activities			
Proceeds from issuance of senior notes	700,000	—	—
Proceeds from issuance of convertible notes	—	1,150,000	—
Purchases of convertible note hedges	—	(267,950)	—
Proceeds from issuance of warrants concurrent with note hedges	—	186,760	—
Debt issuance costs	(8,070)	(13,783)	—
Repayment of convertible notes	(935,000)	—	—
Taxes paid related to net share settlement of equity awards	(19,594)	(19,263)	(8,962)
Payments of finance lease obligations	(66,677)	(90,351)	(102,775)
Proceeds from exercise of stock options	788	3,415	9,444
Proceeds from issuances of common stock under employee stock purchase plan	42,378	29,288	23,920
Net cash provided by (used in) financing activities	<u>(286,175)</u>	<u>978,116</u>	<u>(78,373)</u>
Net increase (decrease) in cash, cash equivalents and restricted cash	(98,785)	262,314	636,310
Foreign exchange effect on cash, cash equivalents and restricted cash	4,576	(14,296)	9,914
Cash, cash equivalents and restricted cash at beginning of period	1,921,875	1,673,857	1,027,633
Cash, cash equivalents and restricted cash at end of period	<u>\$ 1,827,666</u>	<u>\$ 1,921,875</u>	<u>\$ 1,673,857</u>
Supplemental cash flow data			
Interest paid in cash	\$ 12,236	\$ 14,547	\$ 13,990
Income taxes paid in cash	\$ 20,144	\$ 33,065	\$ 16,216
Supplemental disclosures of non-cash investing and financing activities			
Common stock issued in connection with acquisitions	\$ —	\$ 19,165	\$ —
Equipment purchases under finance leases	\$ —	\$ 16,086	\$ 123,235
Changes in accrued property and equipment purchases	\$ 14,985	\$ (23,469)	\$ 16,387
Reconciliation of cash, cash equivalents and restricted cash as shown in the consolidated statements of cash flows			
Cash and cash equivalents	\$ 1,799,082	\$ 1,894,444	\$ 1,638,413
Restricted cash included in prepaid expenses and other current assets	1,862	1,698	8,289
Restricted cash included in other assets	26,722	25,733	27,155
Total cash, cash equivalents and restricted cash	<u>\$ 1,827,666</u>	<u>\$ 1,921,875</u>	<u>\$ 1,673,857</u>

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

TWITTER, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1. The Company

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.

Note 2. Summary of Significant Accounting Policies

Principles of Consolidation

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.

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 generally accepted accounting principles in the United States of America ("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 management believes are reasonable based on its knowledge of current events, as well as its expectations about actions it may take in the future, and evaluates these estimates on an ongoing basis.

Revenue Recognition

The Company generates the substantial majority of its revenue from the sale of advertising services with the remaining balance from data licensing and other arrangements.

The Company generates its advertising revenue primarily from the sale of its Promoted Products: (i) Promoted Tweets, (ii) Promoted Accounts and (iii) Promoted Trends. Promoted Tweets and Promoted Accounts are pay-for-performance advertising products or pay on impressions delivered, each priced through an auction. Promoted Trends are featured by geography and offered on a fixed-fee-per-day basis. Advertisers are obligated to pay when a person engages with a Promoted Tweet, follows a Promoted Account, when an impression is delivered, or when a Promoted Trend is displayed for an entire day in a particular country or on a global basis. These advertising services may be sold in combination as a bundled arrangement or separately on a stand-alone basis.

For the Company's Promoted Product arrangements, significant judgments are (i) identifying the performance obligations in the contract, (ii) determining the basis for allocating contract consideration to performance obligations, (iii) determining whether the Company is the principal or the agent in arrangements where another party is involved in providing specified services to a customer, and (iv) estimating the transaction price to be allocated for contracts with tiered rebate provisions.

The Company may generate revenue from the sale of certain Promoted Tweets through placement by Twitter of advertiser ads against third-party publisher content. The Company will pay the third-party publisher a revenue share fee for its right to monetize their content. In such transactions, advertisers are contracting to obtain a single integrated advertising service, the Promoted Tweet combined with the third-party publisher content, and the Company obtains control of the third-party publisher content displayed on Twitter that it then combines with the advertiser ads within the Promoted Tweet. Therefore, the Company reports advertising revenue generated from these transactions on a gross basis and records the related third-party content monetization fees as cost of revenue.

The Company also generates advertising revenue by selling services in which the Company places ads on third-party publishers' websites, applications or other offerings. To fulfill these transactions, the Company purchases advertising inventory from third-party publishers' websites and applications where the Company has identified the advertisers' targeted audience and therefore incurs traffic acquisition costs prior to transferring the advertising service to its customers. At such point, the Company has the sole ability to monetize the third-party publishers advertising inventory. In such transactions, the Company obtains control of a right to a service to be performed by the third-party publishers, which gives the Company the ability to direct those publishers to provide the services to the Company's customers on the Company's behalf. Therefore, the Company reports advertising revenue generated from these transactions on a gross basis and records the related traffic acquisition costs as cost of revenue.

Fees for the advertising services above are recognized in the period when advertising is delivered as evidenced by a person engaging with a Promoted Tweet or an ad on a third-party publisher website or application in a manner satisfying 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, following a Promoted Account, delivery of impressions, or through the display of a Promoted Trend on the Company's platform.

The Company has concluded that its data licensing arrangements, which grant customers a right to Twitter's intellectual property ("IP") for a defined period of time, may contain a single performance obligation satisfied at a point in time ("Historical IP") or over time ("Future IP"), or may contain two or more performance obligations satisfied separately at a point in time (Historical IP) and over time (Future IP). In some of the Company's data licensing arrangements, pricing is a fixed monthly fee over a specified term. In arrangements with a single performance obligation satisfied over time, data licensing revenue is recognized on a straight-line basis over the period in which the Company provides data as the customer consumes and benefits from the continuous data available on an ongoing basis. In arrangements with at least two performance obligations, the Company allocates revenue on a relative basis between the performance obligations based on standalone selling price ("SSP") and recognizes revenue as the performance obligations are satisfied.

In other data licensing arrangements, the Company charges customers based on the amount of sales they generate from downstream customers using Twitter data. Certain of those royalty-based data licensing arrangements are subject to minimum guarantees. For such arrangements with a minimum guarantee and a single Future IP performance obligation, the Company recognizes revenue for minimum guarantees on a straight-line basis over the period in which the Company provides data. For such arrangements with a minimum guarantee and two or more performance obligations, the Company allocates revenue on a relative basis between the performance obligations based on SSP and recognizes revenue as the performance obligations are satisfied. Royalties in excess of minimum guarantees, if any, are recognized as revenue over the contract term, on a straight-line, cumulative catch-up basis. This reflects the nature of the Company's performance obligation, which is a series of distinct monthly periods of providing a license of IP.

For data licensing arrangements involving two or more performance obligations, the Company uses directly observable standalone transactions to determine SSP of Historical IP. The Company uses standalone transactions and considers all other reasonably available observable evidence to estimate SSP of Future IP.

Other revenue is primarily generated from service fees from transactions completed on the Company's mobile ad exchange. The Company's mobile ad exchange enables buyers and sellers to purchase and sell advertising inventory by matching them in the exchange. The Company has determined it is not the principal in the purchase and sale of advertising inventory in transactions between third-party buyers and sellers on the exchange because the Company does not obtain control of the advertising inventory. The Company reports revenue related to its ad exchange services on a net basis for the fees paid by buyers, net of costs related to acquiring the advertising inventory paid to sellers.

Arrangements involving multiple performance obligations primarily consist of combinations of the Company's pay-for-performance products, Promoted Tweets and Promoted Accounts, which are priced through an auction, and Promoted Trends, which are priced on a fixed-fee-per day, per geography basis. For arrangements that include a combination of these products, the Company develops an estimate of the standalone selling price for these products in order to allocate any potential discount to all performance obligations in the arrangement. The estimate of standalone selling price for pay-for-performance auction based products is determined based on the winning bid price. The estimate of standalone selling price for Promoted Trends is based on Promoted Trends sold on a standalone basis and/or separately priced in a bundled arrangement by reference to a list price by geography, which is updated and approved periodically. For other arrangements involving multiple performance obligations where neither auction pricing nor standalone sales provide sufficient evidence of standalone selling price, the Company estimates standalone selling price using either an adjusted market assessment approach or an expected cost plus margin approach. The Company believes the use of its estimation approach and allocation of the transaction price on a relative standalone selling price basis to each performance obligation results in revenue recognition in a manner consistent with the underlying economics of the transaction and the allocation principle included in Topic 606. The Company has elected to exclude certain sales and indirect taxes from the determination of the transaction price.

Cost of Revenue

Cost of revenue includes infrastructure costs, other direct costs including revenue share expenses, amortization expense of technology acquired through acquisitions and amortization of capitalized labor costs for internally developed software, allocated facilities costs, as well as traffic acquisition costs ("TAC"). Infrastructure costs consist primarily of data center costs related to the Company's 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 its operations teams. Revenue share expenses are primarily related to payments to providers from whom the Company licenses content, in order to increase engagement on the platform. The fees paid to these content providers may be based on revenues generated, or a minimum guaranteed fee. TAC consists of costs incurred with third parties in connection with the sale to advertisers of advertising products that the Company places on third-party publishers' websites, applications or other offerings collectively resulting from acquisitions and from the Company's organically-built advertising network, Twitter Audience Platform.

Stock-Based Compensation Expense

The Company accounts for stock-based compensation expense under the fair value recognition and measurement provisions of GAAP. Stock-based awards granted to employees are measured based on the grant-date fair value.

For service-based restricted stock awards and performance-based restricted stock awards without market conditions, the Company recognizes the compensation expense only for those awards expected to meet the performance and service vesting condition on a straight-line basis over the requisite service period which is generally one year for performance vesting condition awards and up to five years for service vesting condition awards. For performance-based restricted stock awards with market conditions, the Company recognizes the compensation expense on a straight-line basis over the requisite service period regardless of whether the market condition is satisfied, provided that the requisite service has been provided, which is generally two years. The Company accounts for forfeitures as they occur.

The Company estimates the fair value of stock options granted and stock purchase rights provided under the Company's employee stock purchase plan using the Black-Scholes option pricing model on the dates of grant. The compensation expense related to stock options and employee stock purchase rights is recognized on a straight-line basis over the requisite service period.

The fair value of performance-based restricted stock awards with market conditions is determined using a Monte Carlo simulation to estimate the grant date fair value.

The Company issues restricted stock subject to a lapsing right of repurchase to continuing employees of certain acquired companies. Since these issuances are subject to post-acquisition employment, the Company accounts for them as post-acquisition stock-based compensation expense. The grant-date fair value of restricted stock granted in connection with acquisitions is recognized as stock-based compensation expense on a straight-line basis over the requisite service period.

Acquisitions

The Company accounts for acquisitions of entities that include inputs and processes and have the ability to create outputs as business combinations. The purchase price of the acquisition is allocated to the tangible and intangible assets acquired and liabilities assumed based on their estimated fair values at the acquisition dates. The excess of the purchase price over those fair values is recorded as goodwill. During the measurement period, which may be up to one year from the acquisition date, the Company may record adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the consolidated statements of operations.

Investments in Privately-Held Companies

The Company makes strategic investments in privately-held companies. The Company also 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'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 in the consolidated statements of operations.

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 private 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 private companies operate or based on the price observed from the most recent completed financing.

Loss Contingencies

The Company is 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. The Company records a liability when it believes that it is both probable that a loss has been incurred and the amount or range can be reasonably estimated. Significant judgment is required to determine both probability and the estimated amount. The Company reviews these provisions on a quarterly basis and adjust these provisions accordingly to reflect the impact of negotiations, settlements, rulings, advice of legal counsel, and updated information.

Operating and Finance Leases

The Company has operating leases primarily for office space and data center facilities. The determination of whether an arrangement is a lease or contains a lease is made at inception by evaluating whether the arrangement conveys the right to use an identified asset and whether the Company obtains substantially all of the economic benefits from and has the ability to direct the use of the asset. Operating leases are included in operating lease right-of-use assets, operating lease liabilities, short-term, and operating lease liabilities, long-term on the Company's consolidated balance sheets.

With the exception of initial adoption of the new lease standard, where the Company's incremental borrowing rate used was the rate on the adoption date (January 1, 2019), operating lease ROU assets and operating lease liabilities are recognized based on the present value of lease payments over the lease term at the lease commencement date. To determine the incremental borrowing rate used to calculate the present value of future lease payments, the Company uses information including the Company's credit rating, interest rates of similar debt instruments of entities with comparable credit ratings, and Twitter, Inc.'s guarantee of certain leases in foreign jurisdictions, as applicable.

Certain lease agreements contain options for the Company to renew a lease for a term of up to ten years or an option to terminate a lease early within one year. The Company considers these options, which may be elected at the Company's sole discretion, in determining the lease term on a lease-by-lease basis. Leases with an initial term of twelve months or less are not recognized on the consolidated balance sheets. The Company recognizes lease expense for these leases on a straight-line basis over the term of the lease.

The Company also has server and networking equipment lease arrangements with original lease terms ranging from three to four years. The Company's server and networking equipment leases typically are accounted for as finance leases as they meet one or more of the five finance lease classification criteria. Assets acquired under finance leases are included in property and equipment, net, finance lease liabilities, short-term, and finance lease liabilities, long-term in the Company's consolidated balance sheets and are depreciated to operating expenses on a straight-line basis over their estimated useful lives.

The Company's lease agreements generally do not contain any material residual value guarantees or material restrictive covenants. Certain of the Company's leases contain free or escalating rent payment terms. Additionally, certain lease agreements contain lease components (for example, fixed payments such as rent) and non-lease components such as common-area maintenance costs. For each asset class of the Company's leases—real estate offices, data centers, and equipment—the Company has elected to account for both of these provisions as a single lease component. For arrangements accounted for as a single lease component, there may be variability in future lease payments as the amount of the non-lease components is typically revised from one period to the next. These variable lease payments, which are primarily comprised of common-area maintenance, utilities, and real estate taxes that are passed on from the lessor in proportion to the space leased by the Company, are recognized in operating expenses in the period in which the obligation for those payments was incurred. The Company recognizes lease expense for its operating leases in operating expenses on a straight-line basis over the term of the lease.

The Company subleases certain leased office space to third parties when it determines there is excess leased capacity. Certain of these subleases contain both lease and non-lease components. The Company has elected to account for both of these provisions as a single lease component. Sublease rent income is recognized as an offset to operating expense on a straight-line basis over the lease term. In addition to sublease rent, variable non-lease costs such as common-area maintenance, utilities, and real estate taxes are charged to subtenants over the duration of the lease for their proportionate share of these costs. These variable non-lease income receipts are recognized in operating expenses as a reduction to costs incurred by the Company in relation to the head lease.

Cash, Cash Equivalents and Investments

The Company invests its excess cash primarily in short-term fixed income securities, including government and investment-grade debt securities and money market funds. The Company classifies all liquid investments with stated maturities of three months or less from date of purchase as cash equivalents. The Company classifies all marketable securities for use in current operations, even if the security matures beyond 12 months, and presents them as short-term investments in the consolidated balance sheets.

As of December 31, 2019 and 2018, the Company has restricted cash balances of \$1.9 million and \$1.7 million, respectively, within prepaid expenses and other current assets and \$26.7 million and \$25.7 million, respectively, in other assets on the accompanying consolidated balance sheets based upon the term of the remaining restrictions. These restricted cash balances are primarily cash deposits to back letters of credit related to certain property leases.

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, and reports the unrealized gains and losses, net of taxes, as a component of stockholders' equity, except for unrealized losses determined to be other-than-temporary which are recorded as other income (expense), net. The Company determines any realized gains or losses on the sale of marketable securities on a specific identification method and records such gains and losses as a component of other income (expense), net. Interest earned on cash, cash equivalents, and marketable securities was \$157.7 million, \$111.2 million, and \$44.4 million during the years ended December 31, 2019, 2018 and 2017, respectively. These balances are recorded in interest income in the accompanying consolidated statements of operations.

The Company evaluates the investments periodically for possible other-than-temporary impairment. A decline in fair value below the amortized costs of debt securities is considered an other-than-temporary impairment if the Company has the intent to sell the security or it is more likely than not that the Company will be required to sell the security before recovery of the entire amortized cost basis. In those instances, an impairment charge equal to the difference between the fair value and the amortized cost basis is recognized in earnings. Regardless of the Company's intent or requirement to sell a debt security, impairment is considered other-than-temporary if the Company does not expect to recover the entire amortized cost basis.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to significant concentration of credit risk consist primarily of cash, cash equivalents, short-term investments and accounts receivable. The primary focus of the Company's investment strategy is to preserve capital and meet liquidity requirements. The Company's investment policy addresses the level of credit exposure by limiting the concentration in any one corporate issuer or sector and establishing a minimum allowable credit rating. To manage the risk exposure, the Company invests cash equivalents and short-term investments in a variety of fixed income securities, including government and investment-grade debt securities and money market funds. The Company places its cash primarily in checking and money market accounts with reputable financial institutions. Deposits held with these financial institutions may exceed the amount of insurance provided on such deposits, if any.

The Company's accounts receivable are typically unsecured and are derived from customers around the world in different industries. The Company includes terms in its contracts providing the ability to stop transferring promised goods or services, performs ongoing credit evaluations of its customers, and maintains allowances for potential credit losses. Historically, such losses have been within management's expectations. As of December 31, 2019 and 2018, no single customer accounted for more than 10% of the Company's net accounts receivable balance. No single customer accounted for more than 10% of the Company's revenue in the years ended December 31, 2019, 2018 and 2017.

The Company's note hedge transactions, entered into in connection with the Convertible Notes, as defined and further described in Note 5 – Fair Value Measurements, and its derivative financial instruments expose the Company to credit risk to the extent that its counterparties may be unable to meet the terms of the transactions. The Company mitigates this risk by limiting its counterparties to major financial institutions and using multiple financial institutions as counterparties in its hedge transactions.

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, and the customer's current financial condition.

Property and Equipment, Net

Property and equipment are stated at cost and depreciated using the straight-line method over the estimated useful lives of the assets. Leasehold improvements are amortized using the straight-line method over the shorter of the lease term or the estimated useful life. The estimated useful lives of property and equipment are described below:

Property and Equipment	Estimated Useful Life
Computer hardware, networking and office equipment	Three to five years
Computer software	Up to five years
Furniture and fixtures	Five years
Leasehold improvements	Lesser of estimated useful life or remaining lease term

The Company reviews the remaining estimated useful lives of its property and equipment on an ongoing basis. Management is required to use judgment in determining the estimated useful lives of such assets. Changes in circumstances such as technological advances, changes to the Company's business model, changes in the Company's business strategy, or changes in the planned use of property and equipment could result in the actual useful lives differing from the Company's current estimates. In cases where the Company determines that the estimated useful life of property and equipment should be shortened or extended, the Company would apply the new estimated useful life prospectively.

The Company reviews property and equipment for impairment when events or circumstances indicate the carrying amount may not be recoverable.

Costs of maintenance and repairs that do not improve or extend the lives of the respective assets are expensed as incurred. Upon retirement or sale, the cost and related accumulated depreciation are removed from the balance sheet and the resulting gain or loss is reflected in operating expenses.

Capitalization of Interest

Interest costs are capitalized for assets that are constructed for the Company's own internal use, including internally developed software and property and equipment, for the period of time to get them ready for their intended use. During the years ended December 31, 2019, 2018 and 2017, the Company capitalized \$4.6 million, \$3.7 million and \$3.6 million of interest expense, respectively.

Goodwill

Goodwill represents the excess of the purchase price over the fair value of the net tangible and intangible assets acquired in a business combination. Goodwill is not amortized, but is tested for impairment at least annually or more frequently if events or changes in circumstances indicate that the asset may be impaired. The Company's impairment tests are based on a single operating segment and reporting unit structure. If the carrying value of the reporting unit exceeds its fair value, an impairment charge is recognized for the excess of the carrying value of the reporting unit over its fair value.

The Company conducted its annual goodwill impairment test during the fourth quarter of 2019 and determined that the fair value of the reporting unit significantly exceeded its carrying value. As such, goodwill was not impaired. No impairment charge was recorded in any of the periods presented in the accompanying consolidated financial statements.

Intangible Assets

Intangible assets are carried at cost and amortized on a straight-line basis over their estimated useful lives of up to eleven years. The Company reviews identifiable amortizable intangible assets to be held and used for impairment whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable. Determination of recoverability is based on the lowest level of identifiable estimated undiscounted cash flows resulting from use of the asset and its eventual disposition. Measurement of any impairment loss is based on the excess of the carrying value of the asset over its fair value. There have been no impairment charges recorded in any of the periods presented in the accompanying consolidated financial statements.

Fair Value Measurements

The Company classifies and discloses assets and liabilities measured at fair value on a recurring basis, as well as fair value measurements of assets and liabilities measured on a nonrecurring basis in periods subsequent to initial measurement, in a three-tier fair value hierarchy as described below. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The three levels of inputs that may be used to measure fair value are as follows:

Level 1—Observable inputs, such as quoted prices in active markets for identical assets or liabilities.

Level 2—Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Internal Use Software and Website Development Costs

The Company capitalizes certain costs incurred in developing software programs or websites for internal use. In the years ended December 31, 2019, 2018 and 2017, the Company capitalized costs totaling approximately \$127.5 million, \$121.0 million and \$113.9 million, respectively. Capitalized internal use software development costs are included in property and equipment, net. Included in the capitalized amounts above are \$37.5 million, \$41.4 million and \$51.8 million of stock-based compensation expense in the years ended December 31, 2019, 2018 and 2017, respectively.

The estimated useful life of costs capitalized is evaluated for each specific project and is up to five years. In the years ended December 31, 2019, 2018 and 2017, the amortization of capitalized costs totaled approximately \$116.0 million, \$111.8 million and \$96.5 million, respectively.

Income Taxes

The Company is subject to income taxes in the United States and several foreign jurisdictions. Significant judgment is required in determining its provision (benefit) for income taxes and income tax assets and liabilities, including evaluating uncertainties in the application of accounting principles and complex tax laws.

The Company records a provision (benefit) for income taxes for the anticipated tax consequences of the reported results of operations using the asset and liability method. Under this method, the Company recognizes deferred income tax assets and liabilities for the expected future tax consequences of temporary differences between the financial reporting and tax bases of assets and liabilities, as well as for loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using the tax rates that are expected to apply to taxable income for the years in which those tax assets and liabilities are expected to be realized or settled. The Company recognizes the deferred income tax effects of a change in tax rates in the period of the enactment. The Company records a valuation allowance to reduce its deferred tax assets to the net amount that it believes is more likely than not to be realized.

The Company recognizes tax benefits from uncertain tax positions only if it believes that it is more likely than not that the tax position will be sustained on examination by the taxing authorities based on the technical merits of the position. Although the Company believes it has adequately reserved for its uncertain tax positions (including net interest and penalties), it can provide no assurance that the final tax outcome of these matters will not be different. The Company makes adjustments to these reserves in accordance with income tax accounting guidance when facts and circumstances change, such as the closing of a tax audit. To the extent that the final tax outcome of these matters is different from the amounts recorded, such differences may impact the provision (benefit) for income taxes in the period in which such determination is made. The Company records interest and penalties related to its uncertain tax positions in the provision (benefit) for income taxes.

The establishment of deferred tax assets from intra-entity transfers of intangible assets requires management to make significant estimates and assumptions to determine the fair value of such intangible assets. Critical estimates in valuing the intangible assets include, but are not limited to, internal revenue and expense forecasts, the estimated life of the intangible assets, and discount rates. The discount rates used in the income method to discount expected future cash flows to present value are adjusted to reflect the inherent risks related to the cash flow. Although the Company believes the assumptions and estimates it has made are reasonable and appropriate, they are based, in part, on historical experience and are inherently uncertain. Unanticipated events and circumstances may occur that could affect either the accuracy or validity of such assumptions, estimates or actual results.

Foreign Currency

The functional currency of the Company's foreign subsidiaries is generally the local currency. The financial statements of these subsidiaries are translated into U.S. dollars using period-end rates of exchange for assets and liabilities, historical rates of exchange for equity, and average rates of exchange for revenue and expenses. Translation gains (losses) are recorded in accumulated other comprehensive income (loss) as a component of stockholders' equity. Unrealized foreign exchange gains and losses due to re-measurement of monetary assets and liabilities denominated in non-functional currencies as well as realized foreign exchange gains and losses on foreign exchange transactions are recorded in other income (expense), net in the accompanying consolidated statements of operations.

Advertising Costs

Advertising costs are expensed when incurred and are included in sales and marketing expense in the accompanying consolidated statements of operations. Advertising expense totaled \$77.5 million, \$78.1 million and \$70.2 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Comprehensive Income (Loss)

Comprehensive income (loss) consists of two components, net income (loss) and other comprehensive income (loss). Other comprehensive income (loss) refers to gains and losses that are recorded as an element of stockholders' equity and are excluded from net income (loss). The Company's other comprehensive income (loss) is comprised of unrealized gains or losses on available-for-sale securities, net of tax, and foreign currency translation adjustments.



Recent Accounting Pronouncements

Recently adopted accounting pronouncements

In February 2016, the Financial Accounting Standards Board ("FASB") issued a new accounting standard update on leases. The new guidance requires lessees to recognize right-of-use ("ROU") assets and lease liabilities for operating leases, initially measured at the present value of the lease payments, on the consolidated balance sheets. In addition, it requires lessees to recognize a single lease cost, calculated so that the cost of the lease is allocated over the lease term, generally on a straight-line basis. The FASB has subsequently issued additional updates that allow entities to apply certain practical expedients upon transition to this new guidance. The Company adopted this guidance as of January 1, 2019 and elected to apply practical expedients permitted under the transition guidance that allow the Company to use the beginning of the period of adoption (January 1, 2019) as the date of initial application, to not separate non-lease components from lease components for lessee and lessor transactions, and to not reassess lease classification, treatment of initial direct costs, or whether an existing or expired contract contains a lease. Prior period financial statements were not recast under the new guidance. The adoption of the new lease standard resulted in the recognition of operating lease ROU assets of \$737.7 million recorded in operating lease right-of-use assets and lease liabilities of \$777.1 million recorded in operating lease liabilities, short-term and operating lease liabilities, long-term on the consolidated balance sheets as of January 1, 2019. In connection with the adoption of this standard, deferred rent of \$53.0 million, which was previously recorded in accrued and other current liabilities and in other long-term liabilities on the consolidated balance sheets, was derecognized. Additionally, prepaid rents of \$13.6 million which were previously recorded in prepaid expenses and other current assets on the consolidated balance sheets were reclassified upon adoption as a reduction to operating lease liabilities, short-term.

In March 2017, the FASB issued a new accounting standard update on shortening the premium amortization period for purchased non-contingently callable debt securities. The new guidance shortens the amortization period for the premium on purchased non-contingently callable debt securities to the earliest call date. Prior to this guidance, entities generally amortized the premium as a yield adjustment over the contractual life of the security. The Company adopted this new accounting standard as of January 1, 2019 and the adoption did not have a material impact on the Company's financial statements.

In February 2018, the FASB issued a new accounting standard update to give entities the option to reclassify tax effects stranded in accumulated other comprehensive income as a result of tax reform to retained earnings (accumulated deficit). The new guidance also requires entities to make additional disclosures, regardless of whether reclassification of tax effects is elected. The Company adopted this new accounting standard during the three months ended March 31, 2019 and did not elect the option to reclassify tax effects as a result of tax reform and as such, adoption did not have a material impact on the Company's financial statements and related disclosures.

Recently issued accounting pronouncements not yet adopted

In June 2016, the 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. This guidance will be effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. Adoption is not expected to have a material impact on the Company's financial statements and related disclosures.

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 used to develop significant unobservable inputs for Level 3 fair value measurements. This guidance will be effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. Adoption is not expected to 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. This guidance will be effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. The Company will adopt the guidance prospectively to all implementation costs incurred after the date of adoption.

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. This guidance will be effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2021. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements and related disclosures.

Note 3. Revenue***Adoption of ASC Topic 606, "Revenue from Contracts with Customers"***

On January 1, 2018, the Company adopted Topic 606 using the modified retrospective method applied to those contracts not yet substantially completed as of January 1, 2018. Results for reporting periods beginning after January 1, 2018 are presented under the new revenue standard, while prior period amounts are not adjusted and continue to be reported in accordance with the Company's historical accounting policies and practices.

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 table sets forth revenue by services and revenue by geographic area (in thousands):

	Year Ended December 31,		
	2019	2018	2017 ⁽¹⁾
Revenue by services:			
Advertising services	\$ 2,993,392	\$ 2,617,397	\$ 2,109,987
Data licensing and other	465,937	424,962	333,312
Total revenue	<u>\$ 3,459,329</u>	<u>\$ 3,042,359</u>	<u>\$ 2,443,299</u>

	Year Ended December 31,		
	2019	2018	2017 ⁽¹⁾
Revenue by geographic area:			
United States	\$ 1,944,022	\$ 1,642,259	\$ 1,413,614
Japan	537,021	507,970	343,741
Rest of World	978,286	892,130	685,944
Total revenue	<u>\$ 3,459,329</u>	<u>\$ 3,042,359</u>	<u>\$ 2,443,299</u>

(1) Amounts prior to January 1, 2018 have not been adjusted due to adoption of the new revenue standard under the modified retrospective method.

Impact of Adoption

The Company recorded a net reduction to opening accumulated deficit of \$12.1 million, an increase to unbilled revenue of \$8.0 million, and a reduction to deferred revenue of \$4.1 million as of January 1, 2018 due to the cumulative impact of adopting Topic 606, with the impact primarily related to its data licensing arrangements.

As a result of applying the new standard, the impact for the year ended December 31, 2018 was an increase to revenue of \$16.1 million, an increase to unbilled revenue of \$12.6 million, and a reduction to deferred revenue of \$3.5 million, with the impact primarily related to the Company's data licensing arrangements.

Practical Expedients and Exemptions

The Company expenses sales commissions as incurred when the amortization period is one year or less. Sales commission expenses are recorded within sales and marketing in the consolidated statements of operations.

The Company applied the practical expedient to not disclose the value of remaining performance obligations not yet satisfied as of period end for contracts with an original expected duration of one year or less.

The Company applied the practical expedient to not disclose the value of remaining performance obligations not yet satisfied as of period end for variable consideration in the form of sales-based royalties promised in exchange for licenses to its intellectual property in data licensing contracts.

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):

	<u>December 31, 2019</u>	<u>December 31, 2018</u>
Unbilled Revenue	\$ 27,691	\$ 20,786
Deferred Revenue	\$ 69,000	\$ 38,949

The amount of revenue recognized in the year ended December 31, 2019 that was included in the deferred revenue balance as of December 31, 2018 was \$38.9 million. The amount of revenue recognized in the year ended December 31, 2018 that was included in the deferred revenue balance as of January 1, 2018 was \$25.9 million. This revenue consists primarily of revenue recognized as a result of the utilization of bonus media 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.

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

The increase in unbilled revenue balance from December 31, 2018 to December 31, 2019 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 increase in deferred revenue balance from December 31, 2018 to December 31, 2019 was primarily due to cash payments received or due in advance of satisfying the Company's performance obligations for data licensing contracts and bonus and make good media inventory earned by and offered to customers during the period.

Remaining Performance Obligations

As of December 31, 2019, the aggregate amount of the transaction price allocated to remaining performance obligations in contracts with an original expected duration exceeding one year is \$634.7 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				2022 and Thereafter
	Total	2020	2021	2022 and Thereafter	
Revenue expected to be recognized on remaining performance obligations	\$ 634,724	\$ 262,674	\$ 190,475	\$ 181,575	

Note 4. Cash, Cash Equivalents and Short-term Investments

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

	December 31, 2019	December 31, 2018
Cash and cash equivalents:		
Cash	\$ 254,405	\$ 229,924
Money market funds	465,158	861,206
Corporate notes, commercial paper and certificates of deposit	1,079,519	803,314
Total cash and cash equivalents	<u>\$ 1,799,082</u>	<u>\$ 1,894,444</u>
Short-term investments:		
U.S. government and agency securities including treasury bills	\$ 660,860	\$ 1,053,408
Corporate notes, commercial paper and certificates of deposit	4,179,110	3,261,549
Total short-term investments	<u>\$ 4,839,970</u>	<u>\$ 4,314,957</u>

The contractual maturities of securities classified as available-for-sale as of December 31, 2019 were as follows (in thousands):

	December 31, 2019
Due within one year	\$ 2,810,876
Due after one year through five years	2,029,094
Total	<u>\$ 4,839,970</u>

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

	December 31, 2019			
	Gross Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregated Estimated Fair Value
U.S. government and agency securities including treasury bills	\$ 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 securities classified as short-term investments	<u>\$ 4,826,564</u>	<u>\$ 14,182</u>	<u>\$ (776)</u>	<u>\$ 4,839,970</u>

	December 31, 2018			
	Gross Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregated Estimated Fair Value
U.S. government and agency securities including treasury bills	\$ 1,053,988	\$ 41	\$ (621)	\$ 1,053,408
Corporate notes, commercial paper and certificates of deposit	3,265,012	713	(4,176)	3,261,549
Total available-for-sale securities classified as short-term investments	<u>\$ 4,319,000</u>	<u>\$ 754</u>	<u>\$ (4,797)</u>	<u>\$ 4,314,957</u>

The available-for-sale securities classified as cash and cash equivalents on the consolidated balance sheets are not included in the tables above as the gross unrealized gains and losses were immaterial for each period. Their carrying value approximates fair value because of the short maturity period of these instruments.

The gross unrealized loss on securities in a continuous loss position for 12 months or longer was not material as of December 31, 2019 and 2018.

Investments are reviewed periodically to identify possible other-than-temporary impairments. No impairment loss has been recorded on the securities included in the tables above as the Company believes that the decrease in fair value of these securities is temporary and expects to recover the initial cost of investment for these securities.

Note 5. 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 December 31, 2019 and 2018 based on the three-tier fair value hierarchy (in thousands):

	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	\$ 465,158	\$ 5,923,245	\$ 6,388,403
Liabilities			
Other current liabilities:			
Foreign currency contracts	—	1,573	1,573
Total	\$ —	\$ 1,573	\$ 1,573

	December 31, 2018		
	Level 1	Level 2	Total
Assets			
Cash equivalents:			
Money market funds	\$ 861,206	\$ —	\$ 861,206
Corporate notes	—	24,537	24,537
Commercial paper	—	778,777	778,777
Short-term investments:			
Treasury bills	—	294,128	294,128
U.S. government and agency securities	—	759,280	759,280
Corporate notes	—	1,713,835	1,713,835
Commercial paper	—	733,999	733,999
Certificates of deposit	—	813,715	813,715
Other current assets:			
Foreign currency contracts	—	1,343	1,343
Total	\$ 861,206	\$ 5,119,614	\$ 5,980,820
Liabilities			
Other current liabilities:			
Foreign currency contracts	—	3,826	3,826
Total	\$ —	\$ 3,826	\$ 3,826

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, and, taken together with the 2021 Notes, the Convertible Notes, and \$700.0 million in aggregate principal amount of 3.875% senior notes due in 2027, or the 2027 Notes, and, together with the 2021 Notes and the 2024 Notes, the Notes, outstanding as of December 31, 2019. Refer to Note 11 – Senior Notes and Convertible Notes for further details on the Notes.

The estimated fair value of the 2021 Notes, 2024 Notes and 2027 Notes, based on a market approach as of December 31, 2019 was approximately \$927.9 million, \$1.13 billion, and \$700.0 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.

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 \$456.1 million and \$545.3 million at December 31, 2019 and 2018, respectively.

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

	Balance Sheet Location	December 31, 2019	December 31, 2018
Assets			
Foreign currency contracts not designated as hedging instruments	Other current assets	\$ 3,756	\$ 1,343
Liabilities			
Foreign currency contracts not designated as hedging instruments	Other current liabilities	\$ 1,573	\$ 3,826

The Company recognized \$7.2 million of net losses, \$11.6 million of net losses, and \$8.3 million of net gains on its foreign currency contracts in the years ended December 31, 2019, 2018 and 2017, respectively.

Note 6. Property and Equipment, Net

The following table presents the detail of property and equipment, net for the periods presented (in thousands):

	December 31, 2019	December 31, 2018
Property and equipment, net		
Equipment	\$ 1,445,003	\$ 1,185,270
Furniture and leasehold improvements	347,983	328,532
Capitalized software	688,894	554,962
Construction in progress	100,551	96,488
Total	2,582,431	2,165,252
Less: Accumulated depreciation and amortization	(1,550,650)	(1,280,174)
Property and equipment, net	\$ 1,031,781	\$ 885,078

Depreciation expense totaled \$449.0 million, \$406.5 million, and \$349.3 million for the years ended December 31, 2019, 2018 and 2017, respectively. Included in these amounts were depreciation expense for server and networking equipment acquired under finance leases in the amount of \$63.7 million, \$84.2 million, and \$93.6 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Note 7. Operating and Finance Leases

The Company's leases have remaining lease terms from less than one year up to approximately eleven years. As of December 31, 2019, assets recorded under finance leases were \$126.0 million and accumulated depreciation associated with finance leases was \$104.2 million, recorded in property and equipment, net on the consolidated balance sheets.

The components of lease cost for the year ended December 31, 2019 were as follows (in thousands):

	Year Ended December 31, 2019
Operating lease cost	\$ 173,005
Finance lease cost	
Depreciation expense	63,674
Interest on lease liabilities	2,125
Total finance lease cost	65,799
Short-term lease cost	3,000
Variable lease cost	49,456
Sublease income	(22,326)
Total lease cost	\$ 268,934

Other information related to leases was as follows (in thousands):

	Year Ended December 31, 2019
Supplemental Cash Flows Information	
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	\$ 165,093
Operating cash flows from finance leases	\$ 2,125
Financing cash flows from finance leases	\$ 66,677
Right-of-use assets obtained in exchange for lease obligations:	
Operating leases	\$ 110,522
Finance leases	\$ —

	December 31, 2019
Lease Term and Discount Rate	
Weighted-average remaining lease term (years):	
Operating leases	6.6
Finance leases	0.7
Weighted-average discount rate:	
Operating leases	4.3 %
Finance leases	3.7 %

Future lease payments under leases and sublease income as of December 31, 2019 were as follows (in thousands):

	Operating Leases	Finance Leases	Total	Sublease Income
Year Ending December 31,				
2020	\$ 180,183	\$ 23,845	\$ 204,028	\$ (11,704)
2021	168,456	569	169,025	(8,771)
2022	153,244	—	153,244	(1,318)
2023	115,047	—	115,047	—
2024	111,615	—	111,615	—
Thereafter	<u>421,013</u>	<u>—</u>	<u>421,013</u>	<u>—</u>
Total future lease payments (receipts)	1,149,558	24,414	1,173,972	<u>\$ (21,793)</u>
Less: leases not yet commenced	(269,886)	—	(269,886)	
Less: imputed interest	(123,468)	(733)	(124,201)	
Total lease liabilities	<u>\$ 756,204</u>	<u>\$ 23,681</u>	<u>\$ 779,885</u>	
Reconciliation of lease liabilities as shown in the consolidated balance sheets				
Operating lease liabilities, short-term	\$ 146,959	\$ —	\$ 146,959	
Operating lease liabilities, long-term	609,245	—	609,245	
Finance lease liabilities, short-term	—	23,476	23,476	
Finance lease liabilities, long-term	—	205	205	
Total lease liabilities	<u>\$ 756,204</u>	<u>\$ 23,681</u>	<u>\$ 779,885</u>	

As of December 31, 2019, the Company had additional operating leases representing a gross commitment of approximately \$267.4 million which primarily relate to data center leases that have not yet commenced. These operating leases are expected to commence in 2020 and will have lease terms of between one to ten years.

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Future lease payments under leases and sublease income as of December 31, 2018 were as follows (in thousands):

	Operating Leases	Sublease Income	Finance Leases
Year Ending December 31,			
2019	\$ 161,932	\$ (24,312)	\$ 70,506
2020	151,751	(15,144)	23,845
2021	110,853	(11,762)	569
2022	89,398	(1,319)	—
2023	62,137	—	—
Thereafter	263,441	—	—
	<u>\$ 839,512</u>	<u>\$ (52,537)</u>	<u>94,920</u>
Less: Amounts representing interest			2,480
Total finance lease obligation			92,440
Less: Short-term portion			68,046
Long-term portion			<u>\$ 24,394</u>

Note 8. Goodwill and Intangible Assets

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

Goodwill

Balance as of December 31, 2018	\$ 1,227,269
Acquisition	27,428
Other	2,002
Balance as of December 31, 2019	<u>\$ 1,256,699</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
December 31, 2019:			
Patents and developed technologies	\$ 96,636	\$ (41,530)	\$ 55,106
Total	<u>\$ 96,636</u>	<u>\$ (41,530)</u>	<u>\$ 55,106</u>
December 31, 2018:			
Patents and developed technologies	\$ 93,211	\$ (48,806)	\$ 44,405
Publisher and advertiser relationships	9,300	(8,680)	620
Total	<u>\$ 102,511</u>	<u>\$ (57,486)</u>	<u>\$ 45,025</u>

Patents and developed technologies are amortized over a period of up to eleven years from the respective purchase dates. Amortization expense associated with intangible assets for the years ended December 31, 2019, 2018 and 2017 was \$16.5 million, \$19.0 million and \$46.5 million, respectively. During the year ended December 31, 2019, \$32.5 million in gross carrying value and accumulated amortization related to fully-amortized intangible assets was eliminated.

Estimated future amortization expense as of December 31, 2019 is as follows (in thousands):

2020	\$ 16,210
2021	11,753
2022	6,733
2023	6,026
2024	6,026
Thereafter	8,358
Total	<u>\$ 55,106</u>

Note 9. Accrued and other current liabilities

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

	December 31, 2019	December 31, 2018
Accrued compensation	\$ 190,465	\$ 155,830
Accrued tax liabilities	45,967	39,729
Accrued publisher, content and ad network costs	45,265	33,014
Deferred revenue	68,987	38,949
Accrued other	150,209	138,229
Total	\$ 500,893	\$ 405,751

Note 10. Acquisitions and Other Investments**2019 Acquisitions**

During the year ended December 31, 2019, the Company made a number of acquisitions, which were accounted for as business combinations. The total purchase price of \$34.5 million (paid in cash of \$29.9 million and indemnification holdback of \$4.6 million) for these acquisitions was allocated as follows: \$9.0 million to developed technology, \$1.9 million to net liabilities assumed based on their estimated fair value on the acquisition date, and the excess \$27.4 million of the purchase price over the fair value of net assets acquired to goodwill. The goodwill from the acquisitions are mainly attributable to assembled workforce, expected synergies and other benefits. The goodwill is not tax deductible. Developed technologies will be amortized on a straight-line basis over their estimated useful lives of up to 36 months.

The results of operations for these acquisitions have been included in the Company's consolidated statements of operations since the date of 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.

2018 Acquisition

During the year ended 2018, the Company acquired a company, which was accounted for as a business combination. The purchase price of \$53.7 million (paid in shares of the Company's common stock having a total fair value of \$19.1 million and cash of \$34.6 million) for this acquisition was allocated as follows: \$9.3 million to developed technology, \$0.4 million to net tangible assets acquired based on their estimated fair value on the acquisition date, and the excess \$44.0 million of the purchase price over the fair value of net assets acquired to goodwill. The goodwill from the acquisition is mainly attributable to assembled workforce, expected synergies and other benefits. The goodwill is not tax deductible for U.S. income tax purposes. The developed technology is amortized on a straight-line basis over its estimated useful life of 24 months.

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

2017 Acquisitions

The Company did not complete any acquisitions during the year ended December 31, 2017.

Investments in Privately-Held Companies

The Company makes strategic investments in privately-held companies. The Company also 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 December 31, 2019, 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 \$77.7 million and \$30.2 million as of December 31, 2019 and 2018, 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. In the years ended December 31, 2019, 2018 and 2017, the Company recorded \$1.6 million, \$3.0 million and \$62.4 million of impairment charges, respectively, within other income (expense), net in the consolidated statements of operations. The Company also recorded a gain of \$10.2 million from the sale of an investment in a privately-held company in the year ended December 31, 2019 within other income (expense), net in the consolidated statements of operations. No gains were recorded in the years ended December 31, 2018 and 2017.

Note 11. Senior Notes and Convertible Notes

Senior Notes

2027 Notes

In December 2019, the Company issued \$700.0 million aggregate principal amount of the 3.875% senior notes due 2027, which we refer to as 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 is payable semi-annually in arrears on June 15 and December 15 of each year, which will commence on June 15, 2020.

The Company may redeem the 2027 Notes, in whole or in part, at any time prior to September 15, 2027 at a price equal to 100% of the principal amount of the 2027 Notes plus a "make-whole" premium and accrued and unpaid interest, if any. On and after September 15, 2027, the Company may redeem the 2027 Notes at 100% of the principal amount plus accrued and unpaid interest, if any, to, but excluding, the redemption date. If the Company experiences a change of control triggering event (as defined in the Indenture), the Company must offer to repurchase the 2027 Notes at a repurchase price equal to 101% of the principal amount of the 2027 Notes to be repurchased, plus accrued and unpaid interest, if any, to the applicable repurchase date.

Convertible Notes

2019 Notes, 2021 Notes and 2024 Notes

In 2014, the Company issued \$935.0 million aggregate principal amount of the 0.25% convertible senior notes due 2019, which we refer to as the 2019 Notes, and \$954.0 million in aggregate principal amount of the 1.00% convertible senior notes due 2021, which we refer to as 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 \$1.86 billion, after deducting \$28.3 million of debt discount and \$0.5 million of debt issuance costs in connection with the issuance of the 2019 Notes and the 2021 Notes.

On September 16, 2019, the Company repaid at maturity the \$935.0 million of principal balance associated with its 2019 Notes.

In 2018, the Company issued \$1.15 billion aggregate principal amount of the 0.25% convertible senior notes due 2024, which we refer to as the 2024 Notes, and, when taken together with the 2021 Notes, the Convertible 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 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 is payable semi-annually in arrears on June 15 and December 15 of each year.

Each \$1,000 of principal of the 2021 Notes and the 2024 Notes will initially be convertible into 12.8793 and 17.5001 shares, respectively, of the Company's common stock, which is equivalent to an initial conversion price of approximately \$77.64 and \$57.14 per share, respectively, in each case, subject to adjustment upon the occurrence of specified events set forth in the indenture governing such series. Holders of the 2021 Notes may convert their 2021 Notes at their option at any time until close of business on the second scheduled trading day immediately preceding the maturity date of March 15, 2021. Holders of the 2024 Notes may convert their 2024 Notes at their option at any time on or after March 15, 2024 until close of business on the second scheduled trading day immediately preceding the maturity date of June 15, 2024. Further, holders of the Convertible Notes may convert all or any portion of the notes of the applicable series at the option of such holder prior to the respective dates above, only under the following circumstances:

- 1) during any calendar quarter commencing after the calendar quarter ending on December 31, 2014, in the case of the 2021 Notes, and September 30, 2018, in the case of the 2024 Notes (and, in each case, only during such calendar quarter), if the last reported sale price of the common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price for the applicable series of Convertible Notes on each applicable trading day;
- 2) during the five business day period after any five consecutive trading day period (the "measurement period") in which the trading price (as defined in the indenture governing the applicable series of Convertible Notes) per \$1,000 principal amount of such series of Convertible Notes for each trading day of the applicable measurement period was less than 98% of the product of the last reported sale price of Twitter's common stock and the conversion rate for the applicable series of Convertible Notes on each such trading day; or
- 3) upon the occurrence of certain specified corporate events.

Upon conversion of the 2021 Notes and 2024 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 of the 2021 Notes or the 2024 Notes, as applicable, will be based on a daily conversion value (as defined in the indenture governing the applicable series of Convertible Notes) calculated on a proportionate basis for each trading day in the applicable 30 trading day observation period.

If a fundamental change (as defined in the indenture governing the applicable series of Convertible Notes) occurs prior to the applicable maturity date, holders of the 2021 Notes and 2024 Notes, as applicable, may require the Company to repurchase all or a portion of their notes for cash at a repurchase price equal to 100% of the principal amount of such notes, plus any accrued and unpaid interest to, but excluding, the repurchase date of such series of notes. In addition, if specific corporate events occur prior to the applicable maturity date of the 2021 Notes or the 2024 Notes, the Company will be required to increase the conversion rate for holders who elect to convert their notes in connection with such corporate events.

In accordance with accounting guidance on embedded conversion features, the Company valued and bifurcated the conversion option associated with the 2021 Notes and the 2024 Notes from the respective host debt instrument, which is referred to as debt discount, and initially recorded the conversion option of \$283.3 million for the 2021 Notes and \$255.0 million for the 2024 Notes in stockholders' equity. The resulting debt discount on the 2021 Notes and the 2024 Notes is amortized to interest expense at an effective interest rate of 6.25% and 4.46%, respectively, over the contractual terms of these notes. The Company allocated \$2.8 million of debt issuance costs to the equity component and the remaining \$9.8 million of debt issuance costs are amortized to interest expense under the effective interest rate method over the contractual terms of these notes.

Concurrent with the offering of the 2021 Notes in 2014 and the 2024 Notes in 2018, the Company entered into convertible note hedge transactions with certain bank counterparties whereby the Company has the option to purchase initially (subject to adjustment for certain specified events) a total of approximately 12.3 million and 20.1 million shares, respectively, of its common stock at a price of approximately \$77.64 and \$57.14 per share, respectively. The total cost of the convertible note hedge transactions was \$233.5 million and \$268.0 million, respectively. In addition, the Company sold warrants to certain bank counterparties whereby the holders of the warrants have the option to purchase initially (subject to adjustment for certain specified events) a total of approximately 12.3 million and 20.1 million shares, respectively, of the Company's common stock at an initial strike price of \$105.28 and \$80.20 per share, respectively. The Company received \$172.9 million and \$186.8 million in cash proceeds from the sale of these warrants, respectively.

Taken together, the purchase of the convertible note hedges and the sale of warrants in connection with the issuance of the Convertible Notes are intended to offset any actual dilution from the conversion of such notes and to effectively increase the overall conversion price from \$77.64 to \$105.28 per share, in the case of the 2021 Notes, and from \$57.14 to \$80.20 per share, in the case of the 2024 Notes. As these transactions meet certain accounting criteria, the convertible note hedges and warrants are recorded in stockholders' equity and are not accounted for as derivatives. The net cost incurred in connection with the convertible note hedge and warrant transactions was recorded as a reduction to additional paid-in capital in the consolidated balance sheet as of December 31, 2019.

The Notes consisted of the following (in thousands):

	December 31, 2019			December 31, 2018		
	2021 Notes	2024 Notes	2027 Notes	2019 Notes	2021 Notes	2024 Notes
Principal amounts:						
Principal	\$ 954,000	\$ 1,150,000	\$ 700,000	\$ 935,000	\$ 954,000	\$ 1,150,000
Unamortized debt discount and issuance costs ⁽¹⁾	(84,652)	(202,515)	(8,033)	(37,672)	(130,232)	(242,846)
Net carrying amount	\$ 869,348	\$ 947,485	\$ 691,967	\$ 897,328	\$ 823,768	\$ 907,154
Carrying amount of the equity component ⁽²⁾	\$ 283,283	\$ 254,981	\$ —	\$ 222,826	\$ 283,283	\$ 254,981

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

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

During the year ended December 31, 2019, 2018, and 2017, the Company recognized \$123.6 million, \$115.4 million and \$88.5 million, respectively, of interest expense related to the amortization of debt discount and issuance costs prior to capitalization of interest. The Company recognized \$15.7 million, \$13.4 million, and \$11.9 million of coupon interest expense in the years ended December 31, 2019, 2018, and 2017, respectively.

As of December 31, 2019, the remaining life of the 2021 Notes, 2024 Notes and 2027 Notes is approximately 20 months, 53 months, and 95 months, respectively.

Note 12. Net Income (Loss) per Share

Basic net income (loss) per share is computed by dividing total net income (loss) attributable to common stockholders by the weighted-average common shares outstanding. 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 including potential dilutive common stock instruments. In the year ended December 31, 2017, 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, 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.

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

	Year Ended December 31,		
	2019	2018	2017
<u>Basic net income (loss) per share:</u>			
Numerator			
Net income (loss)	\$ 1,465,659	\$ 1,205,596	\$ (108,063)
Denominator			
Weighted-average common shares outstanding	772,663	756,916	736,607
Weighted-average restricted stock subject to repurchase	(1,934)	(2,590)	(3,905)
Weighted-average shares used to compute basic net income (loss) per share	770,729	754,326	732,702
Basic net income (loss) per share attributable to common stockholders	\$ 1.90	\$ 1.60	\$ (0.15)
<u>Diluted net income (loss) per share:</u>			
Numerator			
Net income (loss)	\$ 1,465,659	\$ 1,205,596	\$ (108,063)
Denominator			
Number of shares used in basic computation	770,729	754,326	732,702
Weighted-average effect of dilutive securities:			
RSUs	10,468	13,285	—
Stock options	2,496	2,686	—
Other	1,838	2,389	—
Weighted-average shares used to compute diluted net income (loss) per share	785,531	772,686	732,702
Diluted net income (loss) per share attributable to common stockholders	\$ 1.87	\$ 1.56	\$ (0.15)

The following number 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):

	Year Ended December 31,		
	2019	2018	2017
RSUs	12,117	14,949	33,123
Warrants	42,246	44,454	24,329
Stock options	3	837	4,793
Shares subject to repurchase and others	1,284	1,951	5,879

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.

If the average market price of the common stock exceeds the exercise price of the warrants, \$105.28 for the 2019 Notes and 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 13. Preferred Stock

The Company has the authority to issue up to 200,000,000 shares of preferred stock and to determine the price, rights, preferences, privileges and restrictions, including voting rights, of those shares without any further vote or action by the stockholders. As of December 31, 2019 and 2018, there was no preferred stock outstanding.

Note 14. Common Stock and Stockholders' Equity**Common Stock**

As of December 31, 2019, the Company is authorized to issue 5.0 billion shares of \$0.000005 par value common stock in accordance with the Certificate of Incorporation, as amended and restated.

Each share of common stock is entitled to one vote. The holders of common stock are also entitled to receive dividends whenever funds are legally available and when and if declared by the Board of Directors, subject to the prior rights of holders of all classes of stock outstanding. As of December 31, 2019, no dividends have been declared.

Equity Incentive Plans

The Company's 2013 Equity Incentive Plan serves as the successor to the 2007 Equity Incentive Plan. Initially, 68.3 million shares were reserved under the 2013 Equity Incentive Plan and any shares subject to options or other similar awards granted under the 2007 Equity Incentive Plan that expire, are forfeited, are repurchased by the Company or otherwise terminate unexercised will become available under the 2013 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. As of December 31, 2019, the total number of options, RSUs, and PRSUs outstanding under the 2013 Equity Incentive Plan was 34.1 million shares, and 198.4 million shares were available for future issuance. There were 2.2 million shares of options outstanding under the 2007 Equity Incentive Plan as of December 31, 2019. No additional shares have been issued under the 2007 Equity Incentive Plan since 2013. In addition, a total of 6.8 million shares were reserved and are available for grants under the Company's 2016 Equity Incentive Plan. As of December 31, 2019, no shares have been issued under the 2016 Equity Incentive Plan. Options granted under the Company's Equity Incentive Plans generally expire 10 years after the grant date. The Company issues new shares to satisfy stock option exercises.

The Company also assumed stock options of acquired entities in connection with certain acquisitions. While the respective stock plans were terminated on the closing of each acquisition, they continue to govern the terms of stock options assumed in the respective acquisition.

Restricted Common Stock

The Company has granted restricted common stock to certain continuing employees in connection with the acquisitions. Vesting of this stock is dependent on the respective employee's continued employment at the Company during the requisite service period, which is 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.

The activities for the restricted common stock issued to employees for the year ended December 31, 2019 are summarized as follows (in thousands, except per share data):

	Number of Shares	Weighted-Average Grant-Date Fair Value Per Share
Unvested restricted common stock at December 31, 2018	2,238	\$ 19.50
Granted	471	\$ 33.90
Vested	(1,278)	\$ 19.49
Canceled	(3)	\$ 18.23
Unvested restricted common stock at December 31, 2019	<u>1,428</u>	<u>\$ 24.26</u>

Employee Stock Purchase Plan

On November 7, 2013, the Company's 2013 Employee Stock Purchase Plan (the "ESPP") became effective. The ESPP allows eligible employees to purchase shares of the Company's common stock at a discount through payroll deductions of up to 15% of their eligible compensation, subject to any plan limitations. The ESPP provides for twelve-month offering periods, and each offering period will include purchase periods, which will be the approximately six-month period commencing with one exercise date and ending with the next exercise date. Employees are able to purchase shares at 85% of the lower of the fair market value of the Company's common stock on the first trading day of the offering period or on the exercise date. The number of shares available for sale under the ESPP were and will be increased annually on the first day of each fiscal year, 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 Board of Directors.

During the years ended December 31, 2019 and 2018, employees purchased an aggregate of 1.6 million and 1.5 million shares, respectively, under this plan at a weighted average price of \$26.62 and \$19.03 per share, respectively.

Stock Option Activity

A summary of stock option activity for the year ended December 31, 2019 is as follows (in thousands, except years and per share data):

	Options Outstanding				
	Number of Shares	Weighted-Average Exercise Price Per Share	Remaining Contractual Life (in years)	Aggregate Intrinsic Value	
Outstanding at December 31, 2018	3,692	\$ 8.88	3.64	\$ 73,581	
Options granted and assumed in connection with acquisitions	—	\$ —			
Options exercised	(361)	\$ 2.32			
Options canceled	(104)	\$ 1.75			
Outstanding at December 31, 2019	<u>3,227</u>	\$ <u>9.84</u>	2.65	\$ <u>74,630</u>	
Exercisable at December 31, 2019	<u>3,211</u>	\$ <u>9.98</u>	2.63	\$ <u>74,250</u>	

The aggregate intrinsic value in the table above represents the difference between the fair value of common stock and the exercise price of outstanding, in-the-money stock options.

The total intrinsic values of stock options exercised in the years ended December 31, 2019, 2018 and 2017 were \$13.1 million, \$16.9 million and \$51.6 million, respectively.

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, approximately one year (PRSU). 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.

The following table summarizes the activity related to the Company's PRSUs for the year ended December 31, 2019 (in thousands, except per share data):

	PRSU Outstanding	
	Shares	Weighted-Average Grant-Date Fair Value Per Share
Unvested and outstanding at December 31, 2018	390	\$ 35.55
Granted (100% target level)	646	\$ 31.52
Additional earned performance shares related to 2018 grants	362	\$ 35.55
Vested (193% target level)	(752)	\$ 35.55
Unvested and outstanding at December 31, 2019	<u>646</u>	\$ <u>31.52</u>



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The PRSUs unvested and outstanding at December 31, 2019 include 646,000 shares of performance based awards for the 2019 performance period, which are expected to vest at 100% of target or approximately 646,000 PRSUs, based on the financial results of the 2019 financial year.

The total fair value of PRSUs vested during the year ended December 31, 2019 was \$23.2 million.

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 calendar years and the executives' continued employment through the vesting date (TSR RSUs).

The following table summarizes the activity related to the Company's TSR RSUs for the year ended December 31, 2019 (in thousands, except per share data):

	TSR RSUs Outstanding		
	Shares	Weighted-Average Grant-Date Fair Value Per Share	
Unvested and outstanding at December 31, 2018	420	\$ 45.78	
Granted (100% target level)	431	\$ 30.60	
Additional earned performance shares related to 2018 grants	30	\$ 13.02	
Vested (132% target level)	(122)	\$ 13.02	
Unvested and outstanding at December 31, 2019	759	\$ 41.15	

The TSR RSUs unvested and outstanding at December 31, 2019 include 328,000 shares of performance based awards for the 2018 to 2019 performance period, which are expected to vest at 116% of target, or approximately 381,000 TSR RSUs, based on the financial results of the 2018 and 2019 financial years.

The total fair value of TSR RSUs vested during the year ended December 31, 2019 was \$3.7 million.

In addition, there are 443,311 additional PRSUs and TSR RSUs at the 100% target level that will vest based on performance goals and Total Shareholder Return (TSR) targets to be granted in 2020 at target levels from 0% to 200%.

RSU Activity

The following table summarizes the activity related to the Company's RSUs, excluding PRSUs and TSR RSUs, for the year ended December 31, 2019. 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, 2018	30,387	\$ 24.97	
Granted	17,291	\$ 33.73	
Vested	(12,646)	\$ 24.74	
Canceled	(3,301)	\$ 25.89	
Unvested and outstanding at December 31, 2019	31,731	\$ 29.74	

The total fair value of RSUs vested during the year ended December 31, 2019, 2018, and 2017 was \$454.5 million, \$445.7 million, and \$358.7 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):

	Year Ended December 31,		
	2019	2018	2017
Cost of revenue	\$ 22,797	\$ 17,289	\$ 23,849
Research and development	209,063	183,799	240,833
Sales and marketing	85,739	71,305	94,135
General and administrative	60,426	53,835	74,989
Total stock-based compensation expense	<u>\$ 378,025</u>	<u>\$ 326,228</u>	<u>\$ 433,806</u>

The amount of incremental stock-based compensation recorded in relation to the modification of stock-based awards was not material for the years ended December 31, 2019, 2018 and 2017.

The Company capitalized \$37.5 million, \$41.4 million and \$51.8 million of stock-based compensation expense associated with the cost for developing software for internal use in the years ended December 31, 2019, 2018 and 2017, respectively.

As of December 31, 2019, there was \$874.7 million of gross unamortized stock-based compensation expense related to unvested awards which is expected to be recognized over a weighted-average period of 2.7 years. The Company accounts for forfeitures as they occur.

Note 15. Income Taxes

The domestic and foreign components of income (loss) before income taxes for the years ended December 31, 2019, 2018 and 2017 are as follows (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Domestic	\$ 317,135	\$ 193,500	\$ (18,412)
Foreign	73,004	230,044	(77,006)
Income (loss) before income taxes	<u>\$ 390,139</u>	<u>\$ 423,544</u>	<u>\$ (95,418)</u>

The components of the provision (benefit) for income taxes for the years ended December 31, 2019, 2018 and 2017 are as follows (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Current:			
Federal	\$ 563	\$ (1,661)	\$ 1,977
State	3,375	4,083	316
Foreign	43,053	17,246	16,767
Total current provision for income taxes	<u>46,991</u>	<u>19,668</u>	<u>19,060</u>
Deferred:			
Federal	2,023	(711,084)	(4,701)
State	2,050	(49,047)	(67)
Foreign	(1,126,584)	(41,589)	(1,647)
Total deferred benefit for income taxes	<u>(1,122,511)</u>	<u>(801,720)</u>	<u>(6,415)</u>
Provision (benefit) for income taxes	<u>\$ (1,075,520)</u>	<u>\$ (782,052)</u>	<u>\$ 12,645</u>

The following is a reconciliation of the statutory federal income tax rate to the Company's effective tax rate for the years ended December 31, 2019, 2018 and 2017:

	Year Ended December 31,		
	2019	2018	2017
Tax at federal statutory rate	21.0 %	21.0 %	35.0 %
State taxes, net of federal benefit	1.1	(8.4)	(0.3)
Stock-based compensation	(4.9)	(6.4)	(28.5)
Research and development credits	(8.5)	(5.6)	18.6
Valuation allowance	(0.2)	(179.1)	425.2
Effect of the U.S. Tax Act	0.0	0.0	(369.8)
Nondeductible other expenses	3.1	0.2	(8.7)
Deferred tax asset on intra-entity transfer of intangible assets	(308.4)	0.0	0.0
Foreign rate differential	20.3	(6.4)	(81.2)
Other	0.8	0.1	(3.6)
Effective tax rate	(275.7)%	(184.6)%	(13.3)%

The tax effects of temporary differences and related deferred tax assets and liabilities as of December 31, 2019 and 2018 are as follows (in thousands):

	December 31,	
	2019	2018
Deferred tax assets:		
Net operating loss carryforwards	\$ 390,005	\$ 513,427
Accruals and reserves	37,172	32,298
Stock-based compensation expense	32,573	29,600
Tax credits	425,011	375,699
Capitalized research expenditures	1,679	13,868
Fixed assets and intangible assets	1,214,070	24,819
Investments	15,560	16,571
Operating lease liability	170,817	—
Other	3,131	17,658
Total deferred tax assets	2,290,018	1,023,940
Valuation allowance	(223,775)	(210,862)
Total deferred tax assets, net of valuation allowance	2,066,243	813,078
Deferred tax liabilities:		
Operating lease right-of-use asset	(157,845)	—
Other	(1,138)	(4,619)
Total deferred tax liabilities	(158,983)	(4,619)
Net deferred tax assets	\$ 1,907,260	\$ 808,459

During the year ended December 31, 2019, the Company transferred certain intangible assets among its wholly-owned subsidiaries to align its structure to its evolving operations, which resulted in the establishment of deferred tax assets and the recognition of a deferred tax benefit from income tax of \$1.21 billion.

During the year ended December 31, 2018, the Company released the valuation allowance related to most of the United States federal and all states deferred tax assets with the exception of California and Massachusetts, as well as Brazil, which resulted in an income tax benefit of \$845.1 million. The Company continues to maintain a valuation allowance related to specific net deferred tax assets where it is not more likely than not that the deferred tax assets will be realized, which include all capital losses and California and Massachusetts net deferred tax assets. The Company concluded, based upon the preponderance of positive evidence (i.e. cumulative profit before tax adjusted for permanent items over the previous twelve quarters, a history of taxable income in recent periods, and the current forecast of income before taxes for the United States going forward) over negative evidence and the anticipated ability to use the deferred tax assets, that it was more likely than not that the deferred tax assets could be realized. If there are unfavorable 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 not be realizable.

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. During the year ended December 31, 2019, the Company evaluated the Court's ruling and have recorded an increase in the tax provision of \$80.0 million. In February 2020, Altera Corp. filed a petition to appeal the decision with the Supreme Court of the United States. The Company will continue to monitor future developments in this case to determine if there will be further impacts to the consolidated financial statements.

The Company has recorded a valuation allowance of \$13.9 million and \$14.6 million against its gross U.S. federal deferred tax asset balance as of December 31, 2019, and December 31, 2018, respectively, as well as a valuation allowance of \$209.9 million and \$196.3 million against its gross state deferred tax asset balance as of December 31, 2019, and December 31, 2018, respectively.

At December 31, 2019, the Company had \$2.34 billion of U.S. federal and \$1.26 billion of state net operating losses, which will begin to expire in 2034 for federal and 2024 for state tax purposes, if not utilized.

The Company also has \$345.2 million and \$264.8 million of U.S. federal and state research credit carryforwards, respectively. The U.S. federal credit carryforward will begin to expire in 2027, if not utilized. The majority of state research tax credits have no expiration date. A small portion of state research tax credits will begin to expire in 2030, if not utilized. Additionally, the Company has California Enterprise Zone Credit carryforwards of \$19.1 million which will begin to expire in 2023, if not utilized.

Utilization of the net operating loss and credit carryforwards may be subject to an annual limitation due to the ownership change limitations provided by the Internal Revenue Code of 1986, as amended (the "Code"), and similar state provisions. Any annual limitation may result in the expiration of net operating losses and credits before utilization.

As of December 31, 2019, the Company has \$419.9 million of unrecognized tax benefits, of which \$348.2 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 annual effective tax rate due to the full valuation allowance recorded for California and Massachusetts deferred tax assets. A reconciliation of the beginning and ending amount of unrecognized tax benefit is as follows (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Gross unrecognized tax benefits at the beginning of the year	\$ 332,314	\$ 259,781	\$ 269,508
Increases related to prior year tax positions	54,743	20,000	913
Decreases related to prior year tax positions	(2,537)	(13,174)	—
Decreases related to settlement with tax authorities	—	—	(1,415)
Decreases related to the Tax Act	—	—	(71,104)
Increases related to current year tax positions	35,338	66,249	61,879
Statute of limitations expirations	—	(542)	—
Gross unrecognized tax benefits at the end of the year	<u>\$ 419,858</u>	<u>\$ 332,314</u>	<u>\$ 259,781</u>

Total unrecognized tax benefits are recorded on the Company's consolidated balance sheets as follows (in thousands):

	December 31,	
	2019	2018
Total unrecognized tax benefits balance	\$ 419,858	\$ 332,314
Amounts netted against related deferred tax assets	(401,818)	(317,524)
Unrecognized tax benefits recorded on consolidated balance sheets	<u>\$ 18,040</u>	<u>\$ 14,790</u>

The Company recognizes interest and/or penalties related to income tax matters as a component of income tax expense. During the years ended December 31, 2019, 2018 and 2017, the Company recognized immaterial amounts of interest and penalties in income tax expense. As of December 31, 2019 and 2018, the Company recorded \$5.3 million and \$3.1 million of interest and penalties related to uncertain tax positions, respectively.

The Company is subject to taxation in the United States and various state and foreign jurisdictions. Earnings from non-US 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. The Company's 2007 to 2018 tax attributes remain subject to examination by the United States and California, and its 2015 to 2018 tax years remain subject to examination in Ireland. The Company remains subject to possible examination in various other jurisdictions that are not expected to result in material tax adjustments. The Company does not believe that its unrecognized tax benefits will materially change within the next 12 months.

Note 16. 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 new 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 December 31, 2019, 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. The following table summarizes its commitments to settle contractual obligations in cash as of December 31, 2019:

	Payments Due by Year				
	Total	2020	2021-2022	2023-2024	Thereafter
	(In thousands)				
2021 Notes	\$ 973,106	\$ 9,566	\$ 963,540	\$ —	\$ —
2024 Notes	1,162,914	2,875	5,734	1,154,305	—
2027 Notes	917,446	27,626	54,213	54,287	781,320
Operating lease obligations ⁽¹⁾	1,149,558	180,183	321,700	226,662	421,013
Finance lease obligations	24,414	23,845	569	—	—
Other contractual commitments ⁽²⁾	458,400	125,523	224,089	99,597	9,191
Total contractual obligations	\$ 4,685,838	\$ 369,618	\$ 1,569,845	\$ 1,534,851	\$ 1,211,524

- (1) The Company has entered into several sublease agreements for office space that it is not fully utilizing. Under the sublease agreements, the Company will receive approximately \$21.8 million in sublease income over the next three years.
- (2) Other contractual commitments are non-cancelable contractual commitments primarily related to the Company's infrastructure services, bandwidth and other services arrangements.

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, and oral argument on the motion is scheduled for April 1, 2020. The Company disputes the claims and intends to continue to defend the lawsuits vigorously.

On October 29, 2019, a putative class action (captioned Hasan v. Twitter, Inc., et al.) was 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.

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, 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 December 31, 2019, except for the above referenced class actions and derivative actions, there was no litigation or contingency with at least a reasonable possibility of a material loss. No material losses have been recorded during the years ended December 31, 2019, 2018 and 2017 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 December 31, 2019 and 2018.

Note 17. Related Party Transactions

Certain of the Company's directors have affiliations with customers of the Company. The Company recognized revenue under contractual obligations from such customers of \$22.0 million, \$25.9 million and \$22.5 million for the years ended December 31, 2019, 2018 and 2017, respectively. The Company had outstanding receivable balances of \$4.2 million and \$3.8 million from such customers as of December 31, 2019 and 2018, respectively.

Note 18. Employee Benefit Plan

The Company has a 401(k) Plan that qualifies as a deferred compensation arrangement under Section 401 of the Internal Revenue Code. Under the 401(k) Plan, participating employees may defer a portion of their pretax earnings not to exceed the maximum amount allowable. Matching contributions are based upon the amount of the employees' contributions subject to certain limitations. The matching contributions made by the Company were \$8.8 million, \$6.3 million, and \$2.8 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Note 19. Segment Information and Operations by Geographic Area

The Company has a single operating segment and reporting unit structure. The Company's chief operating decision-maker is the Chief Executive Officer who reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance.

Revenue

See Note 3 – Revenue for further details.

Property and Equipment, net

The following table sets forth property and equipment, net by geographic area (in thousands):

	<u>December 31, 2019</u>	<u>December 31, 2018</u>
Property and equipment, net:		
United States	\$ 999,552	\$ 853,731
International	32,229	31,347
Total property and equipment, net	<u>\$ 1,031,781</u>	<u>\$ 885,078</u>

Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

Item 9A. 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 Annual Report on Form 10-K. 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 SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to 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 December 31, 2019, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2019 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act). Our management conducted an assessment of the effectiveness of our internal control over financial reporting based on the criteria established in "Internal Control - Integrated Framework" (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on that assessment, our management has concluded that our internal control over financial reporting was effective as of December 31, 2019. The effectiveness of the Company's internal control over financial reporting as of December 31, 2019 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears herein.

Item 9B. OTHER INFORMATION

None.

Part III

Item 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information called for by this item will be set forth in our Proxy Statement for the Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2019 and is incorporated herein by reference.

Our board of directors has adopted a code of business conduct and ethics that applies to all of our employees, officers and directors, including our Chief Executive Officer, Chief Financial Officer and other executive and senior financial officers. The full text of our code of business conduct and ethics is posted on the investor relations page on our website which is located at <http://investor.twitterinc.com>. We will post any amendments to our code of business conduct and ethics, or waivers of its requirements, on our website.

Item 11. EXECUTIVE COMPENSATION

The information called for by this item will be set forth in our Proxy Statement and is incorporated herein by reference.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item will be set forth in our Proxy Statement and is incorporated herein by reference.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information, if any, required by this item will be set forth in our Proxy Statement and is incorporated herein by reference.

Item 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this item will be set forth in our Proxy Statement and is incorporated herein by reference.

PART IV**Item 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES**

The following documents are filed as part of this Annual Report on Form 10-K:

1. Consolidated Financial Statements

Our Consolidated Financial Statements are listed in the "Index to Consolidated Financial Statements" under Part II, Item 8 of this Annual Report on Form 10-K.

2. Financial Statement Schedules

SCHEDULE II
VALUATION AND QUALIFYING ACCOUNTS
FOR THE YEARS ENDED DECEMBER 31, 2019, 2018 AND 2017

	Balance at Beginning of Year	Charged to Expenses	Charged/ Credited to Other Accounts	Balance at End of Year
(In thousands)				
Allowance for Deferred Tax Assets:				
Year ended December 31, 2019	\$ 210,862	\$ 12,913	\$ —	\$ 223,775
Year ended December 31, 2018	\$ 1,021,326	\$ (817,529)	\$ 7,065	\$ 210,862
Year ended December 31, 2017	\$ 439,993	\$ (346,389)	\$ 927,722	\$ 1,021,326
(In thousands)				
Allowance for Doubtful Accounts:				
Year ended December 31, 2019	\$ 3,559	\$ 3,083	\$ (4,241)	\$ 2,401
Year ended December 31, 2018	\$ 5,430	\$ 1,610	\$ (3,481)	\$ 3,559
Year ended December 31, 2017	\$ 7,216	\$ 586	\$ (2,372)	\$ 5,430

All other financial statement schedules have been omitted because they are not required, not applicable, not present in amounts sufficient to require submission of the schedule, or the required information is shown in our Consolidated Financial Statements or Notes thereto.

3. Exhibits

The documents listed in the Exhibit Index of this Annual Report on Form 10-K are incorporated by reference or are filed with this Annual Report on Form 10-K, 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.	Exhibit	Incorporated by Reference	Filing Date
3.1	Restated Certificate of Incorporation of Twitter, Inc.	S-1/A	333-191552	3.2		October 22, 2013
3.2	Amended and Restated Bylaws of Twitter, Inc.	8-K	001-36164	3.1		April 7, 2017
4.1	Form of common stock certificate of Twitter, Inc.	S-1/A	333-191552	4.1		October 22, 2013
4.2	Indenture, dated September 17, 2014, between Twitter, Inc. and U.S. Bank National Association.	8-K	001-36164	4.3		September 17, 2014
4.3	Form of Global 1.00% Convertible Senior Note due 2021.	8-K	001-36164	4.4		September 17, 2014
4.4	Indenture, dated June 11, 2018, between Twitter, Inc. and U.S. Bank National Association.	8-K	001-36164	4.1		June 11, 2018
4.5	Form of Global 0.25% Convertible Senior Note due 2024.	8-K	001-36164	4.2		June 11, 2018
4.6	Indenture, dated as of December 9, 2019, by and between Twitter, Inc. and U.S. Bank National Association, as Trustee (3.875% Senior Notes due 2027).	8-K	001-36164	4.1		December 9, 2019
4.7	Form of 3.875% Senior Note due 2027.	8-K	001-36164	4.2		December 9, 2019
4.8*	Description of Capital Stock of Twitter, Inc.					
10.1**	Form of Indemnification Agreement between Twitter, Inc. and each of its directors and executive officers.	S-1	333-191552	10.1		October 3, 2013
10.2**	Twitter, Inc. 2013 Equity Incentive Plan and related form agreements.	S-1/A	333-191552	10.2		October 22, 2013
10.3**	Twitter, Inc. 2013 Employee Stock Purchase Plan and related form agreements.	S-8	333-192150	4.3		November 7, 2013
10.4**	Twitter, Inc. 2007 Equity Incentive Plan and related form agreements.	S-1	333-191552	10.4		October 3, 2013
10.5**	Form of Performance-Based Restricted Stock Unit Award Agreement for Executives, including Notice of Grant, under the Twitter, Inc. 2013 Equity Incentive Plan.	10-K	333-209840	10.5		February 29, 2016
10.6**	Twitter, Inc. 2016 Equity Incentive Plan and related form agreements.	S-8	333-212740	4.2		July 29, 2016
10.7**	Afterlive.tv Inc. 2010 Stock Plan.	S-8	333-198055	4.4		August 11, 2014
10.8**	Bluefin Labs, Inc. 2008 Stock Plan.	S-1	333-191552	10.6		October 3, 2013
10.9**	CardSpring Inc. Amended and Restated 2011 Equity Incentive Plan.	S-8	333-198055	4.6		August 11, 2014
10.10**	Crashlytics, Inc. 2011 Stock Plan.	S-1	333-191552	10.7		October 3, 2013
10.11**	Gnip, Inc. 2008 Incentive Plan, as amended.	S-8	333-195743	4.3		May 6, 2014
10.12**	Magic Pony Technology Limited EMI Share Option Scheme	S-8	333-212740	4.3		July 29, 2016
10.13**	MoPub Inc. 2010 Equity Incentive Plan.	S-1/A	333-191552	10.22		November 4, 2013

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10.14**	<u>Smyte, Inc. Amended and Restated 2014 Stock Option and Grant Plan and related form agreements.</u>	S-8	333-2266447	4.2	July 31, 2018
10.15**	<u>Twitter, Inc. Executive Incentive Compensation Plan.</u>	S-1	333-191552	10.9	October 3, 2013
10.16**	<u>Twitter, Inc. Change of Control and Involuntary Termination Protection Policy.</u>	10-Q	001-36164	10.1	August 11, 2014
10.17**	<u>Twitter, Inc. Outside Director Compensation Policy.</u>	10-K	001-36164	10.23	March 6, 2014
10.18**	<u>Offer Letter between Twitter, Inc. and Jack Dorsey, dated as of June 11, 2015.</u>	8-K	001-36164	10.1	June 11, 2015
10.19**	<u>Letter Agreement between Twitter, Inc. and Omid R. Kordestani, dated as of October 13, 2015.</u>	8-K	001-36164	10.1	October 16, 2015
10.20**	<u>Offer Letter between Twitter, Inc. and Vijaya Gadde, dated as of October 1, 2013.</u>	S-1/A	333-191552	10.16	October 22, 2013
10.21**	<u>Offer Letter between Twitter, Inc. and Robert Kaiden, dated as of April 24, 2015.</u>	8-K	001-36164	10.1	June 4, 2015
10.22**	<u>Offer Letter between Twitter, Inc. and Ned D. Segal, dated July 11, 2017</u>	8-K	001-36164	10.1	July 11, 2017
10.23	<u>Form of Innovator's Patent Agreement.</u>	S-1	333-191552	10.19	October 3, 2013
10.24	<u>Office Lease between Twitter, Inc. and SRI Nine Market Square LLC, dated as of April 20, 2011, as amended on May 16, 2011, September 30, 2011 and June 1, 2012.</u>	S-1	333-191552	10.18	October 3, 2013
10.25	<u>Revolving Credit Agreement among Twitter, Inc., the lenders party thereto and Morgan Stanley Senior Funding, Inc., as Administrative Agent, dated as of October 22, 2013.</u>	S-1/A	333-191552	10.21	October 22, 2013
10.26	<u>Amendment No. 1, dated September 10, 2014, to the Revolving Credit Agreement, dated October 22, 2013, among Twitter, Inc., Morgan Stanley Senior Funding, Inc., as administrative agent, and the lenders from time to time party thereto.</u>	8-K	001-36164	10.1	September 10, 2014
10.27	<u>Amendment No. 2, dated June 6, 2018, to the Revolving Credit Agreement, dated October 22, 2013, among Twitter, Inc., Morgan Stanley Senior Funding, Inc., as administrative agent, and the lenders from time to time party thereto.</u>	8-K	001-36164	10.4	June 11, 2018
10.28	<u>Revolving Credit Agreement, dated as of August 7, 2018, by and among Twitter, Inc., the lenders from time to time party thereto and JPMorgan Chase Bank, N.A., as administrative agent.</u>	8-K	001-36164	10.1	August 10, 2018
10.29	<u>Form of Convertible Note Hedge Confirmation.</u>	8-K	001-36164	10.2	September 17, 2014
10.30	<u>Form of Warrant Confirmation.</u>	8-K	001-36164	10.3	September 17, 2014

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10.31	Form of Convertible Note Hedge Confirmation.	8-K	001-36164	10.2	June 11, 2018
10.32	Form of Warrant Confirmation.	8-K	001-36164	10.3	June 11, 2018
21.1	List of subsidiaries of Twitter, Inc.				
23.1	Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm.				
24.1	Power of Attorney (contained on signature page hereto)				
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.INS	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.				
101.SCH	Inline XBRL Taxonomy Schema Linkbase Document				
101.CAL	Inline XBRL Taxonomy Definition Linkbase Document.				
101.DEF	Inline XBRL Taxonomy Calculation Linkbase Document.				
101.LAB	Inline XBRL Taxonomy Labels Linkbase Document.				
101.PRE	Inline XBRL Taxonomy Presentation Linkbase Document.				
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).				

* Filed herewith.

** Indicates a management contract or compensatory plan or arrangement.

† The certifications attached as Exhibit 32.1 that accompany this Annual Report on Form 10-K, 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 Annual Report on Form 10-K, irrespective of any general incorporation language contained in such filing.

Item 16. FORM 10-K SUMMARY

None.

SIGNATURES

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

Date: February 18, 2020

TWITTER, INC.

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

POWER OF ATTORNEY

Each person whose signature appears below constitutes and appoints Jack Dorsey and Ned Segal, and each of them, as his or her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their or his or her substitutes, may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated:

Signature	Title	Date
<u>/s/ Jack Dorsey</u> Jack Dorsey	Chief Executive Officer and Director (Principal Executive Officer)	February 18, 2020
<u>/s/ Ned Segal</u> Ned Segal	Chief Financial Officer (Principal Financial Officer)	February 18, 2020
<u>/s/ Robert Kaiden</u> Robert Kaiden	Chief Accounting Officer (Principal Accounting Officer)	February 18, 2020
<u>/s/ Omid Kordestani</u> Omid Kordestani	Executive Chairman and Director	February 18, 2020
<u>/s/ Martha Lane Fox</u> Martha Lane Fox	Director	February 18, 2020
<u>/s/ Patrick Pichette</u> Patrick Pichette	Director	February 18, 2020
<u>/s/ David Rosenblatt</u> David Rosenblatt	Director	February 18, 2020
<u>/s/ Ngozi Okonjo-Iweala</u> Ngozi Okonjo-Iweala	Director	February 18, 2020
<u>/s/ Bret Taylor</u> Bret Taylor	Director	February 18, 2020
<u>/s/ Robert Zoellick</u> Robert Zoellick	Director	February 18, 2020