

**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, 2020
OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
FOR THE TRANSITION PERIOD FROM _____ TO _____
Commission File Number 001-36164

Twitter, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(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	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

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

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

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, 2020 as reported by the New York Stock Exchange on such date was approximately \$23.02 billion.

The number of shares of the registrant's common stock outstanding as of February 9, 2021 was 798,152,488.

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, 2020.

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 expectations regarding our revenue growth, including the impact of COVID-19 and Apple's iOS 14 changes;
- our expectations regarding our mDAU growth and growth rates and related opportunities as well as the continued usage of our mobile applications, including the impact of seasonality and the timing of events;
- our plans regarding health and safety and our other top priorities, including our expectations regarding the impact on our reported metrics, policies, enforcement and preventing manipulation of our platform;
- the impact of the COVID-19 pandemic and related responses of businesses and governments to the pandemic on our operations and personnel, and on commercial activity and advertiser demand across our platform and on our operating results;
- our expectations regarding monetizable DAUs (mDAU), changes in cost per ad engagement and changes in ad engagements;
- our ability to develop or acquire new products, product features and services, improve our existing products and services, including with respect to Promoted Products, video and performance advertising, and increase the value of our products and services;
- our business strategies, plans and priorities, including our plans for growth and hiring, investment in our research and development efforts and our plans to scale capacity and enhance capability and reliability of our infrastructure, including capital expenditures;
- our work to increase the stability, performance, development velocity and scale of our ads platform and our Mobile Application Promotion (MAP) product;
- our ability to provide new content from third parties, including our ability to secure live streaming video content on terms that are acceptable to us;
- our ability to attract advertisers to our platforms, products and services and increase the amount that advertisers spend with us;
- our 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), costs and expenses (including stock-based compensation) and income taxes;
- the impact of our acquisition of CrossInstall;
- the impact of our removal of certain influential accounts for violations of our terms of service or otherwise;
- the impact of the security breach in July 2020 whereby attackers gained control of certain highly-visible accounts;
- our expectations regarding certain deferred tax assets and fluctuations in our tax expense and cash taxes;
- the impact of laws and regulations relating to privacy, data protection and security;
- the impact of content- or copyright-related legislation or regulation;
- our expectations regarding outstanding litigation or the decisions of the courts and the results of the draft complaint we received from the Federal Trade Commission;

- the effects of seasonal trends on our results of operations;
- the impact of our future transactions and corporate structuring on our income and other taxes;
- the sufficiency of our cash and cash equivalents, short-term investment balance and credit facility together with cash generated from operations to meet our working capital and capital expenditure requirements;
- our ability to timely and effectively develop, invest in, scale and adapt our existing technology and network infrastructure;
- our ability to successfully acquire and integrate companies and assets; and
- our expectations regarding international operations and foreign exchange gains and losses.

We caution you that the foregoing list may not contain all of the forward-looking statements made in this 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. Additionally, our calculation of mDAU is not based on any standardized industry methodology and is not necessarily calculated in the same manner or comparable to similarly titled measures presented by other companies. Similarly, our measures of mDAU growth and engagement may differ from estimates published by third parties or from similarly-titled metrics of our competitors due to differences in methodology.

The numbers of mDAU presented in this 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 2020 represented fewer than 5% of our mDAU during the quarter. The false or spam accounts for a period represents the average of false or spam accounts in the samples during each monthly analysis period during the quarter. In making this determination, we applied significant judgment, so our estimation of false or spam accounts may not accurately represent the actual number of such accounts, and the actual number of false or spam accounts could be higher than we have estimated. We are continually seeking to improve our ability to estimate the total number of spam accounts and eliminate them from the calculation of our mDAU, and have made improvements in our spam detection capabilities that have resulted in the suspension of a large number of spam, malicious automation, and fake accounts. We intend to continue to make such improvements. After we determine an account is spam, malicious automation, or fake, we stop counting it in our mDAU, or other related metrics. We also treat multiple accounts held by a single person or organization as multiple mDAU because we permit people and organizations to have more than one account. Additionally, some accounts used by organizations are used by many people within the organization. As such, the calculations of our mDAU may not accurately reflect the actual number of people or organizations using our platform.

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

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

PART I

Item 1. BUSINESS

Overview

Twitter is what's happening in the world and what people are talking about right now.

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, Interests, and Trends, we help people discover what's happening live. We also continue to implement live broadcasts and on-demand video content 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. People can also express themselves using creation tools like Voice Tweets and Fleets, which allows everyone to start conversations in a new way – with their voice or with their fleeting thoughts using text, reactions to Tweets, photos or videos.

In 2020, we continued our work to serve the public conversation by helping people find trusted sources of information and better organizing and surfacing the many topics and interests that bring people to Twitter. We are making it easier to follow and participate in healthier conversations by rolling out new conversation settings globally, and giving people everywhere more control over the conversations they start on Twitter. In addition, we made significant progress on our brand and direct response roadmap with updated ad formats, stronger attribution, and improved targeting. We also continued to iterate on our revamped Mobile Application Promotion (MAP) offering. We furthered our efforts to improve the health of the platform, as we work to make sure that people and advertisers 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 reducing abuse, providing more context around misinformation, and protecting the integrity of civic-related conversations.

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 who an account follows and actions taken on our platform, such as Tweets created and engagement with Tweets. We believe this data 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 interests, 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 maximizing reach, 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, 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 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, Amplify 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. We made progress on our brand and direct response roadmap, with updated ad formats, stronger attribution, and improved targeting. We expect our acquisition of CrossInstall will accelerate key work streams in direct response. CrossInstall brought a performance ads-focused team to Twitter, added a successful and performant demand-side platform (DSP), and should also help us with our strategy to build and improve MAP and performance ad formats. In addition, we expect CrossInstall will help us increase the value MoPub offers to mobile app developers.

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

Developer and Enterprise Solutions (DES) is our software-as-a-service platform that enables developers to build products around the aggregated, anonymized wealth of data on Twitter. Developers use Twitter application programming interfaces (APIs) to build applications and other products for themselves, consumers, and business customers. DES serves commercial and non-commercial developers including businesses, academics, and consumer developers, among others. We believe this work has the potential to help us with our efforts to improve the health of the public conversation. Websites and applications integrating with our publicly available APIs improve people's experience on Twitter by helping brands and publishers engage with what's happening and gain insights from the public conversation.

We also offer paid enterprise access to our public data streams for partners with commercial use cases and those who wish to access more data beyond what is available for free. Paying DES customers typically sign multi-year subscriptions or enterprise agreements, based on the type and volume of usage. Our enterprise data products and services offer more sophisticated data analysis tools and other services to support developers in building mature businesses on our platform. Our customer-centric approach positions both Twitter and our key partners for greater growth and monetization, and we are investing in deeper partnerships with select solution providers to help businesses and organizations realize greater value from our data and platform. The goal of our platform product is to make it easy for developers to integrate seamlessly with Twitter, while protecting the privacy and safety of the people who use Twitter.

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), Snapchat, 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 for people to use our platform, and for content and data partners, our business and operating results could be harmed.", "Risk Factors—If we are unable to compete effectively for advertising spend, 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 2020, we continued to deliver 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.

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, data localization, intellectual property, competition, protection of minors, consumer protection, credit card processing, taxation or other subjects. Many laws and regulations impacting our business are being proposed, are still evolving or are 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.

With regard to privacy, data protection and security, we are subject to a variety of federal, state and foreign laws and regulations. For example, the California Consumer Privacy Act (CCPA), which went into effect on January 1, 2020, 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. Additionally, a new California ballot initiative, the California Privacy Rights Act (CPRA), was passed in November 2020. The CPRA creates obligations relating to consumer data beginning on January 1, 2022, with implementing regulations expected on or before July 1, 2022, and enforcement beginning July 1, 2023. Aspects of the CCPA, the CPRA and these other state laws and regulations, as well as their interpretation and enforcement, remain unclear, and we may be required to modify our practices in an effort to comply with them. Foreign data protection, privacy, security, 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. On July 28, 2020, we received a draft complaint from the FTC alleging violation of the order and the Federal Trade Commission Act (FTC Act). The allegations relate to our use of phone number and/or email address data provided for safety and security purposes for targeted advertising during periods between 2013 and 2019. The matter remains unresolved, and there can be no assurance as to the timing or the terms of any final outcome. Violation of other 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, including because of our decisions with respect to the enforcement of our rules. 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.

Human Capital

We believe the strength of our workforce is critical to our success as we strive to become a more inclusive and diverse technology company. Our key human capital management objectives are to attract, retain, and develop the talent we need to deliver on our commitment to serve the public conversation in a safe and responsible way by offering exceptional products and services. Examples of our key programs and initiatives that are focused to achieve these objectives include:

Inclusion and Diversity (I&D). People come to Twitter to freely express themselves. Just as inclusion lives on our platform, we are working to ensure our workplace reflects our service. In 2020, we introduced our vision for our workforce representation: an objective that by 2025, we aspire to have at least half of our global workforce represented by women and at least a quarter of our U.S. workforce represented by under-represented communities. We accompanied our vision with a strategy to help drive progress, including:

- A company-wide three-year objective focused on diversity and decentralization;
- Clearly-defined targets for workforce representation and inclusion metrics across every executive leader;
- An internal dashboard accessible to all employees to track progress against our objective;
- An expanded team of Inclusion & Diversity leaders across our business;
- Refreshing our hiring practices to require diverse slates for all open roles and put inclusive hiring principles at the forefront;
- A Consistency & Fairness Taskforce to review our employee promotions process;
- Investing in our employee Business Resource Group leaders, who foster a culture of inclusivity and belonging within our company, including introducing a new formal compensation program.

We have made significant progress towards our inclusion and diversity objectives through leadership, transparency and accountability.

Flexibility and Decentralization. In 2018, before the COVID-19 pandemic drove a shift to remote work, we recognized the need to evolve our workforce to achieve our purpose. We designed a workplace strategy to provide more flexible work options and to build more distributed teams who work effectively without the need to be co-located. As a result, we had a head start on building capabilities that allowed us to quickly pivot to a fully remote workforce following the onset of the COVID-19 pandemic in 2020. In addition, we recently announced that most employees will be able to work from home permanently if they so desire.

Pay. Our primary compensation strategy is to promote a pay-for-performance culture. Our guiding principles are anchored on the goals of being able to attract, incentivize, and retain talented employees who can develop, implement, and deliver on long-term value creation strategies; promote a healthy approach to risk by reinforcing our values which serve to motivate our employees; and provide competitive compensation that is aligned with the market and fair relative to our peers. We are committed to both pay equity and transparency.

Health and Wellness. Beyond the fundamental needs of health, welfare and retirement programs, we are focused on the specific needs of our individual employees. In 2020, our employees adapted to an unprecedented amount of change and uncertainty driven by the COVID-19 pandemic, including an abrupt shift to working from home, rescheduled work priorities, and closure of schools and daycare facilities for families. We were one of the first U.S. companies to send our employees home in March 2020 due to the COVID-19 pandemic, and we continued to provide resources and ongoing support to employees facing these challenges throughout the year, such as a wellness reimbursement, home office setup allowance, expanded health coverage, and flexible work schedules.

As of December 31, 2020, we employed over 5,500 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.

Risk Factor Summary

Our business operations are subject to numerous risks and uncertainties, including those outside of our control, that could cause our business, financial condition or operating results to be harmed, including risks regarding the following:

Business and Operational Factors

- the impact of the COVID-19 pandemic and responsive measures;
- our ability to increase our mDAU, ad engagement or other general engagement on our platform;
- the loss of advertising revenue;
- competition in our industry;
- our prioritization of the long-term health of our service;
- our prioritization of product innovation;
- our ability to maintain and promote our brand;
- our ability to hire, retain and motivate highly skilled personnel;
- the interoperability of our products and services across third-party services and systems;
- the impact of spam and fake accounts on our platform experience;
- actual or perceived security breaches, as well as errors, vulnerabilities or defects in our software and in products of third-party providers;
- our international operations;
- our significant past operating losses and any inability to maintain profitability or accurately predict fluctuations in the future;
- our reliance on assumptions and estimates to calculate certain key metrics;
- catastrophic events and interruptions by man-made problems;

Intellectual Property and Technology

- our ability to scale our existing technology and infrastructure;
- our failure to protect our intellectual property rights;
- our use of open source software;
- current and future litigation related to intellectual property rights;

Regulatory and Legal

- complex and evolving U.S. and foreign laws and regulations;
- regulatory investigations and adverse settlements;
- lawsuits or liability as a result of content published through our products and services;

- our ability to maintain an effective system of disclosure controls and internal control over financial reporting;

Financial and Transactional Risks

- our ability to make and successfully integrate acquisitions and investments or complete divestitures;
- our debt obligations;
- our tax liabilities;
- our ability to use our net operating loss carryforwards;
- the impairment of our goodwill or intangible assets;

Governance Risks and Risks related to Ownership of our Capital Stock

- provisions of Delaware law and our certificate of incorporation and bylaws could impair a takeover attempt if deemed undesirable by our board of directors;
- the volatility of the trading price of our common stock; and
- our note hedge and warrant transactions.

Business and Operational Factors

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

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

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

- Declines in advertiser demand due to changes or uncertainty in the business operations and revenue of our advertisers because of the COVID-19 pandemic, including as a result of travel restrictions and declines in travel impacting the travel and hospitality industries, shelter-in-place orders and social distancing requirements impacting small and medium sized businesses and the sports and entertainment industries, and general economic uncertainty causing a number of businesses to cut costs or otherwise reduce advertising spend or focus advertising spend more on other platforms. As a result of the COVID-19 pandemic, we experienced a reduction in advertiser demand in the first half of 2020 compared to the same period in 2019. In the second half of 2020, revenue increased compared to the same period in 2019 as advertisers increased their investment on Twitter, engaging our larger audience around the return of events as well as increased and previously delayed product launches. However, we may experience reduced advertiser demand and decreased advertising revenue in future quarters due to the ongoing and potential future impacts of the COVID-19 pandemic.
- Postponements, suspensions or cancellations of major events, such as sporting events and music festivals, may lead to people perceiving the content on Twitter as less relevant or useful or of lower quality, which could negatively affect mDAU growth, or may reduce monetization opportunities in connection with such events.
- Delays in payments or defaults by our customers or partners or if customers or partners terminate their relationships with us or do not renew their agreements on economic or other terms that are favorable to us.

- The responsive measures to the COVID-19 pandemic have caused us to modify our business practices by having employees work remotely (which we have made a permanent option for most employees), canceling all non-essential employee travel, and cancelling, postponing or holding virtual events and meetings. We may in the future be required to, or choose voluntarily to, take additional actions for the health and safety of our workforce, whether in response to government orders or based on our own determinations of what is in the best interests of our employees. While most of our operations can be performed remotely, there is no guarantee that we will be as effective while working remotely because our team is dispersed, many employees may have additional personal needs to attend to (such as looking after children as a result of school closures or family who become sick), and employees may become sick themselves and be unable to work. To the extent our current or future measures result in decreased productivity, harm our company culture or otherwise negatively affect our business, our financial condition and operating results could be adversely affected.

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

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

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

- accounts, including influential accounts, such as those of world leaders, government officials, celebrities, athletes, journalists, sports teams, media outlets and brands or certain age demographics, do not contribute unique or engaging content, including as a result of the postponement, suspension or cancellation of major events in light of the COVID-19 pandemic, such as the postponement or suspension of major sports leagues or global events, 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;
- we remove certain influential accounts from our platform for violations of our terms of service or otherwise;
- our content partners terminate their relationships with us or do not renew their agreements on economic or other terms that are favorable to us;
- 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) and the California Consumer Protection Act (CCPA)) or legislation, inquiries from legislative bodies, regulatory authorities or litigation (including settlements or consent decrees) adversely affect our products or services;
- we fail to provide adequate customer service; or
- we do not maintain our brand image or reputation.

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

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

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

In addition, many of our advertisers purchase our advertising services through one of several large advertising agencies' holding companies. To sustain or increase our revenue, we must add new advertisers and encourage existing advertisers to maintain or increase the amount of advertising inventory purchased through our platform and adopt new features and functionalities that we add to our platform. However, advertising agencies and potential new advertisers may view our Promoted Products or any new products or services we offer as experimental and unproven, and we may need to devote additional time and resources to educate them about our products and services. Further, our advertisers' ability to effectively target their advertising to our audience's interests may be impacted by the degree to which people on Twitter agree in our settings to certain types of personalization or ad targeting, which could have an impact on our revenue. People that already have accounts may change their choices as a result of changes to our privacy control settings that we have implemented or may implement in the future, and people new to Twitter may choose varied levels of personalization, whether in connection with future changes we make to product privacy settings, regulations, regulatory actions, the customer experience, or otherwise.

Changes to operating systems' practices and policies, such as Apple's upcoming iOS 14 update that will overhaul their Identifier for Advertisers (IDFA), which helps advertisers assess the effectiveness of their advertising efforts, may also reduce the quantity and quality of the data and metrics that can be collected or used by us and our partners or harm our ability to target advertising. These limitations may adversely affect both our and our advertisers' ability to effectively target advertisements and measure their performance, which could reduce the demand and pricing for our advertising products and harm our business. The impact of these proposed changes on the overall mobile advertising ecosystem, our business, and the developers, partners, and advertisers in the ecosystem is not yet clear. Over time, personalization rates will impact our ability to grow our performance advertising business. Advertisers also may choose to use our free products and services instead of our Promoted Products. Advertisers will not continue to do business with us, or they will reduce the prices they are willing to pay to advertise with us, if we do not deliver ads in an effective manner, or if they do not believe that their investment in advertising with us will generate a competitive return on investment relative to alternatives, including online, mobile and traditional advertising platforms. In addition, competition for advertising is becoming increasingly more intense and our advertising revenue could be further impacted by escalating competition for digital ad spending.

Our advertising revenue growth is primarily driven by increases in mDAU, increases in ad pricing or number of ads shown and increases in our clickthrough rate. Although we experienced increased mDAU and ad engagement growth since the start of the COVID-19 pandemic, we experienced a decline in revenue in the first half of 2020 compared to the same period in 2019 due to a reduction in advertiser demand on our platform. In the second half of 2020, revenue increased compared to the same period in 2019 as advertisers increased their investment on Twitter. 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 advertiser reaction to content published on our platform or our policies and responses thereto, bugs or other product issues that may impact our ability to effectively help advertisers target ads or share data with our measurement and ad partners. The occurrence of any of these factors could result in a reduction in demand for our ads, which may reduce the prices we receive for our ads, either of which would adversely impact our revenue, business, financial condition and operating results.

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

If we are unable to compete effectively for people to use our platform, and for content and data partners, our business and operating results could be harmed.

We face intense competition for people to use our platform, and for content and data partners. 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), Snapchat, TikTok, and Verizon Media Group, or in certain regions WeChat, Kakao and Line. New or existing competitors may draw people towards their products or services and away from ours by introducing new product features, including features similar to those we offer, investing their greater resources in audience acquisition efforts or otherwise developing products or services that audiences choose to engage with rather than Twitter, any of which could decrease mDAU growth or engagement and negatively affect our business.

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

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

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

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 other competitors, 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, our mDAU and engagement would decline and our business and operating results would be materially and adversely impacted.

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

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

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

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

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

Our prioritization of the long-term health of our service may adversely impact our short-term operating results.

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

First, our health efforts include the removal of accounts pursuant to our terms and services that are abusive, spammy, fake or malicious, and these accounts may have been included in our mDAU, as well as actions taken to detect and challenge potentially automated, spammy or malicious accounts during the sign-up process. If we make a sudden improvement to one of the algorithms we use to detect spammy or suspicious behavior, we may remove a larger number of accounts as a result and impact the year-over-year average of mDAU growth. Additionally, we may remove certain influential accounts for violations of our terms of service and the removal of such accounts has in the past reduced and may in the future reduce our mDAU growth and engagement.

Second, we are also making active decisions to prioritize certain 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.

Our decision to invest in the long-term health of our service 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.

Our prioritization of innovations to improve the experience of people using our products and services and performance for advertisers in the long term may adversely impact our short-term operating results and our new or enhanced products, product features or services may fail to increase engagement on our platform or generate revenue.

We 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 measures to help protect the privacy of people on Twitter. Similarly, we prioritize developing new and improved products and services for advertisers on our platform. 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 long-term experience for people on Twitter and/or performance for advertisers, which we believe will improve our operating results over the long term.

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

If our decisions to invest in product innovations rather than short-term results do not produce the long-term benefits that we expect, and if our 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.

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 (including our removal of certain influential accounts for violations of our terms of service) and other issues, which may adversely affect our reputation and brand. For example, we previously announced our discovery of content (including some advertisements) displayed on our products that may be relevant to government investigations relating to Russian interference in the 2016 U.S. presidential election, which continues to draw media and regulatory scrutiny of our actions with respect to such content. Our brand may also be negatively affected by the actions of people that are hostile or inappropriate to other people, by accounts impersonating other people, by accounts identified as spam, by use or perceived use, directly or indirectly, of our products or services by people (including governments and government-sponsored actors) to disseminate information that may be viewed as misleading (or intended to manipulate people's opinions), by accounts introducing excessive amounts of spam on our platform, by third parties obtaining control over people's accounts, such as the security breach in July 2020 whereby attackers gained control of certain highly-visible accounts, or by other security or cybersecurity incidents. 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 or compliance with government legal requests), 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.

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. 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 experienced employees, whose talents are in high demand. As a result, we may not be able to retain our existing employees or hire new employees quickly enough to meet our needs.

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

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

Our products, mDAU growth, and engagement depend upon the availability of a variety of third-party services and systems and the effective interoperability 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 actions that harm our products or profitability.

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

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

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

The availability of these services are also dependent upon our relationships with third parties, which may change, including if they change their terms of service or policies that diminish the functionality of our products and services, make it difficult for people to access our content, limit our ability to target or measure the effectiveness of ads, impose fees related to our products or services or give preferential treatment to competitive products or services could adversely affect usage of our products and services. Additionally, some of our mobile carriers have experienced infrastructure issues due to natural disasters, which have caused deliverability errors or poor quality communications with our products. Because a majority of people on Twitter access our products and services through mobile devices, we are particularly dependent on the interoperability of our products and services with mobile devices and operating systems in order to deliver our products and services. We also may not be successful in developing relationships with key participants in the mobile industry or in developing products or services that operate effectively with these operating systems, networks, devices, web browsers and standards. Further, if the number of platforms for which we develop our product expands, it will result in an increase in our operating expenses. In order to deliver high quality products and services, it is important that our products and services work well with a range of operating systems, networks, devices, web browsers and standards that we do not control. 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 release of new products, product features and services on mobile devices is dependent upon and can be impacted by digital storefront operators, such as the Apple App Store and Google Play Store review teams, which decide what guidelines applications must operate under and how to enforce such guidelines. Such review processes can be difficult to predict and certain decisions may harm our business. Additionally, changes to operating systems' practices and policies, such as Apple's upcoming iOS 14 update that will overhaul their IDFA, which helps advertisers assess the effectiveness of their advertising efforts, may reduce the quantity and quality of the data and metrics that can be collected or used by us and our partners or harm our ability to target advertising. These limitations may adversely affect both our and our advertisers' ability to effectively target advertisements and measure their performance, which could reduce the demand and pricing for our advertising products and harm our business.

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 unfollowing accounts, adding accounts to lists, sending invitations, Retweeting and liking Tweets to inappropriately attract attention. Our terms of service 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, including those that our third-party suppliers and service providers may suffer, and we may face increased costs in the event of an actual or perceived security breach or other security-related incident. In particular, the COVID-19 pandemic is increasing the opportunities available to criminals, as more companies and individuals work online, and as such, the risk of a cybersecurity incident potentially occurring is increasing. We cannot provide assurances that our preventative efforts will be successful. If an actual or perceived breach of our security occurs, the market perception of the effectiveness of our security measures could be harmed, people on Twitter and our advertisers may be harmed, lose trust and confidence in us, decrease the use of our products and services or stop using our products and services in their entirety. We may also incur significant legal and financial exposure, including legal claims, higher transaction fees and regulatory fines and penalties. Any of these actions could have a material and adverse effect on our business, reputation and operating results. While our insurance policies include liability coverage for certain of these matters, if we experienced a significant security incident, we could be subject to liability or other damages that exceed our insurance coverage.

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

Our products operate in conjunction with, and we are dependent upon, third-party products and components across a broad ecosystem. There have been and may continue to be significant attacks on certain third-party providers, and we cannot guarantee that our or our third-party providers' systems and networks have not been breached or that they do not contain exploitable defects or bugs that could result in a breach of or disruption to our systems and networks or the systems and networks of third parties that support us and our services. If there is a security vulnerability, error, or other bug in one of these third-party products or components and if there is a security exploit targeting them, we could face increased costs, liability claims, reduced revenue, or harm to our reputation or competitive position. The natural sunset of third-party products and operating systems that we use requires that our infrastructure teams reallocate time and attention to migration and updates, during which period potential security vulnerabilities could be exploited.

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

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

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

Our international operations are subject to increased challenges and risks.

We have offices and employees 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 geographies;
- providing our products and services and operating across a significant distance, in different languages and among different cultures, including the potential need to modify our products, services, content and features to ensure that they are culturally relevant in different countries;
- increased competition from largely regional websites, mobile applications and services that provide real-time communications and have strong positions in particular countries, which have expanded and may continue to expand their geographic footprint;
- differing and potentially lower levels of mDAU growth, engagement and ad engagement in new and emerging geographies;
- different levels of advertiser demand, including fluctuations in advertiser demand due to regional activities, regional economic effects of the COVID-19 pandemic and political upheaval;
- greater difficulty in monetizing our products and services, including costs to adapt our products and services in light of the manner in which people access Twitter in such jurisdictions, such as the use of feature phones in certain emerging markets such as India and Pakistan, and challenges related to different levels of Internet access or mobile device adoption in different jurisdictions;
- compliance with applicable foreign laws and regulations, including laws and regulations with respect to privacy, data protection, data localization, data security, taxation, consumer protection, copyright, fake news, hate speech, spam and content, and the risk of penalties to the people who use our products and services and individual members of management if our practices are deemed to be out of compliance;

- actions by governments or others to restrict access to Twitter or censor content on Twitter, such as how domestic Internet service providers in China have blocked access to Twitter and other countries, including Iran, Libya, Pakistan, Turkey and Syria, have intermittently restricted access to Twitter, whether these actions are taken for political reasons, in response to decisions we make regarding governmental requests or content generated by people on Twitter, or otherwise;
- actions by governments or others that may result in Twitter being unable or unwilling to continue to operate in a particular country or jurisdiction;
- 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. If we are unable to successfully expand our business, manage the complexity of our global operations or monetize our products and services internationally, it could 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 2020, as well as other periods in the past, we have incurred significant operating losses. While we were profitable on a generally accepted accounting principles in the United States (GAAP) basis in 2018, 2019, and the third and fourth quarters of 2020, our quarterly operating results have fluctuated in the past and will fluctuate in the future. As a result, our past quarterly operating results are not necessarily indicators of future performance. Our operating results in any given quarter can be influenced by numerous factors, many of which we are unable to predict or are outside of our control, including:

- our ability to attract and retain mDAU, advertisers, content partners and platform partners;
- the occurrence of planned significant events or changes to the timing of events, such as major sporting events, political elections, or awards shows, or unplanned significant events, such as natural disasters and political revolutions, as well as seasonality which may differ from our expectations;
- the impacts of the COVID-19 pandemic and governmental and business actions in response thereto on the global economy;
- the pricing of our advertising services or data licensing, and our ability to maintain or improve revenue and margins;
- the development and introduction of new products or services, changes in features of existing products or services or de-emphasis or termination of existing products, product features or services;
- the actions of our competitors;

- increases in research and development, marketing and sales and other operating expenses that we may incur to grow and expand our operations and to remain competitive, including stock-based compensation expense and costs related to our technology infrastructure;
- costs related to the acquisition of businesses, talent, technologies or intellectual property, including potentially significant amortization costs;
- system failures resulting in the inaccessibility of our products and services;
- actual or perceived breaches of security or privacy, and the costs associated with remediating any such breaches;
- adverse litigation judgments, settlements or other litigation-related costs, and the fees associated with investigating and defending claims;
- changes in the legislative or regulatory environment, including with respect to security, tax, privacy, data protection, or content, or enforcement by government regulators, including fines, orders or consent decrees;
- changes in reserves or other non-cash credits or charges, such as establishment or releases of deferred tax assets valuation allowance, impairment charges or purchase accounting adjustments;
- changes in our expected estimated useful life of property and equipment and intangible assets;
- fluctuations in currency exchange rates and changes in the proportion of our revenue and expenses denominated in foreign currencies;
- changes in U.S. generally accepted accounting principles; and
- changes in global or regional business or macroeconomic conditions.

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

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 2020 continued to represent fewer than 5% of our mDAU during the quarter. However, this estimate is based on an internal review of a sample of accounts and we apply significant judgment in making this determination. As such, our estimation of false or spam accounts may not accurately represent the actual number of such accounts, and the actual number of false or spam accounts could be higher than we have currently estimated. We are continually seeking to improve our ability to estimate the total number of spam accounts and eliminate them from the calculation of our mDAU, but we otherwise treat multiple accounts held by a single person or organization as multiple accounts for purposes of calculating our mDAU because we permit people and organizations to have more than one account. Additionally, some accounts used by organizations are used by many people within the organization. As such, the calculations of our mDAU may not accurately reflect the actual number of people or organizations using our platform. We regularly review and may adjust our processes for calculating our internal metrics to improve their accuracy. Our measures of mDAU growth and engagement may differ from estimates published by third parties or from similarly-titled metrics of our competitors due to differences in methodology. If advertisers, content or platform partners or investors do not perceive our metrics to be accurate representations of our total accounts or mDAU engagement, or if we discover material inaccuracies in our metrics, our reputation may be harmed and content partners, advertisers and platform partners may be less willing to allocate their budgets or resources to our products and services, which could negatively affect our business and operating results. Further, as our business develops, we may revise or cease reporting metrics if we determine that such metrics are no longer accurate or appropriate measures of our performance. 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.

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

A significant natural disaster, such as the COVID-19 pandemic or an earthquake, fire, flood or significant power outage could have a material adverse impact on our business, operating results, and financial condition. For example, the COVID-19 pandemic has led to certain business disruptions as described in our other risk factors, including travel bans and restrictions, shelter-in-place orders and the postponement or cancellation of major events, which have adversely affected demand for our advertising products and the economy as a whole, and which may continue to have an adverse effect on our business, financial condition and operating results. Our headquarters are located in the San Francisco Bay Area, a region known for seismic activity. Additionally, 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, our employees, offices, and infrastructure have recently been the subject of increased threats by extremists. 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.

Intellectual Property and Technology

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.

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.

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 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.

Regulatory and Legal

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, data security, advertising, rights of publicity, content regulation, intellectual property, competition, protection of minors, consumer protection, credit card processing, securities law compliance, and taxation. For example, new content regulation laws may affect our ability to operate in certain markets and/or subject us to significant fines or penalties. Compliance with these laws may be onerous and/or inconsistent with our work to serve the public conversation. Many of these laws and regulations are still evolving and being tested in courts and new laws and regulations are being proposed. 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 laws and regulations relating to privacy, data protection and data security, our privacy policies and other obligations we may have with respect to privacy, data protection and data security, 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. Additionally, on November 3, 2020, a ballot initiative in California passed a new privacy law, the California Privacy Rights Act (CPRA). The CPRA would significantly modify the CCPA, potentially resulting in further uncertainty and requiring us to incur additional costs and expenses. Aspects of the CCPA, the CPRA 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, and other laws and regulations are often more restrictive or burdensome than those in the United States. For example, the GDPR imposes stringent operational requirements for entities processing personal information and significant penalties for non-compliance, including fines of up to €20 million or 4% of total worldwide revenue, whichever is higher. Additionally, we have historically relied upon a variety of legal bases to transfer certain personal information outside of the European Economic Area, including the EU-U.S. Privacy Shield Framework, the Swiss-U.S. Privacy Shield Framework, and EU Standard Contractual Clauses (SCCs). These legal bases all have been, and may be, the subject of legal challenges and on July 16, 2020, the Court of Justice of the European Union (CJEU) invalidated the U.S.-EU Privacy Shield framework and imposed additional obligations on companies when relying on the SCCs. This CJEU decision may result in different European Economic Area data protection regulators applying differing standards for, or require ad hoc verification of measures taken with respect to, certain data flows. The CJEU's decision will require us to take additional steps to legitimize impacted personal data transfers, and we may find it necessary or desirable to modify our data handling practices in connection with this decision or future legal challenges relating to cross-border data transfers. This could result in increased costs of compliance and limitations on our customers, vendors, and us. This CJEU decision or future legal challenges also could result in us being required to implement duplicative, and potentially expensive, information technology infrastructure and business operations in Europe or could limit our ability to collect or process personal information in Europe, and may serve as a basis for our personal data handling practices, or those of our customers and vendors, to be challenged. Any of these changes with respect to EU data protection law could disrupt our business and otherwise adversely impact our business, financial condition and operating results.

Further, the UK officially left the EU in 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, including with respect to privacy and data protection. 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, with penalties for noncompliance of up to the greater of £17.5 million or four percent of worldwide revenues. Brexit has, however, created uncertainty with regard to the future regulation of data protection in the UK and requirements for data transfers between the UK and the EU and other jurisdictions. For example, the EU-UK Trade and Cooperation Agreement provides for a transition period of four months, subject to a potential two-month extension, in which the European Commission will, subject to certain exceptions that may result in termination of such transition period, continue to treat the UK as if it remained an EU member state with respect to personal data transfers. The UK may thereafter be considered a "third country" under the GDPR, with transfers of personal data from the EU to the UK needing to be made pursuant to GDPR-compliant safeguards unless the European Commission adopts an adequacy decision with respect to the UK. With substantial uncertainty over the interpretation and application of how the UK will approach and address the GDPR following the transition period, we may face challenges in addressing applicable requirements and making necessary changes to our policies and practices, and may incur significant costs and expenses in an effort to do so.

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

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

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

The U.S. and foreign laws and regulations described above, as well as any associated inquiries or investigations or any other regulatory actions, may be onerous and costly to comply with and may be inconsistent from jurisdiction to jurisdiction, further increasing the cost of compliance and doing business. Any such costs 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 orders, and we expect to continue to be subject to regulatory scrutiny as our business grows and awareness of our brand increases.

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

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

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

We have faced and will continue to face claims relating to content that is published or made available through our products and services or third-party products or services. In particular, the nature of our business exposes us to claims related to defamation, intellectual property rights, rights of publicity and privacy, illegal content, misinformation, content regulation and personal injury torts. The laws relating to the liability of providers of online products or services for activities of the people who use them remains somewhat unsettled, both within the United States and internationally. For example, there are various Executive and Congressional efforts to restrict the scope of the protections from legal liability for content moderation decisions and third-party content posted on online platforms that are currently available to online platforms under Section 230 of the Communications Decency Act, and our current protections from liability for content moderation decisions and third-party content posted on our platform in the United States could decrease or change, potentially resulting in increased liability for content moderation decisions and third-party content posted on our platform and higher litigation costs. 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.

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.

Financial and Transactional Risks

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 CrossInstall, a demand side platform, 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.

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 2018, we issued an additional \$1.15 billion in aggregate principal amount of 0.25% convertible senior notes due 2024, or the 2024 Notes. In 2019, we issued \$700.0 million in aggregate principal amount of 3.875% senior notes due 2027, which we refer to as the 2027 Notes. In March 2020, we issued \$1.0 billion in aggregate principal amount of 0.375% convertible senior notes due 2025, or the 2025 Notes. We refer to the 2021 Notes, the 2024 Notes and the 2025 Notes as the Convertible Notes, and we refer to the Convertible Notes and the 2027 Notes as the Notes. As of December 31, 2020, we had \$3.80 billion in aggregate principal amount of outstanding Notes. As of December 31, 2020, we also had an undrawn unsecured revolving credit facility providing for loans in the aggregate principal amount of \$500.0 million.

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

- require us to use a substantial portion of our cash flow from operations to pay principal and interest on debt, including the Notes, or to repurchase our Notes when required upon the occurrence of certain change of control events or otherwise pursuant to the terms thereof, which will reduce the amount of cash flow available to fund working capital, capital expenditures, acquisitions, and other business activities;
- require us to use cash and/or issue shares of our common stock to settle any conversion obligations of the Convertible Notes;
- result in certain of our debt instruments, including the Notes, being accelerated or being deemed to be in default if certain terms of default are triggered, such as applicable cross payment default and/or cross-acceleration provisions;
- adversely impact our credit rating, which could increase future borrowing costs;
- limit our future ability to raise funds for capital expenditures, strategic acquisitions or business opportunities, and other general corporate requirements;
- restrict our ability to create or incur liens and enter into sale-leaseback financing transactions;
- increase our vulnerability to adverse economic and industry conditions;
- with respect to indebtedness other than the Notes, increase our exposure to interest rate risk from variable rate indebtedness;
- dilute our earnings per share as a result of the conversion provisions in the Convertible Notes; and
- place us at a competitive disadvantage compared to our less leveraged competitors.

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

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

On June 7, 2019, the Ninth Circuit Court of Appeals issued an opinion in the case of *Altera Corp. v. Commissioner (Altera)*, which upheld Department of Treasury regulations requiring related parties in an intercompany cost-sharing arrangement to share expenses related to stock-based compensation. In February 2020, Altera Corp. filed a petition to appeal the decision with the Supreme Court of the United States. On June 22, 2020, the Supreme Court denied the petition. In the fourth quarter of 2020, we filed our 2019 U.S. Federal and state tax returns and included certain adjustments related to Altera for which we previously recognized a reserve. As a result, our unrecognized tax benefits decreased by \$96.9 million in the fourth quarter of 2020 with no impact on our effective tax rate.

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

As of December 31, 2020, we had U.S. federal net operating loss carryforwards of \$2.19 billion and state net operating loss carryforwards of \$1.28 billion. As of December 31, 2020, we had federal and state research and development credit carryforwards of \$398.4 million and \$297.1 million, respectively. A portion of the net operating loss carryforwards and tax credit carryforwards could be subject to ownership change limitations governed by Section 382 or 383 of the Internal Revenue Code. 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.

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

Under 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.

Governance Risks and Risks related to Ownership of our Capital 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, including fluctuations due to general economic uncertainty or negative market sentiment, in particular related to the COVID-19 pandemic;
- volatility in the market prices and trading volumes of technology stocks;
- changes in operating performance and stock market valuations of other technology companies generally, or those in our industry in particular;
- sales of shares of our common stock by us or our stockholders;
- rumors and market speculation involving us or other companies in our industry;
- changes in the recommendations of securities analysts regarding our common stock, changes in financial estimates by securities analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- the financial or non-financial metric projections we may provide to the public, any changes in those projections or our failure to meet those projections;
- announcements by us or our competitors of new products or services;
- the public’s reaction to our press releases, other public announcements and filings with the SEC;

- actual or anticipated changes in our operating results or fluctuations in our operating results;
- actual or anticipated developments in our business, our competitors' businesses or the competitive landscape generally;
- our issuance of shares of our common stock, whether in connection with an acquisition or upon conversion of some or all of our outstanding Convertible Notes;
- litigation or regulatory action involving us, our industry or both, or investigations by regulators into our operations or those of our competitors;
- developments or disputes concerning our intellectual property or other proprietary rights;
- announced or completed acquisitions of businesses or technologies by us or our competitors;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;
- changes in accounting standards, policies, guidelines, interpretations or principles;
- any significant change in our management; and
- general economic conditions and slow or negative growth of our markets.

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

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

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

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

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

Item 1B. UNRESOLVED STAFF COMMENTS

None.

Item 2. PROPERTIES

Facilities

As of December 31, 2020, we leased office facilities around the world totaling approximately 1,700,000 square feet, including approximately 700,000 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, consumer protection, securities, employment and contractual rights. Legal risk may be enhanced in jurisdictions outside the United States where our protection from liability for content published on our platform by third parties may be unclear and where we may be less protected under local laws than we are in the United States. Future litigation may be necessary, among other things, to defend ourselves, and the people on Twitter or to establish our rights. For information regarding legal proceedings in which we are involved, see “Legal Proceedings” in Note 16 of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K, which is incorporated herein by reference.

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".

Holders of Record

As of February 9, 2021, there were 831 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.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

The following table summarizes the share repurchase activity for the three months ended December 31, 2020:

Period	Total Number of Shares Purchased (in thousands) ⁽¹⁾⁽³⁾	Average Price Paid Per Share ⁽²⁾	Total Number of Shares Purchased as Part of Publicly Announced Programs (in thousands) ⁽¹⁾	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Program (in millions) ⁽¹⁾
October 1 - 31	—	\$ —	—	\$ 2,000
November 1 - 30	4,552	\$ 42.27	4,552	\$ 1,808
December 1 - 31	1,130	\$ 51.54	1,130	\$ 1,749
Total	5,682		5,682	

⁽¹⁾ In March 2020, our board of directors authorized a program to repurchase up to \$2.0 billion of our common stock over time. Repurchases may be made from time to time through open market purchases or through privately negotiated transactions, under trading plans complying with Rules 10b5-1 and 10b-18 under the Exchange Act, subject to market conditions, applicable legal requirements and other relevant factors. The repurchase program does not obligate us to acquire any particular amount of our common stock, and may be suspended at any time at our discretion. The program does not have an expiration date. Please refer to Note 14 of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K for additional information.

⁽²⁾ Average price paid per share includes costs associated with the repurchases.

⁽³⁾ No shares were repurchased under the program in the nine months ended September 30, 2020.

Unregistered Sales of Equity Securities

During the three months ended December 31, 2020, we issued a total of 262,584 shares of our common stock in connection with the acquisition of one company to certain former shareholders of the acquired 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, 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, 2015 and its relative performance is tracked through December 31, 2020. The returns shown are based on historical results and are not intended to suggest future performance.



Item 6. SELECTED FINANCIAL DATA

This item is no longer required as we have elected to early adopt the changes to Item 301 of Regulation S-K contained in SEC Release No. 33-10890.

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 2020 Highlights

Total revenue was \$3.72 billion, an increase of 7%, compared to 2019.

- Advertising revenue totaled \$3.21 billion, an increase of 7%, compared to 2019.
- Data licensing and other revenue totaled \$509.0 million, an increase of 9%, compared to 2019.
- U.S. revenue totaled \$2.08 billion, an increase of 7%, compared to 2019.
- International revenue totaled \$1.64 billion, an increase of 8%, compared to 2019.
- Total ad engagements increased 23% compared to 2019.
- Cost per engagement decreased 13% compared to 2019.

Net loss was \$1.14 billion in 2020, which was inclusive of a \$1.10 billion provision for income taxes related to the establishment of a valuation allowance against deferred tax assets. Net income was \$1.47 billion in 2019, which was inclusive of a \$1.21 billion benefit from income taxes related to the establishment of deferred tax assets from the intra-entity transfer of intangible assets.

Cash, cash equivalents and short-term investments in marketable securities totaled \$7.47 billion as of December 31, 2020.

Average monetizable daily active usage (mDAU) was 192 million for the three months ended December 31, 2020, an increase of 27% year over year.

FY 2020 Overview and COVID-19 Update

The COVID-19 pandemic has resulted in public health responses including travel bans, restrictions, social distancing requirements, and shelter-in-place orders, which have impacted our business, operations, and financial performance in different ways. Following the start of the pandemic, we saw increased use of Twitter as people sought to stay informed and connect with others, and in the fourth quarter of 2020, our year-over-year growth in mDAU remained strong, driven by global conversations related to current events and ongoing product improvements. Our work to serve the public conversation, by helping people find trusted sources of information, and better organizing and surfacing the many topics and interests that bring people to Twitter, helped us retain new and recently reactivated accounts in 2020. We also continue to benefit from the ongoing impact of product improvements, including continued increases in relevance across notifications, search, Explore, and the Home timeline.

As a result of the COVID-19 pandemic, we experienced a reduction in advertiser demand in the first half of 2020 compared to the same period in 2019. In the second half of 2020, advertisers around the world significantly increased their investment on Twitter, demonstrating the benefit we're delivering with a larger audience, recent revenue product feature improvements, better measurement and targeting, and improved ad formats.

In light of the current operating and economic environment, we have established revenue products as our number one company priority. We have responded quickly and decisively to the challenges presented by the current environment, updating our policies, increasing our use of machine learning and automation to take actions on potentially abusive and manipulative content, ensuring the continuity of our service, and partnering with advertisers to adapt their campaigns to the current situation. Expense growth in 2020 was in line with our expectations and driven by higher sales-related expenses, headcount growth, and infrastructure costs. We expect to grow headcount by more than 20% in 2021, especially in engineering, product, design, and research. Given the hiring and investment decisions made in 2020 and previous years, along with anticipated 2021 headcount growth, we expect total costs and expenses to grow 25% or more in 2021, ramping in absolute dollars over the course of the year. Our investments also include the final build out of a new data center in 2021, adding capacity to support audience and revenue growth. Apple has announced changes to iOS 14 that will affect our ability to deliver targeted advertising and measurement to advertisers on our platform, which could impact our advertising revenue. We have taken action to adapt to and mitigate the impact of these changes to comply with Apple's rules, and we will continue to evolve our solutions as we understand more and the ecosystem adapts to these pending changes. Assuming the COVID-19 pandemic continues to improve and that we see modest impact from the rollout of changes associated with iOS 14, we expect total revenue to grow faster than expenses in 2021. How much faster will depend on our execution on our direct response roadmap and macroeconomic factors.

The ongoing impact of the COVID-19 pandemic on our business continues to evolve and be unpredictable. Our past results may not be indicative of our future performance, and historical trends in revenue, income (loss) from operations, net income (loss), and net income (loss) per share may differ materially. For example, to the extent the pandemic continues to disrupt economic activity globally, it could adversely affect our business, operations and financial results through prolonged decreases in advertising spend, credit deterioration of our customers, depressed economic activity, or declines in capital markets. We continue to monitor the rapidly evolving situation and guidance from international and domestic authorities, including federal, state and local public health authorities, and there may be developments outside our control requiring us to adjust our operating plan.

The risks related to the COVID-19 pandemic on our business are further described in Part I, Item 1A - Risk Factors of this Annual Report on Form 10-K.

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.

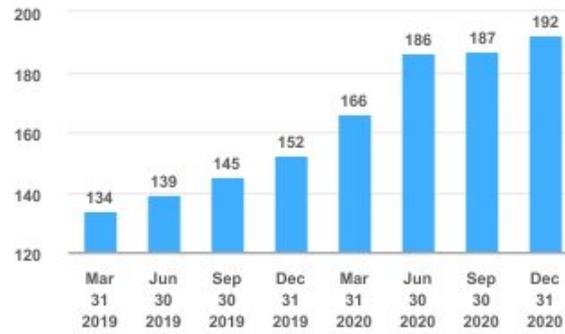
Monetizable Daily Active Usage or Users (mDAU). We define mDAU as people, organizations, or other accounts who logged in or were otherwise authenticated and accessed Twitter on any given day through twitter.com or Twitter applications that are able to show ads. We believe that mDAU, and its related growth, 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, 2020, we had 192 million average mDAU, which represents an increase of 27% from the three months ended December 31, 2019. The increase was driven by global conversation around current events and ongoing product improvements. In the three months ended December 31, 2020, we had 37 million average mDAU in the United States and 155 million average mDAU in the rest of the world, which represent increases of 21% and 28%, respectively, from the three months ended December 31, 2019.

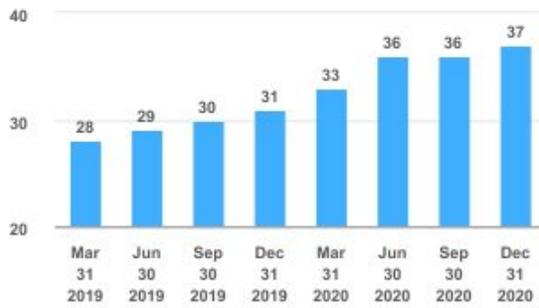
In 2020, mDAU growth benefited from product improvements, increased global conversation around COVID-19, the run-up to U.S. elections, and other current events. The surge in mDAU in 2020 driven by current events such as the COVID-19 pandemic is expected to lead to slower year-over-year growth rates starting in the first quarter of 2021 through the end of the year.

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

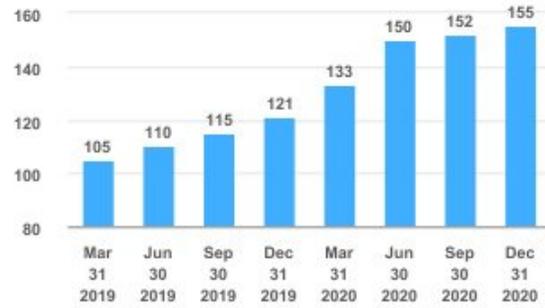
Monetizable Daily Active Usage: Worldwide
(quarterly average in millions)



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



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



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

In the three months ended December 31, 2020, ad engagements increased 35% from the three months ended December 31, 2019, driven by strong growth in ad impressions due to our growing audience and increased demand for ads. In the three months ended December 31, 2020, cost per ad engagement decreased by 3% compared to the three months ended December 31, 2019, which was largely a function of supply outstripping demand.



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,		
	2020	2019	2018
Revenue			
Advertising services	\$ 3,207,392	\$ 2,993,392	\$ 2,617,397
Data licensing and other	508,957	465,937	424,962
Total revenue	3,716,349	3,459,329	3,042,359
Costs and expenses ⁽¹⁾			
Cost of revenue	1,366,388	1,137,041	964,997
Research and development	873,011	682,281	553,858
Sales and marketing	887,860	913,813	771,361
General and administrative ⁽²⁾	562,432	359,821	298,818
Total costs and expenses	3,689,691	3,092,956	2,589,034
Income from operations	26,658	366,373	453,325
Interest expense	(152,878)	(138,180)	(132,606)
Interest income	88,178	157,703	111,221
Other income (expense), net	(12,897)	4,243	(8,396)
Income (loss) before income taxes	(50,939)	390,139	423,544
Provision (benefit) for income taxes ⁽³⁾	1,084,687	(1,075,520)	(782,052)
Net income (loss)	\$ (1,135,626)	\$ 1,465,659	\$ 1,205,596

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

	Year Ended December 31,		
	2020	2019	2018
Cost of revenue	\$ 32,020	\$ 22,797	\$ 17,289
Research and development	281,092	209,063	183,799
Sales and marketing	98,748	85,739	71,305
General and administrative	63,072	60,426	53,835
Total stock-based compensation expense	\$ 474,932	\$ 378,025	\$ 326,228

(2) We received a draft complaint from the Federal Trade Commission and recorded \$150.0 million in general and administrative expenses in the consolidated statements of operations in the second quarter of 2020. Refer to Note 16 of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K for further information.

(3) In 2020, we recognized a provision for income taxes of \$1.10 billion related to the establishment of a valuation allowance against deferred tax assets of a foreign subsidiary. In 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 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. 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.

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,		
	2020	2019	2018
Revenue			
Advertising services	86 %	87 %	86 %
Data licensing and other	14	13	14
Total revenue	100	100	100
Costs and expenses			
Cost of revenue	37	33	32
Research and development	23	20	18
Sales and marketing	24	26	25
General and administrative	15	10	10
Total costs and expenses	99	89	85
Income from operations	1	11	15
Interest expense	(4)	(4)	(4)
Interest income	2	5	4
Other income (expense), net	0	0	0
Income (loss) before income taxes	(1)	11	14
Provision (benefit) for income taxes	29	(31)	(26)
Net income (loss)	(31)%	42 %	40 %

Years Ended December 31, 2020, 2019 and 2018

Revenue

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

Advertising Services

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

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

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

Data Licensing and Other

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

	Year Ended December 31,			2019 to 2020 % Change	2018 to 2019 % Change
	2020	2019	2018		
	(in thousands)				
Advertising services	\$ 3,207,392	\$ 2,993,392	\$ 2,617,397	7 %	14 %
Data licensing and other	508,957	465,937	424,962	9 %	10 %
Total revenue	<u>\$ 3,716,349</u>	<u>\$ 3,459,329</u>	<u>\$ 3,042,359</u>	7 %	14 %

2020 Compared to 2019. Revenue in 2020 increased by \$257.0 million or 7% compared to 2019.

In 2020, advertising revenue increased by \$214.0 million or 7% compared to 2019. The overall increase in advertising revenue reflects an increase in advertiser demand driven by our larger audience, recent revenue product feature improvements, better measurement and targeting, improved ad formats, and our acquisition of CrossInstall in 2020, despite widespread economic disruption related to the COVID-19 pandemic and a decrease in global advertising demand in the first half of 2020. The increase in advertising revenue was attributable to a 23% increase in the number of ad engagements in 2020 offset by a 13% decrease in cost per ad engagement in 2020 compared to 2019. The increase in ad engagements was primarily driven by strong growth in ad impressions due to our growing audience and increased demand for ads. The decrease in cost per ad engagement was largely a function of supply outstripping demand.

In 2020, data licensing and other revenue increased by \$43.0 million or 9% compared to 2019. The increase was attributable to expanded partnerships in Developer and Enterprise Solutions (DES), and the timing of revenue recognition.

Looking ahead, we continue to invest in revenue products as we work to improve our ad formats to deliver increased value to advertisers around the world. As our mDAU and the level of engagement of our mDAU grows, we believe the potential to increase our revenue grows.

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,			2019 to 2020 % Change	2018 to 2019 % Change
	2020	2019	2018		
	(in thousands)				
Cost of revenue	\$ 1,366,388	\$ 1,137,041	\$ 964,997	20 %	18 %
Cost of revenue as a percentage of revenue	37 %	33 %	32 %		

2020 Compared to 2019. In 2020, cost of revenue increased by \$229.3 million compared to 2019. The increase was attributable to a \$122.9 million increase in infrastructure costs and \$106.4 million increase in other direct costs, primarily driven by an increase in traffic acquisition costs, and depreciation and amortization expense mainly related to additional server and acquired intangible assets.

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,			2019 to 2020 % Change	2018 to 2019 % Change
	2020	2019	2018		
	(in thousands)				
Research and development	\$ 873,011	\$ 682,281	\$ 553,858	28 %	23 %
Research and development as a percentage of revenue	23 %	20 %	18 %		

2020 Compared to 2019. In 2020, research and development expenses increased by \$190.7 million compared to 2019. The increase was attributable to a \$115.1 million increase in personnel-related costs mainly driven by an increase in employee headcount as we continue to focus our investments on engineering, product, design, and research, a \$54.5 million net increase in facilities costs and other administrative expenses, and a \$21.1 million decrease in the capitalization of costs associated with developing software for internal use.

We plan to continue to invest in key areas of our business to ensure that we have an appropriate level of engineering, product management and design personnel and related resources to support our research and development efforts on key priorities. We expect that research and development expenses 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,			2019 to 2020 % Change	2018 to 2019 % Change
	2020	2019	2018		
	(in thousands)				
Sales and marketing	\$ 887,860	\$ 913,813	\$ 771,361	(3) %	18 %
Sales and marketing as a percentage of revenue	24 %	26 %	25 %		

2020 Compared to 2019. In 2020, sales and marketing expenses decreased by \$26.0 million compared to 2019. The decrease was attributable to a \$67.8 million decrease in marketing and sales-related expenses, primarily due to reduced marketing campaigns and customer events, and travel during the COVID-19 pandemic, offset by a \$41.8 million net increase in facilities costs and other administrative expenses.

We continue to evaluate key areas in our business to ensure we have an appropriate level of sales and marketing expenses to execute on our key priorities and objectives. We expect that sales and marketing expenses 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,			2019 to 2020 % Change	2018 to 2019 % Change
	2020	2019	2018		
	(in thousands)				
General and administrative	\$ 562,432	\$ 359,821	\$ 298,818	56 %	20 %
General and administrative as a percentage of revenue	15 %	10 %	10 %		

2020 Compared to 2019. In 2020, general and administrative expenses increased by \$202.6 million compared to 2019. The increase was attributable to a \$150.0 million legal accrual related to an ongoing Federal Trade Commission (FTC) matter recorded in the second quarter of 2020, a \$80.9 million increase in personnel-related costs mainly driven by an increase in employee headcount, and a \$13.7 million increase in professional service fees, offset by a net decrease of \$42.0 million in facilities costs and other administrative expenses.

We plan to continue to invest in general and administrative functions to ensure we have an appropriate level of support for our key objectives. Absent one-time general and administrative expenses such as the \$150.0 million expense recorded for the FTC matter in 2020, 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, the \$700.0 million principal amount of 3.875% senior notes due in 2027, or the 2027 Notes, and the \$1.0 billion principal amount of 0.375% convertible senior notes due in 2025, or the 2025 Notes, and interest expense related to finance leases and other financing facilities.

	Year Ended December 31,		
	2020	2019	2018
	(in thousands)		
Interest expense	\$ 152,878	\$ 138,180	\$ 132,606

2020 Compared to 2019. In 2020, interest expense increased by \$14.7 million compared to 2019 primarily due to the issuance of the 2027 Notes in December 2019 and the 2025 Notes in March 2020, offset by our repayment of the 2019 Notes at their maturity in September 2019.

Interest expense is estimated to decrease by approximately \$100.0 million during the year ended December 31, 2021, upon the early adoption of a new accounting standard which simplifies the accounting for convertible debt on January 1, 2021, as described in Note 2 to the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K.

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,		
	2020	2019	2018
	(in thousands)		
Interest income	\$ 88,178	\$ 157,703	\$ 111,221

2020 Compared to 2019. In 2020, interest income decreased by \$69.5 million compared to 2019. The decrease was primarily attributable to lower interest rates.

Other Income (Expense), Net

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

	Year Ended December 31,		
	2020	2019	2018
	(in thousands)		
Other income (expense), net	\$ (12,897)	\$ 4,243	\$ (8,396)

2020 Compared to 2019. In 2020, other expense, net, was \$12.9 million compared to other income, net, of \$4.2 million in 2019. The change was primarily attributable to impairment charges of \$8.8 million on our investments in privately-held companies during the year ended December 31, 2020, compared to an \$8.6 million gain net of impairment charges on our investments in privately-held companies during the year ended December 31, 2019.

Provision (Benefit) for Income Taxes

Our provision (benefit) for income taxes consists of federal and state income taxes in the United States and income taxes in certain foreign jurisdictions.

	Year Ended December 31,		
	2020	2019	2018
	(in thousands)		
Provision (benefit) for income taxes	\$ 1,084,687	\$ (1,075,520)	\$ (782,052)

2020 Compared to 2019. In 2020, our net provision for income taxes was \$1.08 billion, compared to a net benefit from income taxes of \$1.08 billion in 2019. The change was primarily due to a provision for income taxes related to the establishment of a valuation allowance against deferred tax assets of \$1.10 billion of a foreign subsidiary in 2020, a benefit for income tax from the establishment of deferred tax assets from intra-entity transfers of certain intangible assets of \$1.21 billion in 2019, the accrual in 2020 related to the ongoing Federal Trade Commission matter, described in Note 16 to the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K, that is not expected to be tax-deductible if and when paid, the jurisdictional mix of income before taxes, and changes to our uncertain tax positions.

We reassessed the ability to realize deferred tax assets by considering the available positive and negative evidence. As of June 30, 2020, we concluded that the deferred tax assets in a foreign subsidiary are not more-likely-than-not to be realized and recorded a full valuation allowance against such deferred tax assets in the approximate amount of \$1.10 billion. In evaluating the need for a valuation allowance, we considered our recent operating results which resulted in a cumulative taxable loss in a foreign subsidiary for the twelve quarters ended June 30, 2020. The twelve quarters cumulative taxable losses from operations is considered a significant piece of negative evidence and outweighs other positive evidence, such as projections of future income. The twelve quarters cumulative taxable losses and projected near-term losses in the foreign subsidiary were largely driven by the negative impact from the COVID-19 pandemic as it caused decreased advertiser demand in the first half of 2020. If there are favorable changes to actual operating results or to projections of future income, we may determine that it is more-likely-than-not such deferred tax assets may be realizable. As of December 31, 2020, there have been no changes to our conclusion.

As of December 31, 2020, we had \$796.3 million of deferred tax assets for which we have not established a valuation allowance, related to the U.S. federal, states other than Massachusetts and California, and certain international subsidiaries. We completed our reassessment of the ability to realize these assets and concluded that a valuation allowance was not required.

On June 7, 2019, the Ninth Circuit Court of Appeals issued an opinion in Altera, which upheld Department of Treasury regulations requiring related parties in an intercompany cost-sharing arrangement to share expenses related to stock-based compensation. In February 2020, Altera Corp. filed a petition to appeal the decision with the Supreme Court of the United States. On June 22, 2020, the Supreme Court denied the petition. In the fourth quarter of 2020, we filed our 2019 U.S. Federal and state tax returns and included certain adjustments related to Altera for which we previously recognized a reserve. As a result, our unrecognized tax benefits decreased by \$96.9 million in the fourth quarter of 2020 with no impact on our effective tax rate.

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

Comparison of Years Ended December 31, 2019 and 2018

For a discussion of our 2018 results of operations, including a discussion of the financial results for the fiscal year ended December 31, 2019 compared to the fiscal year ended December 31, 2018, refer to Part II, Item 7 of our Form 10-K filed with the SEC on February 19, 2020.

Supplementary Financial Information

There are no retrospective changes to the statements of operations for any of the quarters within the two most recent fiscal years that individually or in the aggregate are material.

Liquidity and Capital Resources

	Year Ended December 31,		
	2020	2019	2018
	(in thousands)		
Consolidated Statements of Cash Flows Data:			
Net income (loss)	\$ (1,135,626)	\$ 1,465,659	\$ 1,205,596
Net cash provided by operating activities	\$ 992,870	\$ 1,303,364	\$ 1,339,711
Net cash used in investing activities	\$ (1,560,565)	\$ (1,115,974)	\$ (2,055,513)
Net cash provided by (used in) financing activities	\$ 755,310	\$ (286,175)	\$ 978,116

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

In March 2020, our Board of Directors authorized a program to repurchase up to \$2.0 billion of our common stock over time. Repurchases may be made from time to time through open market purchases or through privately negotiated transactions subject to market conditions, applicable legal requirements and other relevant factors. The repurchase program does not obligate us to acquire any particular amount of our common stock and may be suspended at any time at our discretion. In the year ended December 31, 2020, we repurchased 5.7 million shares for an aggregate amount of \$250.6 million, including 98,000 shares for \$5.3 million that were not settled as of December 31, 2020 that are presented as treasury stock on the consolidated balance sheets, under the program.

As of December 31, 2020, we had \$7.47 billion of cash, cash equivalents and short-term investments in marketable securities, of which \$255.1 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, and to repay the \$954.0 million principal associated with our 2021 Notes due in September 2021, despite the uncertainty related to the COVID-19 pandemic.

Credit Facility

We have a revolving credit agreement with certain lenders which provides for a \$500.0 million revolving unsecured credit facility maturing on August 7, 2023. We are obligated to pay interest on loans under the credit facility and other customary fees for a credit facility of this size and type, including an upfront fee and an unused commitment fee. The interest rate for the credit facility is determined based on calculations using certain market rates as set forth in the credit agreement. In addition, the credit facility contains restrictions on payments including cash payments of dividends. As of December 31, 2020, no amounts had been drawn under the credit facility.

Operating Activities

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

Cash provided by operating activities in 2020 was \$992.9 million, a decrease in cash inflow of \$310.5 million compared to 2019. Cash provided by operating activities was driven by net loss of \$1.14 billion, as adjusted for the exclusion of non-cash expenses and other adjustments totaling \$2.15 billion, including a \$1.10 billion provision for income taxes related to the establishment of a valuation allowance against deferred tax assets, \$495.2 million of depreciation and amortization expense, \$474.9 million of stock-based compensation expense, and the effect of changes in working capital and other carrying balances that resulted in cash outflows of \$24.6 million.

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.

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 2020 was \$1.56 billion, an increase in cash outflow of \$444.6 million compared to 2019. The increase was due to a \$474.3 million increase in purchases of marketable securities, a \$373.9 million decrease in proceeds from maturities of marketable securities, a \$332.7 million increase in purchases of property and equipment, an \$18.4 million increase in cash used in business combinations, an \$11.8 million decrease in proceeds from sales of long-lived assets, and a \$1.4 million increase in cash used in other investing activities, offset by a \$725.6 million increase in proceeds from sales of marketable securities, a \$39.3 million decrease in purchases of investments in privately-held companies, and a \$3.0 million increase in proceeds from sales of property and equipment.

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.

We anticipate making capital expenditures in 2021 of approximately \$900 million to \$950 million as we complete the final buildout of our new data center in 2021 and support our existing data centers and infrastructure needs.

Financing Activities

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

Cash provided by financing activities in 2020 was \$755.3 million, compared to \$286.2 million cash used in financing activities in 2019. The change was due to \$985.3 million of net proceeds from the issuance of the 2025 Notes net of issuance costs in 2020, a \$935.0 million repayment of convertible notes in 2019 that did not reoccur in 2020, a \$43.6 million decrease in payments of finance lease obligations, a \$13.1 million increase in proceeds from the issuance of shares of stock from the employee stock purchase plan (ESPP), and a \$4.7 million increase in proceeds from option exercises, offset by \$691.9 million of net proceeds from the issuance of the 2027 Notes in 2019, repurchases of common stock of \$245.3 million in 2020, and a \$3.0 million increase in tax payments related to net share settlements of equity awards.

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).

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements and did not have any such arrangements in 2020, 2019, or 2018.

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, of the Notes to Consolidated Financial Statements under Part II, Item 8 of this Annual Report on Form 10-K for more details, including a table of our contractual obligations.

As of December 31, 2020, we had recorded liabilities of \$30.4 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 our 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. If we determine there is a reasonable possibility that we may incur a loss and the loss or range of loss can be estimated, we disclose the possible loss to the extent material. 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.

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 allocate the purchase price of the acquisition 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, 2020, a hypothetical increase in interest rates of 100 basis points would result in a decrease of approximately \$46.1 million in the fair value of our available-for-sale securities. We currently do not hedge these interest rate exposures.

As of December 31, 2020, we had \$3.10 billion aggregate principal amount of Convertible Notes outstanding and \$700.0 million aggregate principal amount of 2027 Notes outstanding. We carry the Notes at face value less amortized discount on the consolidated balance sheet. Since 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 (loss) as a result of transaction gains or losses related to revaluing and ultimately settling certain asset and liability balances that are denominated in currencies other than the functional currency of the entities in which they are recorded. Foreign currency gains and losses were immaterial for 2020 and 2019. We currently utilize foreign currency forward contracts with financial institutions to reduce the risk that our earnings may be adversely affected by the impact of exchange rate fluctuations on monetary assets or liabilities denominated in currencies other than the local currency of a subsidiary. These contracts are not designated as hedging instruments. We may in the future enter into other derivative financial instruments if it is determined that such hedging activities are appropriate to further reduce our foreign currency exchange risk. Based on our foreign currency exposures from monetary assets and liabilities net of our open hedge position, we estimated that a 10% change in exchange rates against the U.S. dollar would have resulted in a gain or loss of approximately \$13.8 million as of December 31, 2020.

Translation Exposure

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

Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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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, 2020 and 2019, 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, 2020, including the related notes and financial statement schedule 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, 2020, 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, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020 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, 2020, 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 matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates 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 matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue Recognition – identification of performance obligations

As described in Notes 2 and 3 to the consolidated financial statements, the Company generated \$3.2 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, 2020. 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 the 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.

/s/ PricewaterhouseCoopers LLP

San Francisco, California

February 17, 2021

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

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

	December 31, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	\$ 1,988,429	\$ 1,799,082
Short-term investments	5,483,873	4,839,970
Accounts receivable, net of allowance for doubtful accounts of \$16,946 and \$2,401	1,041,743	850,184
Prepaid expenses and other current assets	123,063	130,839
Total current assets	8,637,108	7,620,075
Property and equipment, net	1,493,794	1,031,781
Operating lease right-of-use assets	930,139	697,095
Intangible assets, net	58,338	55,106
Goodwill	1,312,346	1,256,699
Deferred tax assets, net	796,326	1,908,086
Other assets	151,039	134,547
Total assets	\$ 13,379,090	\$ 12,703,389
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$ 194,281	\$ 161,148
Accrued and other current liabilities	662,965	500,893
Convertible notes, short-term	917,866	—
Operating lease liabilities, short-term	177,147	146,959
Finance lease liabilities, short-term	567	23,476
Total current liabilities	1,952,826	832,476
Convertible notes, long-term	1,875,878	1,816,833
Senior notes, long-term	692,994	691,967
Operating lease liabilities, long-term	819,748	609,245
Deferred and other long-term tax liabilities, net	31,463	24,170
Other long-term liabilities	36,099	24,312
Total liabilities	5,409,008	3,999,003
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; 796,000 and 779,619 shares issued and outstanding	4	4
Additional paid-in capital	9,167,138	8,763,330
Treasury stock, at cost-- 98 and 0 shares	(5,297)	—
Accumulated other comprehensive loss	(66,094)	(70,534)
Retained earnings (accumulated deficit)	(1,125,669)	11,586
Total stockholders' equity	7,970,082	8,704,386
Total liabilities and stockholders' equity	\$ 13,379,090	\$ 12,703,389

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,		
	2020	2019	2018
Revenue	\$ 3,716,349	\$ 3,459,329	\$ 3,042,359
Costs and expenses			
Cost of revenue	1,366,388	1,137,041	964,997
Research and development	873,011	682,281	553,858
Sales and marketing	887,860	913,813	771,361
General and administrative	562,432	359,821	298,818
Total costs and expenses	<u>3,689,691</u>	<u>3,092,956</u>	<u>2,589,034</u>
Income from operations	26,658	366,373	453,325
Interest expense	(152,878)	(138,180)	(132,606)
Interest income	88,178	157,703	111,221
Other income (expense), net	(12,897)	4,243	(8,396)
Income (loss) before income taxes	(50,939)	390,139	423,544
Provision (benefit) for income taxes	1,084,687	(1,075,520)	(782,052)
Net income (loss)	<u>\$ (1,135,626)</u>	<u>\$ 1,465,659</u>	<u>\$ 1,205,596</u>
Net income (loss) per share attributable to common stockholders:			
Basic	<u>\$ (1.44)</u>	<u>\$ 1.90</u>	<u>\$ 1.60</u>
Diluted	<u>\$ (1.44)</u>	<u>\$ 1.87</u>	<u>\$ 1.56</u>
Weighted-average shares used to compute net income (loss) per share attributable to common stockholders:			
Basic	<u>787,861</u>	<u>770,729</u>	<u>754,326</u>
Diluted	<u>787,861</u>	<u>785,531</u>	<u>772,686</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,		
	2020	2019	2018
Net income (loss)	\$ (1,135,626)	\$ 1,465,659	\$ 1,205,596
Other comprehensive income (loss), net of tax:			
Change in unrealized gain (loss) on investments in available-for-sale securities	11,318	13,785	(393)
Change in foreign currency translation adjustment	(6,878)	(19,008)	(33,339)
Net change in accumulated other comprehensive income (loss)	4,440	(5,223)	(33,732)
Comprehensive income (loss)	<u>\$ (1,131,186)</u>	<u>\$ 1,460,436</u>	<u>\$ 1,171,864</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,					
	2020		2019		2018	
	Shares	Amount	Shares	Amount	Shares	Amount
Common stock						
Balance, beginning of period	779,619	\$ 4	764,257	\$ 4	746,902	\$ 4
Issuance of common stock in connection with RSU vesting	16,795	—	13,519	—	15,026	—
Issuance of common stock in connection with acquisitions	168	—	—	—	119	—
Issuance of restricted stock in connection with acquisitions accounted for as stock-based compensation	1,509	—	471	—	655	—
Exercise of stock options	1,882	—	361	—	634	—
Issuance of common stock upon purchases under employee stock purchase plan	2,250	—	1,592	—	1,539	—
Shares withheld related to net share settlement of equity awards	(639)	—	(579)	—	(610)	—
Repurchases of common stock	(5,584)	—	—	—	—	—
Other activities	—	—	(2)	—	(8)	—
Balance, end of period	796,000	\$ 4	779,619	\$ 4	764,257	\$ 4
Additional paid-in capital						
Balance, beginning of period	—	\$ 8,763,330	—	\$ 8,324,974	—	\$ 7,750,522
Issuance of common stock in connection with acquisitions	—	8,311	—	—	—	18,248
Issuance of stock options in connection with acquisitions	—	—	—	—	—	917
Exercise of stock options	—	5,441	—	788	—	3,442
Issuance of common stock upon purchases under employee stock purchase plan	—	55,470	—	42,378	—	29,288
Shares withheld related to net share settlement of equity awards	—	(22,585)	—	(19,594)	—	(19,256)
Stock-based compensation	—	510,254	—	414,784	—	367,668
Equity component of the convertible note issuance, net	—	92,209	—	—	—	252,248
Purchase of convertible note hedge	—	—	—	—	—	(267,950)
Issuance of warrants	—	—	—	—	—	186,760
Repurchases of common stock	—	(245,292)	—	—	—	—
Other activities	—	—	—	—	—	3,087
Balance, end of period	—	\$ 9,167,138	—	\$ 8,763,330	—	\$ 8,324,974
Treasury stock						
Balance, beginning of period	—	\$ —	—	\$ —	—	\$ —
Repurchases of common stock	—	(5,297)	—	—	—	—
Balance, end of period	—	\$ (5,297)	—	\$ —	—	\$ —
Accumulated other comprehensive loss						
Balance, beginning of period	—	\$ (70,534)	—	\$ (65,311)	—	\$ (31,579)
Other comprehensive income (loss)	—	4,440	—	(5,223)	—	(33,732)
Balance, end of period	—	\$ (66,094)	—	\$ (70,534)	—	\$ (65,311)
Retained earnings (accumulated deficit)						
Balance, beginning of period	—	\$ 11,586	—	\$ (1,454,073)	—	\$ (2,671,729)
Cumulative-effect adjustment from adoption of new accounting standards	—	(1,629)	—	—	—	12,060
Net income (loss)	—	(1,135,626)	—	1,465,659	—	1,205,596
Balance, end of period	—	\$ (1,125,669)	—	\$ 11,586	—	\$ (1,454,073)
Total stockholders' equity	796,000	\$ 7,970,082	779,619	\$ 8,704,386	764,257	\$ 6,805,594

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

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

	Year Ended December 31,		
	2020	2019	2018
Cash flows from operating activities			
Net income (loss)	\$ (1,135,626)	\$ 1,465,659	\$ 1,205,596
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization expense	495,177	465,549	425,498
Stock-based compensation expense	474,932	378,025	326,228
Amortization of discount on convertible notes	101,733	113,298	105,926
Bad debt expense	18,775	3,083	1,610
Deferred income taxes	(36,978)	84,369	43,409
Deferred tax assets valuation allowance release	—	—	(845,129)
Deferred tax assets establishment related to intra-entity transfers of intangible assets	—	(1,206,880)	—
Deferred tax assets valuation allowance establishment	1,101,374	—	—
Impairment of investments in privately-held companies	8,842	1,550	3,000
Other adjustments	(10,764)	(19,989)	(15,749)
Changes in assets and liabilities, net of assets acquired and liabilities assumed from acquisitions:			
Accounts receivable	(188,039)	(67,000)	(130,871)
Prepaid expenses and other assets	6,398	(29,602)	126,470
Operating lease right-of-use assets	168,000	149,880	—
Accounts payable	18,232	2,946	(1,533)
Accrued and other liabilities	123,345	92,681	95,256
Operating lease liabilities	(152,531)	(130,205)	—
Net cash provided by operating activities	992,870	1,303,364	1,339,711
Cash flows from investing activities			
Purchases of property and equipment	(873,354)	(540,688)	(483,934)
Proceeds from sales of property and equipment	9,170	6,158	13,070
Purchases of marketable securities	(6,272,395)	(5,798,111)	(5,334,396)
Proceeds from maturities of marketable securities	4,554,238	4,928,097	3,732,973
Proceeds from sales of marketable securities	1,092,754	367,116	58,721
Purchases of investments in privately-held companies	(11,912)	(51,163)	(3,375)
Proceeds from sales of long-lived assets	—	11,781	—
Business combinations, net of cash acquired	(48,016)	(29,664)	(33,572)
Other investing activities	(11,050)	(9,500)	(5,000)
Net cash used in investing activities	(1,560,565)	(1,115,974)	(2,055,513)
Cash flows from financing activities			
Proceeds from issuance of convertible notes	1,000,000	—	1,150,000
Proceeds from issuance of senior notes	—	700,000	—
Purchases of convertible note hedges	—	—	(267,950)
Proceeds from issuance of warrants concurrent with note hedges	—	—	186,760
Debt issuance costs	(14,662)	(8,070)	(13,783)
Repayment of convertible notes	—	(935,000)	—
Repurchases of common stock	(245,292)	—	—
Taxes paid related to net share settlement of equity awards	(22,587)	(19,594)	(19,263)
Payments of finance lease obligations	(23,062)	(66,677)	(90,351)
Proceeds from exercise of stock options	5,442	788	3,415
Proceeds from issuances of common stock under employee stock purchase plan	55,471	42,378	29,288
Net cash provided by (used in) financing activities	755,310	(286,175)	978,116
Net increase (decrease) in cash, cash equivalents and restricted cash	187,615	(98,785)	262,314
Foreign exchange effect on cash, cash equivalents and restricted cash	(4,005)	4,576	(14,296)
Cash, cash equivalents and restricted cash at beginning of period	1,827,666	1,921,875	1,673,857
Cash, cash equivalents and restricted cash at end of period	\$ 2,011,276	\$ 1,827,666	\$ 1,921,875
Supplemental cash flow data			
Interest paid in cash	\$ 38,510	\$ 12,236	\$ 14,547
Income taxes paid in cash	\$ 11,480	\$ 20,144	\$ 33,065
Supplemental disclosures of non-cash investing and financing activities			
Common stock issued in connection with acquisitions	\$ 8,311	\$ —	\$ 19,165
Changes in accrued property and equipment purchases	\$ 24,882	\$ 14,985	\$ (23,469)
Reconciliation of cash, cash equivalents and restricted cash as shown in the consolidated statements of cash flows			
Cash and cash equivalents	\$ 1,988,429	\$ 1,799,082	\$ 1,894,444
Restricted cash included in prepaid expenses and other current assets	2,287	1,862	1,698
Restricted cash included in other assets	20,560	26,722	25,733
Total cash, cash equivalents and restricted cash	\$ 2,011,276	\$ 1,827,666	\$ 1,921,875

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 the Company believes are reasonable under the circumstances, and the Company evaluates these estimates on an ongoing basis.

COVID-19 Impacts

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

As of December 31, 2020, the Company had \$7.47 billion of cash, cash equivalents and short-term investments in marketable securities. If required, the Company may take certain liquidity mitigation actions in the future; however, it does not believe such actions are necessary based on its current forecasts. The Company believes that the existing cash, cash equivalents and short-term investments balances, together with cash generated by operations will be sufficient to meet its working capital and capital expenditure requirements in the foreseeable future based on its current expectations of the impact of the COVID-19 pandemic.

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

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 its 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.

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, the Company recognizes the compensation expense only for those awards expected to meet the performance and service vesting conditions. For service-based restricted stock awards, expense is recognized on a straight-line basis over the requisite service period. The service condition for restricted stock awards is generally satisfied over four years, but has been up to five years in certain circumstances. For performance-based restricted stock awards, expense is recognized on a graded basis over the requisite service period. For market-based restricted stock awards, the Company recognizes the compensation expense on a graded basis over the requisite service period regardless of whether the market condition is satisfied, provided that the requisite service has been provided. The requisite service period for performance-based and market-based restricted stock awards is generally up to three 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 market-based restricted stock awards 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.

Business Combinations

The Company allocates the purchase price of the acquisition 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 has determined, as of December 31, 2020, there were no variable interest entities required to be consolidated in the Company's consolidated financial statements. The Company's investments in privately-held companies are primarily non-marketable equity securities without readily determinable fair values. The Company accounts for its investments in privately-held companies either under equity method accounting or by adjusting the carrying value of its non-marketable equity securities to fair value upon observable transactions for identical or similar investments of the same issuer or upon impairment (referred to as the measurement alternative). The investments in privately-held companies are included within Other Assets on the consolidated balance sheets. 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 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.

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. If the Company determines there is a reasonable possibility that it may incur a loss and the loss or range of loss can be estimated, it discloses the possible loss to the extent material. Significant judgment is required to determine both probability and the estimated amount. The Company reviews these provisions on a quarterly basis and adjusts 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, the Company's recent debt issuances, and Twitter, Inc.'s guarantee of certain leases in foreign jurisdictions, as applicable.

Certain lease agreements contain options for the Company to renew or early terminate a lease. 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, 2020 and 2019, the Company has restricted cash balances of \$2.3 million and \$1.9 million, respectively, within prepaid expenses and other current assets and \$20.6 million and \$26.7 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. The Company reports the unrealized gains and losses, net of taxes, as a component of stockholders' equity, except for unrealized losses determined to be credit-related, which are recorded as other income (expense), net in the consolidated statements of operations and reports an allowance for credit losses in short-term investments on the balance sheet, if any. The Company 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 \$88.2 million, \$157.7 million, and \$111.2 million during the years ended December 31, 2020, 2019 and 2018, respectively. These amounts are recorded in interest income in the accompanying consolidated statements of operations.

The Company's investment policy only allows purchases of investment-grade notes and provides guidelines on concentrations to ensure minimum risk of loss. The Company evaluates whether the unrealized loss on available-for-sale debt securities is the result of the credit worthiness of the corporate notes it held, or other non-credit-related factors such as liquidity by reviewing a number of factors such as the implied yield of the corporate note based on the market price, the nature of the invested entity's business or industry, market capitalization relative to debt, changes in credit ratings, and the market prices of the corporate notes subsequent to period end. As of December 31, 2020, the gross unrealized loss on available-for-sale debt securities was immaterial and there were no expected credit losses related to the Company's available-for-sale debt securities. The Company does not intend to sell these investments and it is not more likely than not that the Company will be required to sell these investments before recovery of their amortized cost bases. As of December 31, 2020, no allowance for credit losses in short-term investments was recorded.

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, 2020 and 2019, no single customer accounted for more than 10% of the Company's net accounts receivable balances. No single customer accounted for more than 10% of the Company's revenue in the years ended December 31, 2020, 2019 and 2018.

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, the customer's current financial condition, and considers macroeconomic factors to estimate expected future credit losses. In the year ended December 31, 2020, the Company recorded a \$17.2 million increment in the allowance for doubtful accounts, offset by \$2.7 million of write-offs and other adjustments.

Unbilled Revenue (Contract Assets)

The Company evaluates whether its unbilled revenue is exposed to potential credit losses by considering factors such as the creditworthiness of its customers, the term over which unbilled revenue will be recognized, historical impairment of unbilled revenue, and contemplation of projected macroeconomic factors. As of December 31, 2020, the Company recorded an immaterial amount of allowance for credit losses on unbilled revenue.

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, 2020, 2019 and 2018, the Company capitalized \$3.8 million, \$4.6 million, and \$3.7 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 2020 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. The Company capitalizes these costs once the preliminary project stage is complete, and it is probable that the project will be completed and the software will be used to perform the function intended. In the years ended December 31, 2020, 2019 and 2018, the Company capitalized costs totaling approximately \$109.3 million, \$127.5 million and \$121.0 million, respectively. Capitalized internal use software development costs are included in property and equipment, net. Included in the capitalized amounts above are \$34.6 million, \$37.5 million and \$41.4 million of stock-based compensation expense in the years ended December 31, 2020, 2019 and 2018, 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, 2020, 2019 and 2018, the amortization of capitalized costs totaled approximately \$109.6 million, \$116.0 million and \$111.8 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 \$56.1 million, \$81.3 million and \$80.8 million for the years ended December 31, 2020, 2019 and 2018, 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 June 2016, the Financial Accounting Standards Board (FASB) issued a new accounting standard update on the measurement of credit losses on financial instruments. The new guidance requires financial assets measured at amortized cost to be presented at the net amount expected to be collected and available-for-sale debt securities to record credit losses through an allowance for credit losses. The Company adopted this new accounting standard on January 1, 2020 using the modified retrospective method. In connection with the adoption of this guidance, the Company recorded a cumulative-effect adjustment of \$1.6 million to opening retained earnings as of January 1, 2020, related to additional allowance for credit losses on doubtful accounts and unbilled revenue.

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

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

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

Recently issued accounting pronouncements not yet adopted

In August 2020, the FASB issued a new accounting standard update to simplify the accounting for convertible debt and other equity-linked instruments. The new guidance simplifies the accounting for convertible instruments by eliminating the cash conversion and beneficial conversion feature models used to separately account for embedded conversion features as a component of equity. Instead, the entity will account for the convertible debt or convertible preferred stock securities as a single unit of account, unless the conversion feature requires bifurcation and recognition as derivatives. Additionally, the guidance requires entities to use the if-converted method for all convertible instruments in the diluted earnings per share calculation and include the effect of potential share settlement for instruments that may be settled in cash or shares. This guidance will be effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2021, using a modified or full retrospective transition method. Early adoption is permitted for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. The Company will early adopt this new guidance using the modified retrospective method as of January 1, 2021. The adoption of this new guidance is estimated to result in an increase of approximately \$255.0 million and \$35.0 million to Convertible notes, long-term and Convertible notes, short-term, respectively, in the consolidated balance sheets, to reflect the full principal amount of the convertible notes outstanding net of issuance costs, a reduction of approximately \$568.0 million to additional paid-in capital, net of estimated income tax effects, to remove the equity component separately recorded for the conversion features associated with the convertible notes, an increase to deferred tax assets, net of approximately \$67.0 million, and a cumulative-effect adjustment of approximately \$345.0 million, net of estimated income tax effects, to the beginning balance of accumulated deficit as of January 1, 2021. The adoption of this new guidance is anticipated to reduce interest expense by approximately \$100.0 million during the year ended December 31, 2021. In addition, the required use of the if-converted method by the new guidance in calculating diluted earnings per share is expected to increase the number of potentially dilutive shares in 2021.

Note 3. Revenue

Revenue Recognition

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

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

	Year Ended December 31,		
	2020	2019	2018
Revenue by services:			
Advertising services	\$ 3,207,392	\$ 2,993,392	\$ 2,617,397
Data licensing and other	508,957	465,937	424,962
Total revenue	\$ 3,716,349	\$ 3,459,329	\$ 3,042,359

	Year Ended December 31,		
	2020	2019	2018
Revenue by geographic area:			
United States	\$ 2,078,836	\$ 1,944,022	\$ 1,642,259
Japan	547,862	537,021	507,970
Rest of World	1,089,651	978,286	892,130
Total revenue	\$ 3,716,349	\$ 3,459,329	\$ 3,042,359

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.

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):

	December 31, 2020	December 31, 2019
Unbilled Revenue	\$ 44,063	\$ 27,691
Deferred Revenue	\$ 62,191	\$ 69,000

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

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

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

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

Remaining Performance Obligations

As of December 31, 2020, the aggregate amount of the transaction price allocated to remaining performance obligations in contracts with an original expected duration exceeding one year is \$774.4 million. This total amount primarily consists of long-term data licensing contracts and excludes deferred revenue related to the Company's short-term advertising service arrangements. The Company expects to recognize this amount as revenue over the following time periods (in thousands):

	Remaining Performance Obligations			
	Total	2021	2022	2023 and Thereafter
Revenue expected to be recognized on remaining performance obligations	\$ 774,447	\$ 299,300	\$ 215,794	\$ 259,353

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

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

	December 31, 2020	December 31, 2019
Cash and cash equivalents:		
Cash	\$ 285,002	\$ 254,405
Money market funds	1,158,927	465,158
Corporate notes, commercial paper and certificates of deposit	544,500	1,079,519
Total cash and cash equivalents	<u>\$ 1,988,429</u>	<u>\$ 1,799,082</u>
Short-term investments:		
U.S. government and agency securities	\$ 910,259	\$ 660,860
Corporate notes, commercial paper and certificates of deposit	4,572,394	4,179,110
Marketable equity securities	1,220	—
Total short-term investments	<u>\$ 5,483,873</u>	<u>\$ 4,839,970</u>

The contractual maturities of debt securities classified as available-for-sale as of December 31, 2020 were as follows (in thousands):

	December 31, 2020
Due within one year	\$ 2,733,961
Due after one year through five years	2,748,692
Total	<u>\$ 5,482,653</u>

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

	December 31, 2020			
	Gross Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregated Estimated Fair Value
U.S. government and agency securities	\$ 909,092	\$ 1,177	\$ (10)	\$ 910,259
Corporate notes, commercial paper and certificates of deposit	4,545,687	26,939	(232)	4,572,394
Total available-for-sale debt securities classified as short-term investments	<u>\$ 5,454,779</u>	<u>\$ 28,116</u>	<u>\$ (242)</u>	<u>\$ 5,482,653</u>

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

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

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, 2020 and 2019 based on the three-tier fair value hierarchy (in thousands):

	December 31, 2020		
	Level 1	Level 2	Total
Assets			
Cash equivalents:			
Money market funds	\$ 1,158,927	\$ —	\$ 1,158,927
Corporate notes	—	1,347	1,347
Commercial paper	—	543,153	543,153
Short-term investments:			
U.S. government and agency securities	—	910,259	910,259
Corporate notes	—	2,829,521	2,829,521
Commercial paper	—	1,240,670	1,240,670
Certificates of deposit	—	502,203	502,203
Marketable equity securities	1,220	—	1,220
Other current assets:			
Foreign currency contracts	—	5,529	5,529
Total	<u>\$ 1,160,147</u>	<u>\$ 6,032,682</u>	<u>\$ 7,192,829</u>
Liabilities			
Other current liabilities:			
Foreign currency contracts	\$ —	\$ 1,028	\$ 1,028
Total	<u>\$ —</u>	<u>\$ 1,028</u>	<u>\$ 1,028</u>

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

The Company has \$954.0 million in aggregate principal amount of 1.00% convertible senior notes due in 2021, or the 2021 Notes, \$1.15 billion in aggregate principal amount of 0.25% convertible senior notes due in 2024, or the 2024 Notes, \$1.0 billion in aggregate principal amount of 0.375% convertible senior notes due in 2025, or the 2025 Notes, and, taken together with the 2021 Notes and the 2024 Notes, the Convertible Notes. The Company also has \$700.0 million in aggregate principal amount of 3.875% senior notes due in 2027, or the 2027 Notes, and, together with the Convertible Notes, the Notes, outstanding as of December 31, 2020. Refer to Note 11 – Senior Notes and Convertible Notes for further details on the Notes.

The estimated fair value of the 2021 Notes, the 2024 Notes, and the 2027 Notes, based on a market approach as of December 31, 2020 was approximately \$975.3 million, \$1.39 billion, and \$745.5 million, respectively, which represents a Level 2 valuation. The estimated fair value was determined based on the estimated or actual bids and offers of the Notes in an over-the-counter market on the last business day of the period.

The estimated fair value of the 2025 Notes, based on a binomial model, as of December 31, 2020 was approximately \$1.45 billion, which represents a Level 3 valuation. The Level 3 inputs used include risk free rate, volatility and discount yield.

Derivative Financial Instruments

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

The Company recognizes these derivative instruments as either assets or liabilities in the consolidated balance sheets at fair value based on a Level 2 valuation. The Company records changes in the fair value (i.e., gains or losses) of the derivatives in other income (expense), net in the consolidated statements of operations. The notional principal of foreign currency contracts outstanding was equivalent to \$729.8 million and \$456.1 million at December 31, 2020 and 2019, respectively.

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

	Balance Sheet Location	December 31, 2020	December 31, 2019
Assets			
Foreign currency contracts not designated as hedging instruments	Other current assets	\$ 5,529	\$ 3,756
Liabilities			
Foreign currency contracts not designated as hedging instruments	Other current liabilities	\$ 1,028	\$ 1,573

The Company recognized \$8.1 million, \$7.2 million, and \$11.6 million of net losses on its foreign currency contracts in the years ended December 31, 2020, 2019 and 2018, respectively.

Note 6. Property and Equipment, Net

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

	December 31, 2020	December 31, 2019
Property and equipment, net		
Equipment	\$ 1,830,459	\$ 1,445,003
Furniture and leasehold improvements	362,766	347,983
Capitalized software	811,371	688,894
Construction in progress	349,935	100,551
Total	3,354,531	2,582,431
Less: Accumulated depreciation and amortization	(1,860,737)	(1,550,650)
Property and equipment, net	\$ 1,493,794	\$ 1,031,781

	December 31, 2020	December 31, 2019
Property and equipment, net:		
United States	\$ 1,460,163	\$ 999,552
International	33,631	32,229
Total property and equipment, net	<u>\$ 1,493,794</u>	<u>\$ 1,031,781</u>

Depreciation expense totaled \$471.6 million, \$449.0 million, and \$406.5 million for the years ended December 31, 2020, 2019 and 2018, respectively. Included in these amounts were depreciation expense for server and networking equipment acquired under finance leases in the amount of \$20.5 million, \$63.7 million, and \$84.2 million for the years ended December 31, 2020, 2019 and 2018, respectively.

Note 7. Operating and Finance Leases

The Company's leases have remaining lease terms from less than one year up to approximately ten years. As of December 31, 2020 and 2019, assets recorded under finance leases were \$13.3 million and \$126.0 million, respectively, and accumulated depreciation associated with finance leases was \$12.8 million and \$104.2 million, respectively, recorded in property and equipment, net on the consolidated balance sheets.

The components of lease cost for the year ended December 31, 2020 were as follows (in thousands):

	Year Ended December 31,	
	2020	2019
Operating lease cost	\$ 201,386	\$ 173,005
Finance lease cost		
Depreciation expense	20,527	63,674
Interest on lease liabilities	369	2,125
Total finance lease cost	<u>20,896</u>	<u>65,799</u>
Short-term lease cost	5,603	3,000
Variable lease cost	52,476	49,456
Sublease income	(9,626)	(22,326)
Total lease cost	<u>\$ 270,735</u>	<u>\$ 268,934</u>

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

	Year Ended December 31,	
	2020	2019
Supplemental Cash Flows Information		
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases	\$ 183,033	\$ 165,093
Operating cash flows from finance leases	\$ 369	\$ 2,125
Financing cash flows from finance leases	\$ 23,062	\$ 66,677
Right-of-use assets obtained in exchange for lease obligations:		
Operating leases	\$ 398,480	\$ 110,522

	December 31, 2020	December 31, 2019
Lease Term and Discount Rate		
Weighted-average remaining lease term (years):		
Operating leases	6.8	6.6
Finance leases	0.1	0.7
Weighted-average discount rate:		
Operating leases	3.8 %	4.3 %
Finance leases	3.9 %	3.7 %

Future lease payments under leases and sublease income as of December 31, 2020 were as follows (in thousands):

	Operating Leases	Finance Leases	Total	Sublease Income
Year Ending December 31,				
2021	\$ 218,869	\$ 569	\$ 219,438	\$ (8,976)
2022	251,548	—	251,548	(1,353)
2023	178,870	—	178,870	—
2024	178,669	—	178,669	—
2025	175,585	—	175,585	—
Thereafter	667,742	—	667,742	—
Total future lease payments (receipts)	1,671,283	569	1,671,852	\$ (10,329)
Less: leases not yet commenced	(528,964)	—	(528,964)	
Less: imputed interest	(145,424)	(2)	(145,426)	
Total lease liabilities	<u>\$ 996,895</u>	<u>\$ 567</u>	<u>\$ 997,462</u>	
Reconciliation of lease liabilities as shown in the consolidated balance sheets				
Operating lease liabilities, short-term	\$ 177,147	\$ —	\$ 177,147	
Operating lease liabilities, long-term	819,748	—	819,748	
Finance lease liabilities, short-term	—	567	567	
Total lease liabilities	<u>\$ 996,895</u>	<u>\$ 567</u>	<u>\$ 997,462</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, 2019	\$ 1,256,699
Acquisitions	50,970
Other	4,677
Balance as of December 31, 2020	<u>\$ 1,312,346</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, 2020:			
Patents and developed technologies	\$ 110,153	\$ (53,265)	\$ 56,888
Other	1,800	(350)	1,450
Total	\$ 111,953	\$ (53,615)	\$ 58,338
December 31, 2019:			
Patents and developed technologies	\$ 96,636	\$ (41,530)	\$ 55,106
Total	\$ 96,636	\$ (41,530)	\$ 55,106

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, 2020, 2019 and 2018 was \$23.6 million, \$16.5 million and \$19.0 million, respectively. During the year ended December 31, 2020, \$11.5 million in gross carrying value and accumulated amortization related to fully-amortized intangible assets was eliminated.

Estimated future amortization expense as of December 31, 2020 is as follows (in thousands):

2021	\$ 21,583
2022	14,528
2023	7,843
2024	6,026
2025	1,863
Thereafter	6,495
Total	\$ 58,338

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, 2020	December 31, 2019
Accrued compensation	\$ 171,681	\$ 190,465
Federal Trade Commission accrual (see Note 16)	150,000	—
Deferred revenue	58,976	68,987
Accrued publisher, content and ad network costs	42,541	45,265
Accrued tax liabilities	40,384	45,967
Accrued professional services	27,404	38,596
Accrued other	171,979	111,613
Total	\$ 662,965	\$ 500,893

Note 10. Acquisitions and Other Investments

2020 Acquisitions

During the year ended December 31, 2020, the Company made a number of acquisitions, which were accounted for as business combinations. The total purchase price for these acquisitions was \$69.7 million, which was allocated as follows: \$13.8 million to developed technologies and other acquired intangible assets, \$4.9 million to net assets assumed based on their estimated fair value on the acquisition date, and the excess \$51.0 million of the purchase price over the fair value of net assets acquired to goodwill. The goodwill from the acquisitions is mainly attributable to assembled workforce, expected synergies and other benefits. The goodwill is not tax deductible. Developed technologies and other acquired intangible assets will be amortized on a straight-line basis over their estimated useful lives of up to three years.

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

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 are amortized on a straight-line basis over their estimated useful lives of up to three years.

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

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 results of operations.

Investments in Privately-Held Companies

The Company makes strategic investments in privately-held companies that primarily consist of non-marketable equity securities without readily determinable fair values. The Company's non-marketable equity securities had a combined carrying value of \$85.8 million and \$77.7 million as of December 31, 2020 and 2019, respectively. As of December 31, 2020, the Company committed to provide up to \$60.0 million of bridge financing to one of its investments in privately-held companies. The loan contains a conversion feature where the Company may convert all or any part of the outstanding loan into preference shares through June 30, 2021. No amount was funded as of December 31, 2020. The maximum loss the Company can incur for its investments is their carrying value and any future funding commitments.

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. In the years ended December 31, 2020, 2019 and 2018, the Company recorded \$8.8 million, \$1.6 million, and \$3.0 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 such gains were recorded in the years ended December 31, 2020 and 2018.

Note 11. Senior Notes and Convertible Notes

Senior Notes

2027 Notes

In 2019, the Company issued \$700.0 million aggregate principal amount of the 3.875% senior notes due 2027, or the 2027 Notes, in a private placement to qualified institutional buyers pursuant to Rule 144A under the Securities Act of 1933, as amended, and outside the United States pursuant to Regulation S under the Securities Act of 1933. The total net proceeds from this offering were approximately \$691.9 million, after deducting \$8.1 million of debt issuance costs in connection with the issuance of the 2027 Notes.

The 2027 Notes represent senior unsecured obligations of the Company. The interest rate is fixed at 3.875% per annum and interest is payable semi-annually in arrears on June 15 and December 15 of each year, which commenced on June 15, 2020. The 2027 Notes mature on December 15, 2027.

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

2025 Notes

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

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

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

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

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

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

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

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

2021 Notes and 2024 Notes

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

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

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

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 on or after March 15, 2021 until close of business on the second scheduled trading day immediately preceding the maturity date of September 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 March 15, 2021 and March 15, 2024 for the 2021 Notes and 2024 Notes, respectively, 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, 2020.

Senior Notes and Convertible Notes

The Notes consisted of the following (in thousands):

	December 31, 2020				December 31, 2019		
	2021 Notes	2024 Notes	2025 Notes	2027 Notes	2021 Notes	2024 Notes	2027 Notes
Principal amounts:							
Principal	\$ 954,000	\$ 1,150,000	\$ 1,000,000	\$ 700,000	\$ 954,000	\$ 1,150,000	\$ 700,000
Unamortized debt discount and issuance costs ⁽¹⁾	(36,134)	(160,297)	(113,825)	(7,006)	(84,652)	(202,515)	(8,033)
Net carrying amount	\$ 917,866	\$ 989,703	\$ 886,175	\$ 692,994	\$ 869,348	\$ 947,485	\$ 691,967
Carrying amount of the equity component ⁽²⁾	\$ 283,283	\$ 254,981	\$ 121,413	\$ —	\$ 283,283	\$ 254,981	\$ —

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

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

During the years ended December 31, 2020, 2019, and 2018, the Company recognized \$112.2 million, \$123.6 million and \$115.4 million, respectively, of interest expense related to the amortization of debt discount and issuance costs prior to capitalization of interest. The Company recognized \$42.6 million, \$15.7 million, and \$13.4 million of coupon interest expense in the years ended December 31, 2020, 2019, and 2018, respectively.

As of December 31, 2020, the remaining life of the 2021 Notes, the 2024 Notes, the 2025 Notes, and the 2027 Notes is approximately 8 months, 41 months, 50 months, and 83 months, respectively.

Note 12. Net Income (Loss) per Share

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

Diluted net income (loss) per share is computed by dividing the net income (loss) attributable to common stockholders by the weighted-average number of common shares outstanding during the period, including potential dilutive common stock instruments. In the year ended December 31, 2020, the Company's potential common stock instruments such as stock options, RSUs, shares to be purchased under the 2013 Employee Stock Purchase Plan, shares subject to repurchases, the conversion feature of the Convertible Notes and the warrants were not included in the computation of diluted loss per share as the effect of including these shares in the calculation would have been anti-dilutive.

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

	Year Ended December 31,		
	2020	2019	2018
Basic net income (loss) per share:			
Numerator			
Net income (loss)	\$ (1,135,626)	\$ 1,465,659	\$ 1,205,596
Denominator			
Weighted-average common shares outstanding	789,887	772,663	756,916
Weighted-average restricted stock subject to repurchase	(2,026)	(1,934)	(2,590)
Weighted-average shares used to compute basic net income (loss) per share	<u>787,861</u>	<u>770,729</u>	<u>754,326</u>
Basic net income (loss) per share attributable to common stockholders	<u>\$ (1.44)</u>	<u>\$ 1.90</u>	<u>\$ 1.60</u>
Diluted net income (loss) per share:			
Numerator			
Net income (loss)	\$ (1,135,626)	\$ 1,465,659	\$ 1,205,596
Denominator			
Number of shares used in basic computation	787,861	770,729	754,326
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	<u>787,861</u>	<u>785,531</u>	<u>772,686</u>
Diluted net income (loss) per share attributable to common stockholders	<u>\$ (1.44)</u>	<u>\$ 1.87</u>	<u>\$ 1.56</u>

The following 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,		
	2020	2019	2018
RSUs	36,611	12,117	14,949
Warrants	32,412	42,246	44,454
Stock options	1,436	3	837
Shares subject to repurchase and others	5,668	1,284	1,951

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

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

Note 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, 2020 and 2019, there was no preferred stock outstanding.

Note 14. Common Stock and Stockholders' Equity

Common Stock

As of December 31, 2020, 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, 2020, 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, 2020, the total number of options, RSUs, and PRSUs outstanding under the 2013 Equity Incentive Plan was 38.6 million shares, and 217.9 million shares were available for future issuance. There were 0.5 million shares of options outstanding under the 2007 Equity Incentive Plan as of December 31, 2020. 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, 2020, 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.

Share Repurchases

In March 2020, the Company's Board of Directors authorized a program to repurchase up to \$2.0 billion of the Company's common stock over time. Repurchases may be made from time to time through open market purchases or through privately negotiated transactions subject to market conditions, applicable legal requirements and other relevant factors. The repurchase program does not obligate the Company to acquire any particular amount of its common stock, and may be suspended at any time at the Company's discretion. In the year ended December 31, 2020, the Company repurchased 5.7 million shares for an aggregate amount of \$250.6 million, including 98,000 shares for \$5.3 million that were not settled as of December 31, 2020 that are presented as treasury stock on the consolidated balance sheets, under the program.

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, 2020 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, 2019	1,428	\$ 24.26
Granted	1,677	\$ 32.90
Vested	(1,107)	\$ 20.66
Unvested restricted common stock at December 31, 2020	1,998	\$ 34.00

Employee Stock Purchase Plan

On November 7, 2013, the Company's 2013 Employee Stock Purchase Plan (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, 2020 and 2019, employees purchased an aggregate of 2.3 million and 1.6 million shares, respectively, under this plan at a weighted average price of \$24.65 and \$26.62 per share, respectively.

Stock Option Activity

A summary of stock option activity for the year ended December 31, 2020 is as follows (in thousands, except years and per share data):

	Options Outstanding			
	Number of Shares	Weighted- Average Exercise Price Per Share	Weighted- Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value
Outstanding at December 31, 2019	3,227	\$ 9.84	2.65	\$ 74,630
Options granted and assumed in connection with acquisitions	128	\$ 7.08		
Options exercised	(1,882)	\$ 2.89		
Options canceled	(37)	\$ 0.91		
Outstanding at December 31, 2020	1,436	\$ 18.97	3.39	\$ 50,534
Exercisable at December 31, 2020	1,415	\$ 18.87	3.32	\$ 49,932

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, 2020, 2019 and 2018 were \$78.5 million, \$13.1 million and \$16.9 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 (PRSUs). These PRSUs are granted when the annual performance targets are set and the awards are approved by the Compensation Committee of the Board of Directors, generally in the first quarter of each financial year. The Company granted PRSUs with a vesting period of one year and three years prior to 2020 and in 2020, respectively.

The following table summarizes the activity related to the Company's PRSUs for the year ended December 31, 2020 (in thousands, except per share data):

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

The PRSUs unvested and outstanding at December 31, 2020 include 729,000 shares of performance-based awards for the 2020 performance period, which are expected to vest at 50% of target, or 365,000 PRSUs over three years, based on the financial results of the 2020 financial year.

The total fair value of PRSUs vested during the year ended December 31, 2020 and 2019 was \$22.7 million and \$23.2 million, respectively.

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

The following table summarizes the activity related to the Company's TSR RSUs for the year ended December 31, 2020 (in thousands, except per share data):

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

The TSR RSUs unvested and outstanding at December 31, 2020 include 430,000 shares of market-based awards for the 2019 to 2020 performance period, which are expected to vest at 52% of target, or 224,000 TSR RSUs in 2021, based on the financial results of the 2019 and 2020 financial years.

The total fair value of TSR RSUs vested during the year ended December 31, 2020 and 2019 was \$13.4 million and \$3.7 million, respectively.

RSU Activity

The following table summarizes the activity related to the Company's RSUs, excluding PRSUs and TSR RSUs, for the year ended December 31, 2020. For purposes of this table, vested RSUs represent the shares for which the service condition had been fulfilled as of each respective date (in thousands, except per share data):

	RSUs Outstanding	
	Shares	Weighted-Average Grant-Date Fair Value Per Share
Unvested and outstanding at December 31, 2019	31,731	\$ 29.74
Granted	23,795	\$ 32.24
Vested	(15,768)	\$ 27.41
Canceled	(3,147)	\$ 30.78
Unvested and outstanding at December 31, 2020	36,611	\$ 32.28

The total fair value of RSUs vested during the years ended December 31, 2020, 2019, and 2018 was \$557.1 million, \$454.5 million, and \$445.7 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,		
	2020	2019	2018
Cost of revenue	\$ 32,020	\$ 22,797	\$ 17,289
Research and development	281,092	209,063	183,799
Sales and marketing	98,748	85,739	71,305
General and administrative	63,072	60,426	53,835
Total stock-based compensation expense	\$ 474,932	\$ 378,025	\$ 326,228

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, 2020, 2019 and 2018.

The Company capitalized \$34.6 million, \$37.5 million and \$41.4 million of stock-based compensation expense associated with the cost for developing software for internal use in the years ended December 31, 2020, 2019 and 2018, respectively.

As of December 31, 2020, there was \$1.14 billion of gross unamortized stock-based compensation expense related to unvested awards which is expected to be recognized over a weighted-average period of 2.7 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, 2020, 2019 and 2018 are as follows (in thousands):

	Year Ended December 31,		
	2020	2019	2018
Domestic	\$ (72,850)	\$ 317,135	\$ 193,500
Foreign	21,911	73,004	230,044
Income (loss) before income taxes	\$ (50,939)	\$ 390,139	\$ 423,544

The components of the provision (benefit) for income taxes for the years ended December 31, 2020, 2019 and 2018 are as follows (in thousands):

	Year Ended December 31,		
	2020	2019	2018
Current:			
Federal	\$ (199)	\$ 563	\$ (1,661)
State	677	3,375	4,083
Foreign	19,813	43,053	17,246
Total current provision for income taxes	<u>20,291</u>	<u>46,991</u>	<u>19,668</u>
Deferred:			
Federal	(35,651)	2,023	(711,084)
State	(2,248)	2,050	(49,047)
Foreign	1,102,295	(1,126,584)	(41,589)
Total deferred provision (benefit) for income taxes	<u>1,064,396</u>	<u>(1,122,511)</u>	<u>(801,720)</u>
Provision (benefit) for income taxes	<u>\$ 1,084,687</u>	<u>\$ (1,075,520)</u>	<u>\$ (782,052)</u>

The following is a reconciliation of the income tax at the federal statutory rate to the Company's provision (benefit) for income taxes for the years ended December 31, 2020, 2019 and 2018 (in thousands):

	Year Ended December 31,		
	2020	2019	2018
Income tax at federal statutory rate	\$ (10,697)	81,929	\$ 88,944
State taxes, net of federal benefit	(1,246)	4,286	(35,521)
Stock-based compensation	(27,127)	(19,005)	(27,228)
Research and development credits	(40,707)	(33,044)	(23,490)
Valuation allowance	1,104,732	(724)	(758,707)
Nondeductible other expenses	7,438	12,266	682
Nondeductible Federal Trade Commission settlement accrual	31,500	—	—
Deferred tax asset on intra-entity transfer of intangible assets	—	(1,203,381)	—
Foreign rate differential	22,078	79,186	(27,002)
Other	(1,284)	2,967	270
Provision (benefit) for income taxes	<u>\$ 1,084,687</u>	<u>\$ (1,075,520)</u>	<u>\$ (782,052)</u>

The tax effects of temporary differences and related deferred tax assets and liabilities as of December 31, 2020 and 2019 are as follows (in thousands):

	December 31,	
	2020	2019
Deferred tax assets:		
Net operating loss carryforwards	\$ 421,411	\$ 390,005
Tax credits	485,106	425,011
Fixed assets and intangible assets	1,280,597	1,214,070
Operating lease liability	230,837	170,817
Other	82,596	90,115
Total deferred tax assets	<u>2,500,547</u>	<u>2,290,018</u>
Valuation allowance	(1,457,137)	(223,775)
Total deferred tax assets, net of valuation allowance	<u>1,043,410</u>	<u>2,066,243</u>
Deferred tax liabilities:		
Operating lease right-of-use asset	(215,663)	(157,845)
Other	(32,451)	(1,138)
Total deferred tax liabilities	<u>(248,114)</u>	<u>(158,983)</u>
Net deferred tax assets	<u>\$ 795,296</u>	<u>\$ 1,907,260</u>

During the year ended December 31, 2020, the Company reassessed the ability to realize deferred tax assets by considering the available positive and negative evidence. As of June 30, 2020, the Company concluded that the deferred tax assets in a foreign subsidiary were not more-likely-than-not to be realized and recorded a full valuation allowance against such deferred tax assets in the approximate amount of \$1.10 billion. In evaluating the need for a valuation allowance, the Company considered its recent operating results which resulted in a cumulative taxable loss in the foreign subsidiary for the twelve quarters ended June 30, 2020. The twelve quarters cumulative taxable losses from operations is considered a significant piece of negative evidence and outweighs other positive evidence, such as projections of future income. The twelve quarters cumulative taxable losses and projected near-term losses in the foreign subsidiary were largely driven by the negative impact from the COVID-19 pandemic as it caused decreased advertiser demand in the first half of 2020. If there are favorable changes to actual operating results or to projections of future income, the Company may determine that it is more-likely-than-not such deferred tax assets may be realizable. As of December 31, 2020, there have been no changes to the Company's conclusion.

As of December 31, 2020, the Company had \$796.3 million of deferred tax assets for which it has not established a valuation allowance, related to the U.S. federal, states other than Massachusetts and California, and certain international subsidiaries. The Company completed its reassessment of the ability to realize these assets and concluded that a valuation allowance was not required.

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.

The Company has recorded a valuation allowance of \$1.21 billion against its gross deferred tax asset balance in a foreign subsidiary as of December 31, 2020, a valuation allowance of \$15.2 million and \$13.9 million against its gross U.S. federal deferred tax asset balance as of December 31, 2020, and 2019, respectively, as well as a valuation allowance of \$229.2 million and \$209.9 million against its gross state deferred tax asset balance as of December 31, 2020 and 2019, respectively.

At December 31, 2020, the Company had \$2.19 billion of U.S. federal, \$1.28 billion of U.S. state, and \$59.2 million of Brazil net operating losses, which will begin to expire in 2034 for federal and 2024 for state tax purposes, if not utilized. The Brazil net operating losses have no expiration date. The Company also has \$398.4 million and \$297.1 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, 2020, the Company had \$354.6 million of unrecognized tax benefits, of which \$275.6 million could result in a reduction of the Company's effective tax rate, if recognized. The remainder of the unrecognized tax benefits would not affect the effective tax rate due to the full valuation allowance recorded for California and Massachusetts deferred tax assets. On June 7, 2019, the Ninth Circuit Court of Appeals issued a new opinion in the case of *Altera Corp. v. Commissioner (Altera)*, which upheld Department of Treasury regulations requiring related parties in an intercompany cost-sharing arrangement to share expenses related to stock-based compensation. In February 2020, Altera Corp. filed a petition to appeal the decision with the Supreme Court of the United States. On June 22, 2020, the Supreme Court denied the petition. The Company filed its 2019 U.S. Federal and state tax returns in the fourth quarter of 2020 and included certain adjustments related to Altera for which the Company previously recognized a reserve. As a result, the Company's unrecognized tax benefits decreased by \$96.9 million in the fourth quarter of 2020 with no impact on its effective tax rate.

A reconciliation of the beginning and ending amount of unrecognized tax benefit is as follows (in thousands):

	Year Ended December 31,		
	2020	2019	2018
Gross unrecognized tax benefits at the beginning of the year	\$ 419,858	\$ 332,314	\$ 259,781
Increases related to prior year tax positions	5,943	54,743	20,000
Decreases related to prior year tax positions	(99,540)	(2,537)	(13,174)
Increases related to current year tax positions	28,337	35,338	66,249
Statute of limitations expirations	—	—	(542)
Gross unrecognized tax benefits at the end of the year	<u>\$ 354,598</u>	<u>\$ 419,858</u>	<u>\$ 332,314</u>

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

	December 31,	
	2020	2019
Total unrecognized tax benefits balance	\$ 354,598	\$ 419,858
Amounts netted against related deferred tax assets	(331,339)	(401,818)
Unrecognized tax benefits recorded on consolidated balance sheets	<u>\$ 23,259</u>	<u>\$ 18,040</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, 2020, 2019, and 2018, the Company recognized immaterial amounts of interest and penalties in income tax expense. As of December 31, 2020 and 2019, the Company had \$7.2 million and \$5.3 million of interest and penalties included in uncertain tax positions, respectively.

The Company is subject to taxation in the United States and various foreign jurisdictions. Earnings from non-U.S. activities are subject to local country income tax. The material jurisdictions where the Company is subject to potential examination by tax authorities include the United States, California and Ireland. The Company believes that it has reserved adequate amounts for these jurisdictions. The Company's 2007 to 2019 tax attributes remain subject to potential examination by the United States and California, and its 2016 to 2019 tax years remain subject to potential examination in Ireland. The Company remains subject to potential 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 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, 2020, no amounts had been drawn under the credit facility.

Contractual Obligations

The Company's principal commitments consist of obligations under the Notes (including principal and coupon interest), operating and finance leases for equipment, office space and co-located data center facilities, as well as non-cancellable contractual commitments. The following table summarizes its commitments to settle contractual obligations in cash as of December 31, 2020:

	Payments Due by Year				
	Total	2021	2022-2023	2024-2025	Thereafter
	(In thousands)				
2021 Notes	\$ 963,540	\$ 963,540	\$ —	\$ —	\$ —
2024 Notes	1,160,039	2,867	5,734	1,151,438	—
2025 Notes	1,016,825	3,740	7,480	1,005,605	—
2027 Notes	889,819	27,106	54,213	54,287	754,213
Operating lease obligations ⁽¹⁾	1,671,283	218,869	430,418	354,254	667,742
Finance lease obligations	569	569	—	—	—
Other contractual commitments ⁽²⁾	1,669,012	227,601	519,866	734,827	186,718
Total contractual obligations	<u>\$ 7,371,087</u>	<u>\$ 1,444,292</u>	<u>\$ 1,017,711</u>	<u>\$ 3,300,411</u>	<u>\$ 1,608,673</u>

⁽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 \$10.3 million in sublease income over the next two years.

⁽²⁾ Other contractual commitments are non-cancelable contractual commitments primarily related to the Company's infrastructure services 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. In January 2021, the Company entered into a binding agreement to settle the pending shareholder derivative lawsuits. The proposed settlement resolves all claims asserted against the Company and the other named defendants in the derivative lawsuits without any liability or wrongdoing attributed to them personally or the Company. Under the terms of the proposed settlement, the Company's board of directors will adopt and implement certain corporate governance modifications. In addition, the Company will receive \$38.0 million of insurance proceeds to be used for general corporate purposes. The settlement will not require the Company to make any payment, aside from covering certain administrative costs related to the settlement. The settlement agreement is subject to final approval by the Court of Chancery of the State of Delaware, which is scheduled for March 2021. The shareholder class action remains pending and is scheduled for trial on September 20, 2021.

Beginning in October 2019, putative class actions were filed in the U.S. District Court for the Northern District of California against the Company and certain of the Company's officers alleging violations of securities laws in connection with the Company's announcements that it had discovered and taken steps to remediate issues related to certain user settings designed to target advertising that were not working as expected and seeking unspecified damages. The Company disputes the claims and intends to defend the lawsuit vigorously. In December 2020, the district court dismissed the plaintiffs' claims. The case is currently on appeal to the United States Court of Appeal for the Ninth Circuit.

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

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

On January 15, 2021, a derivative action was filed in the Delaware Chancery Court against certain directors of the Company alleging that the directors violated their fiduciary duties in deciding to enter into the Cooperation Agreement with certain affiliates of Elliott Management Corporation, to enter into the Investment Agreement with an affiliate of Silver Lake Partners, and to authorize a program to repurchase up to \$2.0 billion of the Company's common stock. The Company and the directors dispute the claims and intend to defend the lawsuit vigorously.

The Company is also currently involved in, and may in the future be involved in, legal proceedings, claims, investigations, and government inquiries and investigations arising in the ordinary course of business. These proceedings, which include both individual and class action litigation and administrative proceedings, have included, but are not limited to matters involving content on the platform, intellectual property, privacy, data protection, consumer protection, securities, employment, and contractual rights. Legal fees and other costs associated with such actions are expensed as incurred.

The Company assesses, in conjunction with its legal counsel, the need to record a liability for litigation and contingencies. With respect to the cases, actions, and inquiries described above, the Company evaluates the associated developments on a regular basis and accrues a liability when it believes a loss is probable and the amount can be reasonably estimated. In addition, the Company believes there is a reasonable possibility that it may incur a loss in some of these matters and the loss may be material or exceed its estimated ranges of possible loss. With respect to the matters described above that do not include an estimate of the amount of loss or range of possible loss, such losses or range of possible losses either are not material or may be material but cannot be estimated.

The outcomes of the matters described in this section, such as whether the likelihood of loss is remote, reasonably possible, or probable, or if and when the reasonably possible range of loss is estimable, are inherently uncertain. If one or more of these matters were resolved against the Company for amounts above management's estimates, the Company's financial condition and results of operations, including in a particular reporting period in which any such outcome becomes probable and estimable, could be materially adversely affected.

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, 2020 and 2019.

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 for each of the years ended December 31, 2020 and 2019 and \$25.9 million for the year December 31, 2018. The Company had outstanding receivable balances of \$5.0 million and \$4.2 million from such customers as of December 31, 2020 and 2019, 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 \$11.0 million, \$8.8 million, and \$6.3 million for the years ended December 31, 2020, 2019 and 2018, 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

See Note 6 – Property and Equipment, Net for further details.

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, 2020, 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, 2020 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, 2020. The effectiveness of the Company’s internal control over financial reporting as of December 31, 2020 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, 2020 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, 2020, 2019 AND 2018**

	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, 2020	\$ 223,775	\$ 1,124,132	\$ 109,230	\$ 1,457,137
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

	Balance at Beginning of Year	Additions (Reductions)	Write-off/ Adjustments	Balance at End of Year
(In thousands)				
Allowance for Doubtful Accounts:				
Year ended December 31, 2020	\$ 2,401	\$ 17,190	\$ (2,645)	\$ 16,946
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

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	Incorporated by Reference		
			File No.	Exhibit	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	Indenture, dated March 12, 2020, between Twitter, Inc. and U.S. Bank National Association, as Trustee.	8-K	001-36164	4.1	March 13, 2020
4.9	Form of 0.375% Convertible Senior Notes due 2025.	8-K	001-36164	4.2	March 13, 2020
4.10*	Description of Capital Stock of Twitter, Inc.	10-K	001-36164	4.8	February 19, 2020
10.1**	Form of Indemnification Agreement between Twitter, Inc. and each of its directors and executive officers.	10-Q	001-36164	10.1	August 3, 2020
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	001-36164	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
10.14**	Smyte, Inc. Amended and Restated 2014 Stock Option and Grant Plan and related form agreements.	S-8	333-226447	4.2	July 31, 2018
10.15**	Twitter, Inc. Executive Incentive Compensation Plan.	S-1	333-191552	10.9	October 3, 2013
10.16**	Twitter, Inc. Change of Control and Involuntary Termination Protection Policy.	10-Q	001-36164	10.1	August 11, 2014
10.17**	Twitter, Inc. Outside Director Compensation Policy	10-Q	001-36164	10.1	October 30, 2020
10.18**	Offer Letter between Twitter, Inc. and Jack Dorsey, dated as of June 11, 2015.	8-K	001-36164	10.1	June 11, 2015
10.19**	Letter Agreement between Twitter, Inc. and Omid R. Kordestani, dated as of October 13, 2015.	8-K	001-36164	10.1	October 16, 2015

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10.20**	Offer Letter between Twitter, Inc. and Vijaya Gadde, dated as of October 1, 2013.	S-1/A	333-191552	10.16	October 22, 2013
10.21**	Offer Letter between Twitter, Inc. and Robert Kaiden, dated as of April 24, 2015.	8-K	001-36164	10.1	June 4, 2015
10.22**	Offer Letter between Twitter, Inc. and Ned D. Segal, dated July 11, 2017	8-K	001-36164	10.1	July 11, 2017
10.23	Form of Innovator's Patent Agreement.	S-1	333-191552	10.19	October 3, 2013
10.24	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.	S-1	333-191552	10.18	October 3, 2013
10.25	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.	S-1/A	333-191552	10.21	October 22, 2013
10.26	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.	8-K	001-36164	10.1	September 10, 2014
10.27	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.	8-K	001-36164	10.4	June 11, 2018
10.28	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.	8-K	001-36164	10.1	August 10, 2018
10.29	Form of Convertible Note Hedge Confirmation.	8-K	001-36164	10.2	September 17, 2014
10.30	Form of Warrant Confirmation.	8-K	001-36164	10.3	September 17, 2014
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
10.33	Investment Agreement, dated as of March 9, 2020, among Twitter, Inc. and Silver Lake Partners V DE (AIV), L.P.	8-K	001-36164	10.1	March 9, 2020
10.34	Cooperation Agreement, dated as of March 9, 2020, among Twitter, Inc., Elliott Investment Management L.P., Elliott Associates, L.P. and Elliott International L.P.	8-K	001-36164	10.2	March 9, 2020
21.1	List of subsidiaries of Twitter, Inc.	10-K	001-36164	21.1	February 19, 2020
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 17, 2021

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 17, 2021
<u>/s/ Ned Segal</u> Ned Segal	Chief Financial Officer (Principal Financial Officer)	February 17, 2021
<u>/s/ Robert Kaiden</u> Robert Kaiden	Chief Accounting Officer (Principal Accounting Officer)	February 17, 2021
<u>/s/ Jesse Cohn</u> Jesse Cohn	Director	February 17, 2021
<u>/s/ Egon Durban</u> Egon Durban	Director	February 17, 2021
<u>/s/ Omid Kordestani</u> Omid Kordestani	Director	February 17, 2021
<u>/s/ Martha Lane Fox</u> Martha Lane Fox	Director	February 17, 2021
<u>/s/ Fei-Fei Li</u> Fei-Fei Li	Director	February 17, 2021
<u>/s/ Patrick Pichette</u> Patrick Pichette	Director	February 17, 2021
<u>/s/ Ngozi Okonjo-Iweala</u> Ngozi Okonjo-Iweala	Director	February 17, 2021
<u>/s/ David Rosenblatt</u> David Rosenblatt	Director	February 17, 2021
<u>/s/ Bret Taylor</u> Bret Taylor	Director	February 17, 2021
<u>/s/ Robert Zoellick</u> Robert Zoellick	Director	February 17, 2021

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-240303, 333-236521, 333-229779, 333-192150, 333-195743, 333-198055, 333-202443, 333-204774, 333-207597, 333-209840, 333-212740, 333-216291, 333-226447 and 333-223205) and Form S-3 (No. 333-238722) of Twitter, Inc. of our report dated February 17, 2021 relating to the financial statements, financial statement schedule and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP

San Francisco, California

February 17, 2021

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

I, Jack Dorsey, certify that:

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

Date: February 17, 2021

/s/ Jack Dorsey

Jack Dorsey
Chief Executive Officer
(Principal Executive Officer)

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

I, Ned Segal, certify that:

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

Date: February 17, 2021

/s/ Ned Segal

Ned Segal
Chief Financial Officer
(Principal Financial Officer)

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

I, Jack Dorsey, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report on Form 10-K of Twitter, Inc. for the fiscal year ended December 31, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Annual Report on Form 10-K fairly presents, in all material respects, the financial condition and results of operations of Twitter, Inc.

Date: February 17, 2021

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

I, Ned Segal, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report on Form 10-K of Twitter, Inc. for the fiscal year ended December 31, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Annual Report on Form 10-K fairly presents, in all material respects, the financial condition and results of operations of Twitter, Inc.

Date: February 17, 2021

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