

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 001-37879

THE TRADE DESK, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

27-1887399
(I.R.S. Employer
Identification No.)

42 N. Chestnut Street
Ventura, California 93001
(Address of principal executive offices, including zip code)
(805) 585-3434
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Class A Common Stock, par value \$0.000001 per share	TTD	The Nasdaq Stock Market LLC

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, a smaller reporting company or an emerging growth company. See the definition 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 as of June 30, 2020, based on the closing sales price for the Registrant's Class A common stock, as reported on the NASDAQ Global Market, was approximately \$16,815,566,802. As of January 31, 2021, there were 42,598,726 shares of the registrant's Class A common stock outstanding and 4,780,900 shares of the registrant's Class B common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for the 2021 Annual Meeting of Stockholders are incorporated by reference in Part III of this Annual Report on Form 10-K to the extent stated herein. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2020.

THE TRADE DESK, INC.
ANNUAL REPORT ON FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2020

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SPECIAL NOTE ABOUT 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. Forward-looking statements generally relate to future events or our future financial or operating performance and may include statements concerning, among other things, our business strategy (including anticipated trends and developments in, and management plans for, our business and the markets in which we operate), financial results, operating results, revenues, operating expenses, and capital expenditures, sales and marketing initiatives and competition. In some cases, you can identify forward-looking statements because they contain words such as “may,” “might,” “will,” “should,” “expects,” “plans,” “anticipates,” “could,” “intends,” “target,” “projects,” “contemplates,” “believes,” “estimates,” “predicts,” “suggests,” “potential” or “continue” or the negative of these words or other similar terms or expressions that concern our expectations, strategy, plans or intentions. These statements are not guarantees of future performance; they reflect our current views with respect to future events and are based on assumptions and are subject to known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from expectations or results projected or implied by forward-looking statements.

We discuss many of these risks in Item 1A of this Annual Report on Form 10-K in greater detail under the heading “Risk Factors” and in other filings we make from time to time with the Securities and Exchange Commission, or SEC. Also, these forward-looking statements represent our estimates and assumptions only as of the date of this Annual Report on Form 10-K, which are inherently subject to change and involve risks and uncertainties. Unless required by federal securities laws, we assume no obligation to update any of these forward-looking statements, or to update the reasons actual results could differ materially from those anticipated, to reflect circumstances or events that occur after the statements are made. Given these uncertainties, investors should not place undue reliance on these forward-looking statements.

Investors should read this Annual Report on Form 10-K and the documents that we reference in this report and have filed with the SEC completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

SUMMARY OF RISK FACTORS

The following is a summary of the principal risks described below in Part I, Item 1A “Risk Factors” in this Annual Report on Form 10-K. We believe that the risks described in the “Risk Factors” section are material to investors, but other factors not presently known to us or that we currently believe are immaterial may also adversely affect us. The following summary should not be considered an exhaustive summary of the material risks facing us, and it should be read in conjunction with the “Risk Factors” section and the other information contained in this Annual Report on Form 10-K.

- If we fail to maintain and grow our client base and spend through our platform, our revenue and business may be negatively impacted.
- The loss of advertising agencies as clients could significantly harm our business, financial condition and results of operations.
- If we fail to innovate or make the right investment decisions in our offerings and platform, we may not attract and retain advertisers and advertising agencies and our revenue and results of operations may decline.
- The market for programmatic buying for advertising campaigns is relatively new and evolving. If this market develops slower or differently than we expect, our business, growth prospects and financial condition would be adversely affected.
- The effects of health epidemics, such as the ongoing global COVID-19 pandemic, have had, and could in the future have, an adverse impact on our business, financial condition and results of operations.
- The market in which we participate is intensely competitive, and we may not be able to compete successfully with our current or future competitors.
- We often have long sales cycles, which can result in significant time between initial contact with a prospect and execution of a client agreement, making it difficult to project when, if at all, we will obtain new clients and when we will generate revenue from those clients.
- We are subject to payment-related risks that may adversely affect our business, working capital, financial condition and results of operations, including from advertising agencies that do not pay us until they receive payment from their advertisers and from clients that dispute or do not pay their invoices.
- Any decrease in the use of the advertising channels that we are primarily dependent upon, failure to expand the use of emerging channels, or unexpected shift in use among the channels in which we operate, could harm our growth prospects, financial condition and results of operations.
- If our access to quality advertising inventory is diminished or fails to expand, our revenue could decline and our growth could be impeded.
- Seasonal fluctuations in advertising activity could have a negative impact on our revenue, cash flow and results of operations.
- We may experience outages and disruptions on our platform if we fail to maintain adequate security and supporting infrastructure as we scale our platform, which may harm our reputation and negatively impact our business, financial condition and results of operations.

- If unauthorized access is obtained to user, client or inventory and third-party provider data, or our platform is compromised, our services may be disrupted or perceived as insecure, and as a result, we may lose existing clients or fail to attract new clients, and we may incur significant reputational harm and legal and financial liabilities.
- Privacy and data protection laws to which we are subject may cause us to incur additional or unexpected costs, subject us to enforcement actions for compliance failures, or cause us to change our platform or business model, which may have a material adverse effect on our business.
- Third parties control our access to unique identifiers, and if the use of “third-party cookies” or other technology to uniquely identify devices is rejected by Internet users, restricted or otherwise subject to unfavorable regulation, blocked or limited by technical changes on end users’ devices and web browsers, or our and our clients’ ability to use data on our platform is otherwise restricted, our performance may decline, and we may lose advertisers and revenue.
- The market price of our Class A common stock may be volatile or may decline regardless of our operating performance, and you may not be able to resell your shares at or above your purchase price.
- Substantial future sales of shares of our common stock could cause the market price of our Class A common stock to decline.
- Insiders have substantial control over our company, including as a result of the dual class structure of our common stock, which could limit your ability to influence the outcome of key decisions, including a change of control.

This section contains forward-looking statements. You should refer to the explanation of the qualifications and limitations on forward-looking statements described above.

PART I

Item 1. Business

Overview

The Trade Desk, Inc. (the “Company,” “we,” “our,” or “The Trade Desk”) is a technology company that empowers buyers of advertising. Through our self-service, cloud-based platform, ad buyers can create, manage, and optimize more expressive data-driven digital advertising campaigns across ad formats and channels, including display, video, audio, in-app, native and social, on a multitude of devices, such as computers, mobile devices, and connected TV (“CTV”). Our platform’s integrations with major inventory, publisher, and data partners provides ad buyers reach and decisioning capabilities, and our enterprise application programming interfaces (“APIs”) enable our clients to develop on top of the platform.

We commercially launched our platform in 2011, targeting the display advertising channel. Since launching, we have added additional advertising channels. In 2020, the gross spend on our platform came from multiple channels including mobile, video (which includes CTV), display, audio, native and social channels.

Our clients are primarily the advertising agencies and other service providers for advertisers, with whom we enter into ongoing master services agreements (“MSAs”). We generate revenue by charging our clients a platform fee based on a percentage of a client’s total spend on advertising. We also generate revenue from providing data and other value-added services and platform features.

The Trade Desk is a Delaware corporation established in 2009 and headquartered in Ventura, California.

Our Industry

We believe that several trends in the advertising industry, happening in parallel, are driving a shift to programmatic advertising – the selling and buying of advertising inventory electronically.

Some of the key industry trends are:

Media is Becoming Digital. Media is increasingly becoming digital as a result of advances in technology and changes in consumer behavior. This shift has enabled unprecedented options for advertisers to target and measure their advertising campaigns across nearly every media channel and device. The digital advertising market is a significant and growing part of the total advertising market. We believe that the market is evolving and that advertisers will shift more spend to digital media. Since media is becoming increasingly digital, decisions based on consumer and behavioral data are more prevalent.

Fragmentation of Audience. As digital media grows, audience fragmentation is accelerating. A growing “long tail” of mobile applications (apps), media players, websites and content presents a challenge for advertisers trying to reach a large audience. Audience fragmentation has substantially impacted TV content distribution, perhaps more than any other channel, which we believe is changing how TV advertising inventory is monetized. Mirroring the fragmentation occurring in content, the number of devices used by individual consumers has increased. Both of these fragmentation trends are opportunities for technology companies that can consolidate and simplify media buying options for advertisers and their agencies.

Convergence of TV and the Internet. We are witnessing a generational shift from linear TV to CTV with the convergence of the Internet and television programming. New technologies allow more video content to be delivered more seamlessly over the Internet, accelerating consumer demand to watch what they want, when they want and where they want. The current worldwide rollout of 5G, the fifth generational standard for wireless networks, will bring significantly faster data transfer speeds with less latency, and a better user experience, to consumers of mobile video. We believe these technologies will continue to feed consumer demand for CTV (including mobile video) and bring about new opportunities for content owners and advertisers to connect with consumers.

Increased Use of Data. Advances in software and hardware and the growing use of the Internet have made it possible to collect and rapidly process massive amounts of user data. Data vendors are able to collect user information across a wide range of Internet properties and connected devices, aggregate it and combine it with other data sources. This data is then made non-identifiable and available within seconds based on specific parameters and attributes. Advertisers can integrate this targeting data with their own or an agency’s proprietary data relating to client attributes, the advertisers’ own store locations and other related characteristics. Through the use of these types of data sources, together with real-time feedback on consumer reactions to the ads, programmatic advertising increases the value of impressions for advertisers and inventory owners, and viewers receive more relevant ads.

Automation of Ad Buying. The growing complexity of digital advertising has increased the need for automation. Technology that enables fast, accurate and cost-effective decision-making through the application of computer algorithms that use extensive data sets has become critical for the success of digital advertising campaigns. Using programmatic inventory buying tools, advertisers are able to automate their campaigns, providing them with better price discovery, on an impression-by-impression basis. As a result, advertisers are able to bid on and purchase the advertising inventory they value the most, pay less for advertising inventory they do not value as much, and abstain from buying advertising inventory that does not fit their campaign parameters.

Digital Advertising Ecosystem

The digital advertising eco-system is divided into buyers, sellers and marketplaces, which can be further segmented on the basis of whether participants provide services or technology. We believe that participants on the buy-side or sell-side should be advocates for their buyers or sellers, while those in the marketplace business should act as a referee or have market-driven incentives to protect or enhance the integrity of the marketplace. We believe that there are inherent conflicts of interest when market participants serve both buyers and sellers.

What We Do

We empower ad buyers, by providing a self-service omnichannel software platform that enables our clients to purchase and manage data-driven digital advertising campaigns. Our platform allows clients to manage integrated advertising campaigns across various advertising channels and formats, including display, video, audio, native and social, on a multitude of devices, including computers, mobile devices, and CTV.

- ***We Are Exclusively Focused on the Buy-Side.*** We focus on buyers since they control the advertising budgets. Also, the supply of digital advertising inventory exceeds demand, and accordingly, we believe it is a buyer's market. We also believe that by aligning our business only with buyers, we are able to avoid inherent conflicts of interest that exist when serving both the buy-side and sell-side. This focus allows us to build trust with clients, many of whom leverage their proprietary data on our platform. That trust and ability to use their own data on our platform, without worrying about it being used by other participants, enables our clients and their advertisers to achieve better results. This trust provides us the benefit of long-term and stable relationships with our clients.
- ***We Are an Enabler, Not a Disruptor.*** With our platform, we enable advertising agencies and other service providers. Advertisers can benefit from a comprehensive solution that combines our platform with the services provided by advertising agencies.
- ***We Are Data-Driven.*** Our platform was founded on the principle that data-driven decisions will be the future of advertising. We built a data management platform first, before building our ad buying technology. While data from disparate third-party data providers can improve campaign performance, our clients' success often relies largely on our ability to ingest proprietary data directly from brands and their agencies to enable intelligent decisioning that optimizes advertising campaigns. Given our independent, buy-side focused approach, and our strict protocol of carefully earmarking all client first-party data we ingest onto our data management platform, our clients trust us with their most granular and expressive data. Our technology platform enables the effective use of this granular data, which allows our clients to run precisely targeted advertising campaigns that maximize their return on advertising investments. Additionally, we are able to better optimize campaigns by using the data streams that we capture across different devices, so that data from one channel can be used to inform another. The breadth of data that we collect from a multitude of data sources across channels gives our clients a holistic view of their target audiences, enabling more effective targeting across different channels.
- ***We Do Not Arbitrage Advertising Inventory.*** To further align our interests with those of our clients, we do not buy advertising inventory in order to resell it to our clients for a profit. Instead, we provide our clients with a platform that allows them to manage their omnichannel advertising campaigns, on a self-serve basis with robust reporting. With our platform, our clients control their campaign spend and are able to access and choose from many inventory sources.
- ***We Have Ongoing Relationships with Clients.*** We derive substantially all of our revenue from ongoing MSAs with our clients rather than episodic insertion orders. We believe that this approach helps us strengthen our relationships with our clients and grow their use of our platform over the long term, providing us with a highly scalable business model.
- ***We Are a Clear Box, Not a Black Box.*** Our platform is transparent and shows our clients their costs of advertising inventory and data, our platform fee, and detailed performance metrics on their advertising campaigns. Our clients directly access and execute campaigns on our platform, control all facets of inventory purchasing decisions, and receive detailed, real-time reporting on all their advertising campaigns. By providing transparent information on our platform, our clients are able to continually compare results and target their budgets to the most effective advertising inventory, data providers, and channels.
- ***We Are an Open Platform.*** Clients can customize and build their own features on top of our platform. Clients may use our APIs to, for example, design their own user interface, bulk manage advertising campaigns, and link other systems, including ad servers or reporting tools. By using our APIs or by working with our engineering team, clients can invest their own resources to build their own proprietary tools for reporting, campaign strategy, custom algorithms, proprietary data use, or other use cases. Our open platform approach enables our advertising agency and service provider clients to provide differentiated offerings to their clients, which we believe leads to long-term relationships and increased use of our platform.

Our Platform

At the core of our platform is our bid-factor based architecture, which we believe has advantages over line-item based architectures that other buy-side systems use. Our bid-factor-based system allows users to define desirable factors and the value associated with those factors. Based on these factors, our platform can compute in real-time the value of impressions and bid only for optimal impressions. Because of the granularity of the bid factors, users of our platform can rapidly create billions of different bid permutations with only a few clicks. This expressiveness enables better targeting, pricing and campaign results.

Our platform is useful and user-friendly based on the following:

- **Easy to Use, Open and Customizable.** Our platform provides multiple, easy-to-use automation tools that help our users focus on managing the key factors affecting their campaigns. Our platform also enables clients to integrate custom features and interfaces for their own use through our APIs.
- **Expressiveness.** Our platform allows clients to easily define and manage advertising campaigns with multiple targeting parameters that could result in quadrillions of permutations, which we refer to as expressiveness. We believe that expressiveness provides clients with the ability to target audiences with an extremely high level of precision and thus obtain higher returns on their advertising spend.
- **Integrated, Omnichannel and Cross-device.** Our platform provides integrated access to a wide range of omnichannel inventory and data sources, as well as third-party services such as ad servers, ad verification services and survey vendors. Our platform's integration of these sources and services enables our clients to deploy their budgets through a wide variety of channels, media screens and formats, targeted in their desired manner, through a single platform.

Some of the key features of our platform are:

- **Auto-Optimization.** We provide auto-optimization features that allow buyers to automate their campaigns and support them with computer generated modeling and decision making. In addition, by giving clients full reporting, budgeting, and bidding transparency, clients can take control of targeting variables when desired, and apply algorithmic automation when appropriate.
- **Advanced Reporting and Analytics Tools.** We provide a comprehensive view of consumers' interactions with the ads purchased through our platform with robust reporting of performance insights across multiple variables, such as audience characteristics, ad format, site category, website, device, creative type, and geography. Better reporting results in better learning, often leading to better campaign optimization and outcomes.
- **Data Management.** Our platform enables clients to license a broad selection of data from third-party vendors in a seamless and easy manner, allowing them to further optimize their campaigns with the most relevant data.
- **Koa Artificial Intelligence.** Koa, a predictive engine that helps platform users make data-driven decisions without sacrificing control or transparency, makes recommendations for campaign optimizations based on its sophisticated analysis of rich data sets. Advertisers can then choose which optimizations make the most sense for their campaigns.
- **Media Planner.** An omnichannel solution designed for digital media professionals to generate, analyze, and launch data-driven, programmatic media plans. This tool analyzes the actions of existing core audiences with the data we see across the open Internet to deliver a fully transparent, performance-focused, and ready-to-activate campaign.
- **Private Marketplace Support.** For clients who wish to transact directly with individual publishers, we offer a comprehensive user interface for discovering and transacting via a wide variety of private contracts. Additionally, we offer a solution for advertisers to access publisher inventory via a direct tag in a publisher's ad server where there is no other programmatic access to such publisher's inventory.

Our platform enables a media planner or buyer at an advertising agency to:

- purchase digital media programmatically on various media exchanges and sell-side platforms;
- acquire and use third-party data to optimize and measure digital advertising campaigns;
- integrate and deploy their proprietary first-party data with our platform in order to optimize campaign efficacy;
- monitor and manage ongoing digital advertising campaigns on a real-time basis;
- link digital campaigns to offline sales results or other business objectives;
- access other services such as our data management platform and publisher management platform marketplace; and
- use our user interface and APIs to build their own proprietary technology on top of our platform.

Our Technology

The core elements of our technology are:

- **Scalable Architecture.** Our platform infrastructure is hosted in data centers in eight countries around the world. Our core bidding architecture is easily adaptable to a variety of inventory formats, allowing our platform to communicate with many different inventory sources.
- **Predictive Models.** We use the massive data captured by our platform to build predictive models around user characteristics, such as demographic, purchase intent or interest data. Data from our platform is continually fed back into these models, which enables them to improve over time as the use of our platform increases.
- **Performance Optimization.** During campaign execution, our optimization engine continually scores a variety of attributes of each impression, such as website, industry vertical or geography, for their likelihood to achieve campaign performance goals. Our bidding engine then shifts bids and budgets in real-time to deliver optimal performance. Additionally, our platform enables clients to set multiple, simultaneous optimization goals for their advertising.
- **Real-time Analytics.** Our platform continuously collects data regarding inventory availability. Real-time campaign delivery and spend totals are used to manage campaign budgets and goal caps, as well as campaign reporting. This data is fed back into our optimization engine to improve campaign performance, and into machine-learning models for user demographic predictive modeling.

Our Growth Strategy

The key elements of our long-term growth strategy include:

- **Increase Our Share of Existing Clients' Digital Advertising Spend.** Many advertisers are moving a greater percentage of their advertising budgets to programmatic channels. We believe that this shift will provide us with the opportunity to capture a larger share of the overall advertising spend by our existing clients. Additionally, we plan to promote additional services and data to our clients, helping us grow our business.
- **Grow Our Client Base.** We have extensive relationships with many advertising agencies and other service providers, and believe that, given the decentralized nature of the advertising industry, we have the opportunity to expand our relationships within these agencies and with additional agencies, advertisers, and service providers. We expect to continue making investments in growing our sales and client service team to support this strategy.
- **Expand Our Omnichannel Capabilities.** We believe offering clients capabilities across all media channels and devices enables advertisers to manage omnichannel campaigns and use data from each channel to inform decisions in other channels. We believe these capabilities will continue to further strengthen our relationships with our clients. We intend to continue to invest in innovation across all channels, including the integration of new inventory sources within CTV, digital radio, social, native, and digital out of home.
- **Extend Our Reach in CTV.** Television is the largest category of advertising spend, and we believe that the future of television is in streaming media and video on demand through subscription services and connected devices. We plan to invest significant resources in technology, sales and support staff related to our CTV growth initiatives.
- **Continue to Innovate in Technology and Data.** We intend to continue to innovate in technology to improve our platform and enhance its features and functionalities. We view data as one of our key competitive advantages. We will continue to invest resources in growing our data offerings, both from third-party providers as well as our proprietary data.
- **Expand Our International Presence.** Many of our clients serve advertisers on a global basis and we intend to expand our presence outside of the United States, or U.S., to serve the needs of those advertisers in additional geographies. As we expand relationships with our existing clients, we are investing in select regions in Europe and Asia. In particular, we believe that China and Indonesia may represent substantial growth opportunities, and we are investing in developing our business in those markets.
- **Build Industry-Wide Collaboration and Support for Unified ID 2.0.** We intend to build support for Unified ID 2.0, a new open-source identity framework under development that aims to preserve the value of relevant advertising on the open internet without reliance upon third-party cookies, while giving consumers more transparency and control over their data.

Our Clients

Our clients consist of purchasers of programmatic advertising inventory and data. As of December 31, 2020, we had approximately 875 clients, consisting primarily of advertising agencies or groups within advertising agencies that have independent relationships with us, manage budgets independently of one-another, are based in different jurisdictions, and are served by unique Trade Desk teams. Many of these agencies are owned by holding companies, where decision-making is decentralized such that

purchasing decisions are made, and relationships with advertisers are located, at the agency, local branch or division level. Our client count includes only those parties which have signed MSAs with us and have spent more than \$20,000 on our platform.

If all of our individual client contractual relationships were aggregated at the holding company level, two clients would have each represented more than 10% of our gross billings in 2020, two clients would have each represented more than 10% of our gross billings in 2019 and two clients would have each represented more than 10% of our gross billings in 2018. Our contractual and billing arrangement with Omnicom Group Inc. is at the holding company level and accounted for 10% of our gross billings in 2019 and 2018. For Publicis Groupe and WPP plc, we enter into separate contracts and billing relationships with various of its individual agencies and account for them as separate clients. We do not have any contractual relationship with Publicis Groupe or the holding company WPP plc. Publicis Media Inc., which is affiliated with Publicis Groupe, accounted for 11% of our gross billings in 2020, 13% of our gross billings in 2019 and 20% in 2018. WPP plc, if our contractual relationships were aggregated at the holding company level, would have accounted for 11% of gross billings in 2020.

Our clients typically enter into MSAs with us that give users constant access to our platform. The MSAs do not contain any material commitments on behalf of clients to use our platform to purchase ad inventory, data or other features. These MSAs typically have one-year terms that renew automatically for additional one-year periods, unless earlier terminated. The MSAs are typically terminable at any time upon 60 days' notice by either party.

Our clients are loyal, as reflected by our client retention rate of over 95% in 2020, 2019 and 2018. In addition, our clients typically grow their use of our platform over time.

Our Advertising and Data Inventory Suppliers

For suppliers of programmatic advertising inventory and data, we believe that we are an important business partner, as we represent one of the largest sources of buy-side demand within the digital advertising industry.

We obtain digital advertising inventory from 82 directly integrated ad exchanges and supply-side platforms, providing us with access to a breadth of programmatic advertising inventory across computers, mobile devices and CTV.

For third-party data vendors, we believe that we represent an important distribution channel. As of December 31, 2020, we have integrated our platform with 237 third-party data vendors whose products we make available for purchase through our platform.

Sales and Marketing

Given our self-serve business model, we focus on supporting, advising and training our clients to use our platform independently as soon as they are ready to transact.

Once a new client has access to our platform, they work closely with our client service teams, which onboard the new client and provide continuous support throughout the early campaigns. Typically, once a client has gained some initial experience, it will move to a fully self-serve model and request support as needed.

To help train our clients, suppliers and other digital media participants, we have created an e-learning program called The Trade Desk Edge Academy. We believe that this initiative is an important component in our strategy of enabling rapid onboarding to our platform.

Our marketing efforts are focused on increasing awareness for our brand, executing thought-leadership initiatives, supporting our sales team and generating new leads. We seek to accomplish these objectives by presenting at industry conferences, hosting client conferences, publishing white papers and research, public relations activities, social media presence and advertising campaigns.

Technology and Development

Rapid innovation is a core driver of our business success and our corporate culture. We prioritize and align our product roadmap with our clients' needs, and we aim to refresh our platform weekly. Our development teams are intentionally lean and nimble in nature, providing for transparency and accountability.

We expect technology and development expense to increase as we continue to invest in the development of our platform to support additional features and functions, increase the number of advertising and data inventory suppliers and ramp up the volume of advertising spending on our platform. We also intend to invest in technology to further automate our business processes.

Seasonality

In the advertising industry, companies commonly experience seasonal fluctuations in revenue. For example, many advertisers allocate the largest portion of their budgets to the fourth quarter of the calendar year in order to coincide with increased holiday purchasing. Historically, the fourth quarter of the year reflects our highest level of advertising activity and the first quarter reflects the lowest level of such activity. We expect our revenue to continue to fluctuate based on seasonal factors that affect the advertising industry as a whole.

Our Competition

Our industry is highly competitive and fragmented. We compete with other demand-side platform providers, some of which are smaller, privately-held companies and others are divisions of large, well-established companies such as AT&T, Google and Adobe. We believe that we compete primarily based on the performance, capabilities and transparency of our platform and our focus on the buy-side. We believe that we are differentiated from our competitors in the following areas:

- we are an independent technology company focused on serving advertising agencies and others on the buy-side of our industry;
- our client relationships are based on MSAs as opposed to campaign-specific insertion orders;
- our platform provides comprehensive access to a wide range of inventory types and third-party data vendors;
- our platform allows clients to build proprietary advantages by integrating custom features and interfaces for their own use through our APIs; and
- our technology provides highly expressive targeting.

In addition, we believe that new entrants would find it difficult to gain direct access to inventory providers, given their limited scale and the costs that additional integrations impose on inventory providers.

Our Human Capital

We believe that our values of vision, agility, grit, openness, generosity and being full-hearted have been an important component of our success. Behind all our innovations are the talented people around the world who bring them to life. To continue to produce such innovations, we believe that it is crucial that we continue to attract and retain top talent. We strive to make The Trade Desk a diverse and inclusive workplace, where our people feel they belong, with opportunities for our employees to grow and develop their careers, supported by strong compensation, benefits and health and wellness programs, and by programs that build connections between our employees and their communities. To ensure we live our values, and our culture stays unique and strong, our board of directors and executive team has put significant focus on our human capital resources.

As of December 31, 2020, we had 1,545 full-time employees in 14 countries. Regionally, North America, APAC (Asia Pacific) and EMEA (Europe, Middle East and Africa) make up approximately 66%, 17% and 17% of our workforce, respectively.

Diversity and Inclusion

We are committed to fostering a culture of inclusion and belonging in which all employees are empowered to bring their whole, authentic selves to work every day. At The Trade Desk, we believe in the people who work for us, and as part of our investment in our people, we prioritize diversity and inclusion. Our goal is to create a culture where we value, respect, and provide fair treatment and opportunities for all employees. We conduct an employee annual survey to give employees the opportunity to provide feedback on our culture. This survey is managed by a third-party vendor to encourage candor and solicit feedback on many aspects of engagement, including company leadership, culture, inclusion, and career development. Our leaders review the survey feedback and work with their teams to take action based on survey results.

We demonstrate this commitment through a strategy of education, celebration, donations to the community, diversifying our talent, and creating forums for internal dialogue and listening. Our global leadership team is 64% male and 36% female.

Talent Development

Despite our rapid growth, we still cherish our roots as a startup and our company culture of ownership. We empower employees to develop their skills and abilities by acting on great ideas regardless of their role or function, which translates into personal investment in building our organization. We work to provide an environment where talented individuals and teams can thrive in fulfilling careers.

To set our global team up for success, we define key competencies for roles that are aligned to our values and extend to all levels of leadership regardless of experience and role. We encourage everyone to create individual development plans leveraging

competency frameworks tied into their chosen career path, outlining a specific plan and actions to increase proficiency or learn new skills. We seek to provide a wide range of learning and development opportunities in both individual and group settings with formal, social and experiential learning.

Compensation and Benefits

We provide compensation and benefits programs to help meet the needs of our employees and reward their efforts and contributions. We seek fairness in total compensation with reference to external comparisons, internal comparisons and the relationship between management and non-management compensation.

In addition to salaries, we provide competitive compensation programs commensurate with our peers and industry. Such compensation and benefit programs may include bonuses, equity awards, 401(k) plans, healthcare and insurance benefits, health savings and flexible spending accounts, paid time off, family leave, family care resources, employee assistance programs and tuition assistance, among many others. Such programs and our overall compensation packages seek to facilitate retention of key personnel.

Health, Safety and Wellness

The success of our business is fundamentally connected to the well-being of our people. Accordingly, we are committed to the health, safety, and wellness of our employees. We provide our employees and their families with access to a variety of innovative, flexible, and convenient health and wellness programs. In response to the COVID-19 pandemic, we implemented significant changes such as implementing and facilitating teleworking that we determined were in the best interest of our employees, as well as the communities in which we operate, and which comply with government regulations. We continue to evolve our programs to meet our employees' health and wellness needs.

Development of International Markets

We have been increasing our focus on markets outside the U.S. to serve the global needs of our clients. We believe that the global opportunity for programmatic advertising is significant and should continue to expand as publishers and advertisers outside the U.S. seek to adopt the benefits that programmatic advertising provides. To capitalize on this opportunity, we intend to continue investing in our presence internationally. Our growth and the success of our initiatives in newer markets will depend on the continued adoption of our platform by our existing clients, as well as new clients, in these markets. Information about our geographic gross billings is set forth in Note 12—Segment and Geographic Information of “Item 8. Financial Statements and Supplementary Data” in this Annual Report on Form 10-K.

Intellectual Property

The protection of our technology and intellectual property is an important component of our success. We rely on intellectual property laws, including trade secret, copyright, patent and trademark laws in the U.S. and abroad, and use contracts, confidentiality procedures, non-disclosure agreements, employee disclosure and invention assignment agreements and other contractual rights to protect our intellectual property. We have a small number of patents, however, historically, we have not patented our proprietary technology in order to keep our technology architecture, trade secrets, and engineering roadmap private. Our patent applications may not result in the issuance of any patents, and any issued patents may not actually provide adequate defensive protection or competitive advantages to us. Our ability to continually develop new intellectual property and deliver new functionality quickly serves to protect us against competitors in digital advertising technology. We believe our platform is difficult to replicate and would be expensive and time-consuming to build.

Collection and Use of Data; Privacy and Data Protection Legislation and Regulation

We and our clients currently use pseudonymous data about Internet and mobile app users on our platform to manage and execute digital advertising campaigns in a variety of ways, including delivering advertisements to end users based on their geographic locations, the type of device they are using, their interests as inferred from their web browsing or app usage activity, or their relationships with our clients. Such data is passed to us from third parties, including original equipment manufacturers, application providers, and publishers. We do not use this data to discover the identity of individuals, and we currently prohibit clients, data providers and inventory suppliers from importing data that directly identifies individuals onto our platform.

Our ability, like those of other advertising technology companies, to collect, augment, analyze, use and share data relies upon the ability to uniquely identify devices across websites and applications, and to collect data about user interactions with those devices for purposes such as serving relevant ads and measuring the effectiveness of ads. The processes used to identify devices and similar and associated technologies are governed by U.S. and foreign laws and regulations and dependent upon their implementation within the industry ecosystem. Such laws, regulations, and industry standards may change from time to time, including those relating to the level of consumer notice, consent and/or choice required when a company employs cookies or other electronic tools to collect data about interactions with users online.

In the U.S., both federal and state legislation govern activities such as the collection and use of data, and privacy in the advertising technology industry has frequently been subject to review by the Federal Trade Commission (the “FTC”), U.S. Congress, and individual states. Much of the federal oversight on digital advertising in the U.S. currently comes from the FTC, which has primarily relied upon Section 5 of the Federal Trade Commission Act, which prohibits companies from engaging in “unfair” or “deceptive” trade practices, including alleged violations of representations concerning privacy protections and acts that allegedly violate individuals’ privacy interests. However, there is increasing consumer concern over data privacy in recent years, which has led to a myriad of proposed legislation and new legislation both at the federal and state levels, some of which has affected and will continue to affect our operations and those of our industry partners. For example, the California Consumer Privacy Act of 2018 (the “CCPA”), which went into effect January 1, 2020, defines “personal information” broadly enough to include online identifiers provided by individuals’ devices, applications, and protocols (such as IP addresses, mobile application identifiers and unique cookie identifiers) and individuals’ location data, if there is potential that individuals can be identified by such data.

The CCPA creates individual data privacy rights for consumers in the State of California (including rights to deletion of and access to personal information), imposes special rules on the collection of consumer data from minors, creates new notice obligations and new limits on and rules regarding the “sale” of personal information (interpreted by many observers to include common advertising practices), and creates a new and potentially severe statutory damages framework for violations of the CCPA and for businesses that fail to implement reasonable security procedures and practices to prevent data breaches. The CCPA also offers the possibility to a consumer to recover statutory damages for certain violations and could open the door more broadly to additional risks of individual and class-action lawsuits even though the statute’s private right of action is limited in scope. There have been many class action lawsuits filed invoking the CCPA outside of the private right of action provided for by the law. It is unclear at this point whether any of these claims will be accepted by the courts. In addition, the California Privacy Rights Act, or CPRA, recently passed, which will impose additional notice and opt out obligations on the digital advertising space, including an obligation to provide an opt out for behavioral advertising. When the CPRA goes into full effect in January 2023, it will impose additional restrictions on us and on our industry partners; it is difficult to predict with certainty the full effect of the CPRA and its implementing regulations on the industry.

As our business is global, our activities are also subject to foreign legislation and regulation. In the European Union (including the European Economic Area (the “EEA”) and the countries of Iceland, Liechtenstein and Norway), or EU, separate laws and regulations (and member states’ implementations thereof) govern the processing of personal data, and these laws and regulations continue to impact us. The General Data Protection Regulation (“GDPR”), which applies to us, came into effect on May 25, 2018. Like the CCPA, the GDPR defines “personal data” broadly, and it enhances data protection obligations for controllers of such data and for service providers processing the data. It also provides certain rights, such as access and deletion, to the individuals about whom the personal data relates. The digital advertising industry has collaborated to create a user-facing framework for establishing and managing legal bases under the GDPR and other EU privacy laws including ePrivacy (discussed below). Although the framework is actively in use, it is under attack by the Belgian Data Protection Authority and others and we cannot predict its effectiveness over the long term. European regulators have questioned the framework’s viability and activists have filed complaints with regulators of alleged non-compliance by specific companies that employ the framework. Continuing to maintain compliance with the GDPR’s requirements, including monitoring and adjusting to rulings and interpretations that affect our approach to compliance, requires significant time, resources and expense, and may lead to significant changes in our business operations, as will the effort to monitor whether additional changes to our business practices and our backend configuration are needed, all of which may increase operating costs, or limit our ability to operate or expand our business.

Additionally, in the EU, EU Directive 2002/58/EC (as amended by Directive 2009/136/EC), commonly referred to as the ePrivacy or Cookie Directive, directs EU member states to ensure that accessing information on an Internet user’s computer, such as through a cookie and other similar technologies, is allowed only if the Internet user has been informed about such access, and provided consent. A recent ruling by the Court of Justice of the European Union clarified that such consent must be reflected by an affirmative act of the user, and European regulators are increasingly agitating for more robust forms of consent. These developments may result in decreased reliance on implied consent mechanisms that have been used to meet requirements of the Cookie Directive in some markets. A replacement for the Cookie Directive is currently under discussion by EU member states to complement and bring electronic communication services in line with the GDPR and force a harmonized approach across EU member states. Although it remains under debate, the proposed ePrivacy Regulation may further raise the bar for the use of cookies, and the fines and penalties for breach may be significant. We cannot yet determine the impact such future laws, regulations, and standards may have on our business.

For the transfer of personal data from the EU to the U.S., like many U.S. and European companies, we have relied upon, and are currently certified under, the EU-U.S. and Swiss-U.S. Privacy Shield Frameworks. The Privacy Shield Framework, however, was struck down in July 2020 by the Court of Justice of the European Union as an adequate mechanism by which EU companies may pass personal data to the US. Other EU mechanisms for adequate data transfer, such as the standard contractual clauses, were also questioned by the Court of Justice and whether and how standard contractual clauses can be used to transfer personal data to the U.S. is in question. If there is no interim agreement and standard clauses also cannot be used, we could be left with no reasonable option for the lawful cross-border transfer of personal data. If successful challenges leave us with no reasonable option for the lawful cross-border transfer of personal data, and if we nonetheless continue to transfer personal data from the EU to the U.S., that could lead to governmental enforcement actions, litigation, fines and penalties or adverse publicity which could have an adverse effect on our reputation and business or cause us to need to establish systems to maintain certain data in the EU, which may involve substantial

expense and cause us to need to divert resources from other aspects of our operations. Other jurisdictions have adopted or are considering cross-border or data residency restrictions, which could reduce the amount of data we can collect or process and, as a result, significantly impact our business. It remains unclear how the withdrawal of the United Kingdom, or U.K., from the European Union, referred to as Brexit, will affect transborder data flows, regulators' jurisdiction over our business, and other matters related to how we do business and how we comply with applicable data protection laws. Accordingly, we cannot predict the additional expense, impact on revenue, or other business impact that may stem from Brexit.

As the collection and use of data for digital advertising has received media attention over the past several years, some government regulators, such as the FTC, and privacy advocates have suggested creating a "Do Not Track" standard that would allow Internet users to express a preference, independent of cookie settings in their browser, not to have their online browsing activities tracked. The CPRA similarly contemplates the use of technical opt outs for the sale and sharing of personal information for advertising purposes as well as to opt out of the use of sensitive information for advertising purposes, and allows for AG rulemaking to develop these technical signals. If a "Do Not Track," "Do Not Sell," or similar control is adopted by many Internet users or if a "Do Not Track" standard is imposed by state, federal, or foreign legislation (as it arguably is to some degree under the CCPA regulations), or is agreed upon by standard setting groups, we may have to change our business practices, our clients may reduce their use of our platform, and our business, financial condition, and results of operations could be adversely affected.

We participate in several industry self-regulatory programs, mainly initiated by the Network Advertising Initiative, or NAI, the Digital Advertising Alliance, or DAA, and their international counterparts. Our efforts to comply with the self-regulatory principles of these programs include offering end users notice and choice when advertising is served to them based, in part, on their interests. We believe that this user-centric approach to addressing consumer privacy empowers consumers to make informed decisions on the use of their data.

Available Information

We file Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, proxy statements, and related amendments, exhibits and other information with the Securities and Exchange Commission (the "SEC"). You may access and read our filings without charge through the SEC's website at www.sec.gov or through our website at <http://investors.thetradedesk.com>, as soon as reasonably practicable after such materials are electronically filed with or furnished to the SEC pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act").

Website addresses referred to in this Annual Report on Form 10-K are not intended to function as hyperlinks, and the information contained on our website is not incorporated into, and does not form a part of this Annual Report on Form 10-K or any other report or documents we file with or furnish to the SEC.

Item 1A. Risk Factors

Investing in our Class A common stock involves a high degree of risk. You should consider carefully the risks and uncertainties described below, together with all of the other information contained in this Annual Report, including the consolidated financial statements and the related notes and Management's Discussion and Analysis of Financial Condition and Results of Operations, before making investment decisions related to our Class A common stock. If any of the following risks are realized, our business, financial condition, results of operations and prospects could be materially and adversely affected. In that event, the market price of our Class A common stock could decline and you could lose part or all of your investment.

Risks Related to Our Business and Industry

If we fail to maintain and grow our client base and spend through our platform, our revenue and business may be negatively impacted.

To sustain or increase our revenue, we must regularly add new clients and encourage existing clients to maintain or increase the amount of advertising inventory purchased through our platform and adopt new features and functionalities that we make available. If competitors introduce lower cost or differentiated offerings that compete with or are perceived to compete with ours, our ability to sell our services to new or existing clients could be impaired. We have spent significant effort in cultivating our relationships with advertising agencies, which has resulted in an increase in the budgets allocated to, and the amount of advertising purchased on, our platform. However, it is possible that we may reach a point of saturation at which we cannot continue to grow our revenue from such agencies because of internal limits that advertisers may place on the allocation of their advertising budgets to digital media to a particular provider or otherwise. While we generally have MSAs in place with our clients, such agreements allow our clients to change the amount they spend through our platform or terminate our services with limited notice. We do not typically have exclusive relationships with our clients and there is limited cost to moving their media spend to our competitors. As a result, we have limited visibility to our future advertising revenue streams. We cannot assure you that our clients will continue to use our platform or that we will be able to replace, in a timely or effective manner, departing clients with new clients that generate comparable revenue. If a major client representing a significant portion of our business decides to materially reduce its use of our platform or to cease using our platform altogether, it is possible that our revenue or revenue growth rate could be significantly reduced, and our business negatively impacted.

The loss of advertising agencies as clients could significantly harm our business, financial condition, and results of operations.

Our client base consists primarily of advertising agencies. We do not have exclusive relationships with advertising agencies, and we depend on agencies to work with us to build and maintain advertiser relationships and execute advertising campaigns.

The loss of agencies as clients could significantly harm our business, financial condition and results of operations. If we fail to maintain satisfactory relationships with an advertising agency, we risk losing business from the advertisers represented by that agency.

Advertisers may change advertising agencies. If an advertiser switches from an agency that utilizes our platform to one that does not, we will lose revenue from that advertiser. In addition, some advertising agencies have their own relationships with suppliers of advertising inventory and can directly connect advertisers with such suppliers. Our business may suffer to the extent that advertising agencies and inventory suppliers purchase and sell advertising inventory directly from one another or through intermediaries other than us.

We had approximately 875 clients, consisting primarily of advertising agencies, as of December 31, 2020. Many of these agencies are owned by holding companies, where decision making is decentralized such that purchasing decisions are made, and relationships with advertisers, are located, at the agency, local branch, or division level. If all of our individual client contractual relationships were aggregated at the holding company level, Publicis Groupe and WPP plc would have each represented more than 10% of our gross billings for 2020.

In most cases, we enter into separate contracts and billing relationships with the individual agencies and account for them as separate clients. However, some holding companies for these agencies may choose to exert control over the individual agencies in the future. If so, any loss of relationships with such holding companies and, consequently, of their agencies, local branches or divisions, as clients could significantly harm our business, financial condition, and results of operations.

If we fail to innovate or make the right investment decisions in our offerings and platform, we may not attract and retain advertisers and advertising agencies and our revenue and results of operations may decline.

Our industry is subject to rapid and frequent changes in technology, evolving client needs and the frequent introduction by our competitors of new and enhanced offerings. We must constantly make investment decisions regarding offerings and technology to meet client demand and evolving industry standards. We may make bad decisions regarding these investments. If new or existing competitors have more attractive offerings, we may lose clients or clients may decrease their use of our platform. New client demands, superior competitive offerings or new industry standards could require us to make unanticipated and costly changes to our platform or business model. In addition, as we develop and introduce new products and services, including those incorporating or utilizing

artificial intelligence and machine learning, they may raise new, or heighten existing, technological, legal and other challenges, and may cause unintended consequences, may not function properly or may be misused by our clients. If we fail to adapt to our rapidly changing industry or to evolving client needs, or we provide new products and services that exacerbate technological, legal or other challenges, demand for our platform could decrease and our business, financial condition and results of operations may be adversely affected.

The market for programmatic buying for advertising campaigns is relatively new and evolving. If this market develops slower or differently than we expect, our business, growth prospects and financial condition would be adversely affected.

The substantial majority of our revenue has been derived from clients that programmatically purchase advertising inventory through our platform. We expect that spending on programmatic ad buying will continue to be our primary source of revenue for the foreseeable future and that our revenue growth will largely depend on increasing spend through our platform. The market for programmatic ad buying is an emerging market, and our current and potential clients may not shift to programmatic ad buying from other buying methods as quickly as we expect, which would reduce our growth potential. If the market for programmatic ad buying deteriorates or develops more slowly than we expect, it could reduce demand for our platform, and our business, growth prospects and financial condition would be adversely affected.

In addition, our revenue may not necessarily grow at the same rate as spend on our platform. As the market for programmatic buying for advertising matures, growth in spend may outpace growth in our revenue due to a number of factors, including pricing competition, quantity discounts and shifts in product, media, client and channel mix. A significant change in revenue as a percentage of spend could reflect an adverse change in our business and growth prospects. In addition, any such fluctuations, even if they reflect our strategic decisions, could cause our performance to fall below the expectations of securities analysts and investors, and adversely affect the price of our common stock.

The effects of health epidemics, such as the ongoing global COVID-19 pandemic, have had, and could in the future have, an adverse impact on our business, financial condition and results of operations.

Our business and operations have been and could in the future be adversely affected by health epidemics, such as the global COVID-19 pandemic. The COVID-19 pandemic and efforts to control its spread have curtailed the movement of people, goods and services worldwide, including in the regions in which we and our clients and partners operate, and are significantly impacting economic activity and financial markets. Many marketers have decreased or paused their advertising spending as a response to the economic uncertainty, decline in business activity, and other COVID-related impacts, which have negatively impacted, and may continue to negatively impact, our revenue and results of operations, the extent and duration of which we may not be able to accurately predict. In addition, our clients' and advertisers' businesses or cash flows have been and may continue to be negatively impacted by the COVID-19 pandemic, which has and may continue to lead them to seek adjustments to payment terms or delay making payments or default on their payables, any of which may impact the timely receipt and/or collectability of our receivables. Typically, we are contractually required to pay advertising inventory and data suppliers within a negotiated period of time, regardless of whether our clients pay us on time, or at all, and we may not be able to renegotiate better terms. As a result, our financial condition and results of operations may be adversely impacted.

Our operations are subject to a range of external factors related to the COVID-19 pandemic that are not within our control. We have taken precautionary measures intended to minimize the risk of the spread of the virus to our employees, partners and clients, and the communities in which we operate. A wide range of governmental restrictions has also been imposed on our employees, clients and partners' physical movement to limit the spread of COVID-19. There can be no assurance that precautionary measures, whether adopted by us or imposed by others, will be effective, and such measures could negatively affect our sales, marketing, and client service efforts, delay and lengthen our sales cycles, decrease our employees', clients', or partners' productivity, or create operational or other challenges, any of which could harm our business and results of operations.

The economic uncertainty caused by the COVID-19 pandemic has made and may continue to make it difficult for us to forecast revenue and operating results and to make decisions regarding operational cost structures and investments. We have committed, and we plan to continue to commit, resources to grow our business, including to expand our international presence, employee base, and technology development, and such investments may not yield anticipated returns, particularly if worldwide business activity continues to be impacted by the COVID-19 pandemic. The duration and extent of the impact from the COVID-19 pandemic depend on future developments that cannot be accurately predicted at this time, and if we are not able to respond to and manage the impact of such events effectively, our business may be harmed.

The market in which we participate is intensely competitive, and we may not be able to compete successfully with our current or future competitors.

We operate in a highly competitive and rapidly changing industry. We expect competition to persist and intensify in the future, which could harm our ability to increase revenue and maintain profitability. New technologies and methods of buying advertising present a dynamic competitive challenge, as market participants develop and offer new products and services aimed at capturing advertising spend or disrupting the digital marketing landscape, such as analytics, automated media buying and exchanges.

We may also face competition from new companies entering the market, including large established companies and companies that we do not yet know about or do not yet exist. If existing or new companies develop, market or resell competitive high-value products or services that result in additional competition for advertising spend or advertising inventory or if they acquire one of our existing competitors or form a strategic alliance with one of our competitors, our ability to compete effectively could be significantly compromised and our results of operations could be harmed.

Our current and potential competitors may have significantly more financial, technical, marketing, and other resources than we have, which may allow them to devote greater resources to the development, promotion, sale and support of their products and services. They may also have more extensive advertiser bases and broader publisher relationships than we have, and may be better positioned to execute on advertising conducted over certain channels, such as social media, mobile, and video. Some of our competitors may have a longer operating history and greater name recognition. As a result, these competitors may be better able to respond quickly to new technologies, develop deeper advertiser relationships or offer services at lower prices. Any of these developments would make it more difficult for us to sell our platform and could result in increased pricing pressure, increased sales and marketing expense, or the loss of market share.

We often have long sales cycles, which can result in significant time between initial contact with a prospect and execution of a client agreement, making it difficult to project when, if at all, we will obtain new clients and when we will generate revenue from those clients.

Our sales cycle, from initial contact to contract execution and implementation can take significant time. Our sales efforts involve educating our clients about the use, technical capabilities and benefits of our platform. Some of our clients undertake an evaluation process that frequently involves not only our platform but also the offerings of our competitors. As a result, it is difficult to predict when we will obtain new clients and begin generating revenue from these new clients. Even if our sales efforts result in obtaining a new client, under our usage-based pricing model, the client controls when and to what extent it uses our platform. As a result, we may not be able to add clients or generate revenue as quickly as we may expect, which could harm our revenue growth rates.

We are subject to payment-related risks that may adversely affect our business, working capital, financial condition and results of operations, including from advertising agencies that do not pay us until they receive payment from their advertisers and from clients that dispute or do not pay their invoices.

Spend on our platform primarily comes through our agency clients. Many of our contracts with advertising agencies provide that if the advertiser does not pay the agency, the agency is not liable to us, and we must seek payment solely from the advertiser, a type of arrangement called sequential liability. Contracting with these agencies, which in some cases have or may develop higher-risk credit profiles, may subject us to greater credit risk than if we were to contract directly with advertisers. This credit risk may vary depending on the nature of an advertising agency's aggregated advertiser base. In addition, typically, we are contractually required to pay advertising inventory and data suppliers within a negotiated period of time, regardless of whether our clients pay us on time, or at all. In addition, we typically experience slow payment cycles by advertising agencies as is common in our industry. While we attempt to negotiate long payment periods with our suppliers and shorter periods from our clients, we are not always successful. As a result, we often face a timing issue with our accounts payable on shorter cycles than our accounts receivables, requiring us to remit payments from our own funds, and accept the risk of credit loss.

This collections and payments cycle may increasingly consume working capital if we continue to be successful in growing our business. If we are unable to borrow on commercially acceptable terms, our working capital availability could be reduced, and as a consequence, our financial condition and results of operations would be adversely impacted.

We may also be involved in disputes with clients, and in the case of agencies, their advertisers, over the operation of our platform, the terms of our agreements or our billings for purchases made by them through our platform. If we are unable to resolve disputes with our clients, we may lose clients or clients may decrease their use of our platform and our financial performance and growth may be adversely affected. If we are unable to collect or make adjustments to bills to clients, we could incur write-offs for credit loss, which could harm our results of operations. In the future, credit loss may exceed reserves for such contingencies and our credit loss exposure may increase over time. Any increase in write-offs for credit loss could harm our business, financial condition and results of operations. Even if we are not paid by our clients on time or at all, we are still obligated to pay for the advertising inventory, third-party data, and other add-on features that clients purchase on our platform, and as a consequence, our business, financial condition and results of operations would be adversely impacted.

Any decrease in the use of the advertising channels that we are primarily dependent upon, failure to expand the use of emerging channels, or unexpected shift in use among the channels in which we operate, could harm our growth prospects, financial condition and results of operations.

Historically, our clients have predominantly used our platform to purchase mobile, display and video advertising inventory. We expect that these will continue to be significant channels used by our clients for digital advertising in the future. We also believe that our revenue growth may depend on our ability to expand within social, native, audio, and in particular, CTV, and we have been, and

are continuing to, enhance such channels. Any decrease in the use of mobile, display and video advertising, whether due to clients losing confidence in the value or effectiveness of such channels, regulatory restrictions or other causes, or any inability to further penetrate social, native, audio, CTV or enter new and emerging advertising channels, could harm our growth prospects, financial condition and results of operations.

Each advertising channel presents distinct and substantial risk and, in many cases, requires us to continue to develop additional functionality or features to address the particular requirements of the channel. Our ability to provide capabilities across multiple advertising channels, which we refer to as omnichannel, may be constrained if we are not able to maintain or grow advertising inventory for such channels, and some of our omnichannel offerings may not gain market acceptance. We may not be able to accurately predict changes in overall advertiser demand for the channels in which we operate and cannot assure you that our investment in channel development will correspond to any such changes. Furthermore, if our channel mix changes due to a shift in client demand, such as clients shifting their spending more quickly or more extensively than expected to channels in which we have relatively less functionality, features, or inventory, then demand for our platform could decrease, and our business, financial condition, and results of operations could be adversely affected.

We may experience fluctuations in our results of operations, which could make our future results of operations difficult to predict or cause our results of operations to fall below analysts' and investors' expectations.

Our quarterly and annual results of operations have fluctuated in the past and we expect our future results of operations to fluctuate due to a variety of factors, many of which are beyond our control. Fluctuations in our results of operations could cause our performance to fall below the expectations of analysts and investors, and adversely affect the price of our common stock. Because our business is changing and evolving rapidly, our historical results of operations may not be necessarily indicative of our future results of operations. Factors that may cause our results of operations to fluctuate include the following:

- changes in demand for programmatic advertising and for our platform, including related to the seasonal nature of our clients' spending on digital advertising campaigns;
- changes to availability of and pricing of competitive products and services, and their effects on our pricing;
- changes the pricing or availability of inventory, data or other third-party services;
- changes in our client base and platform offerings;
- the addition or loss of advertising agencies and advertisers as clients;
- changes in advertising budget allocations, agency affiliations or marketing strategies;
- changes to our product, media, client or channel mix;
- changes and uncertainty in the regulatory environment for us, advertisers or others in the advertising industry, and the effects of our efforts and those of our clients and partners to address changes and uncertainty in the regulatory environment;
- changes in the economic prospects of advertisers or the economy generally, which could alter advertisers' spending priorities, or could increase the time or costs required to complete advertising inventory sales;
- changes in the pricing and availability of advertising inventory through real-time advertising exchanges or in the cost of reaching end consumers through digital advertising;
- disruptions or outages on our platform;
- factors beyond our control, such as natural disasters, terrorism, war and public health crises;
- the introduction of new technologies or offerings by our competitors or others in the advertising marketplace;
- changes in our capital expenditures as we acquire the hardware, equipment and other assets required to support our business;
- timing differences between our payments for advertising inventory and our collection of related advertising revenue;
- the length and unpredictability of our sales cycle;
- costs related to acquisitions of businesses or technologies and development of new products;
- cost of employee recruiting and retention; and
- changes to the cost of infrastructure, including real estate and information technology.

Based upon the factors above and others beyond our control, we have a limited ability to forecast our future revenue, costs and expenses. If we fail to meet or exceed the operating results expectations of analysts and investors or if analysts and investors have

estimates and forecasts of our future performance that are unrealistic or that we do not meet, the market price of our common stock could decline. In addition, if one or more of the analysts who cover us adversely change their recommendation regarding our stock, the market price of our common stock could decline.

If our access to quality advertising inventory is diminished or fails to expand, our revenue could decline and our growth could be impeded.

We must maintain a consistent supply of attractive ad inventory. Our success depends on our ability to secure quality inventory on reasonable terms across a broad range of advertising networks and exchanges and social media platforms, including video, display, CTV, audio and mobile inventory. The amount, quality and cost of inventory available to us can change at any time. A few inventory suppliers hold a significant portion of the programmatic inventory either generally or concentrated in a particular channel, such as audio and social media. In addition, we compete with companies with which we have business relationships. For example, Google is one of our largest advertising inventory suppliers in addition to being one of our competitors. If Google or any other company with attractive advertising inventory limits our access to its advertising inventory, our business could be adversely affected. If our relationships with certain of our suppliers were to cease, or if the material terms of these relationships were to change unfavorably, our business would be negatively impacted. Our suppliers are generally not bound by long-term contracts. As a result, there is no guarantee that we will have access to a consistent supply of quality inventory on favorable terms. If we are unable to compete favorably for advertising inventory available on real-time advertising exchanges, or if real-time advertising exchanges decide not to make their advertising inventory available to us, we may not be able to place advertisements or find alternative sources of inventory with comparable traffic patterns and consumer demographics in a timely manner. Furthermore, the inventory that we access through real-time advertising exchanges may be of low quality or misrepresented to us, despite attempts by us and our suppliers to prevent fraud and conduct quality assurance checks.

Inventory suppliers control the bidding process, rules and procedures for the inventory they supply, and their processes may not always work in our favor. For example, suppliers may place restrictions on the use of their inventory, including prohibiting the placement of advertisements on behalf of specific advertisers. Through the bidding process, we may not win the right to deliver advertising to the inventory that is selected through our platform and may not be able to replace inventory that is no longer made available to us.

As new types of inventory become available, we will need to expend significant resources to ensure we have access to such new inventory. For example, although television advertising is a large market, only a very small percentage of it is currently purchased through digital advertising exchanges. We are investing heavily in our programmatic television offering, including by increasing our workforce and by adding new features, functions and integrations to our platform. If the CTV market does not grow as we anticipate or we fail to successfully serve such market, our growth prospects could be harmed.

Our success depends on consistently adding valued inventory in a cost-effective manner. If we are unable to maintain a consistent supply of quality inventory for any reason, client retention and loyalty, and our financial condition and results of operations could be harmed.

Economic downturns and market conditions beyond our control could adversely affect our business, financial condition and results of operations.

Our business depends on the overall demand for advertising and on the economic health of advertisers that benefit from our platform. Economic downturns or unstable market conditions may cause advertisers to decrease or pause their advertising budgets, which could reduce spend through our platform and adversely affect our business, financial condition and results of operations. As described above, public health crises may disrupt the operations of our customers and partners for an unknown period of time, including as a result of travel restrictions and/or business shutdowns, all of which could negatively impact our business and results of operations, including cash flows. As we explore new countries to expand our business, economic downturns or unstable market conditions in any of those countries could result in our investments not yielding the returns we anticipate.

Seasonal fluctuations in advertising activity could have a negative impact on our revenue, cash flow and results of operations.

Our revenue, cash flow, results of operations and other key operating and performance metrics may vary from quarter to quarter due to the seasonal nature of our clients' spending on advertising campaigns. For example, clients tend to devote more of their advertising budgets to the fourth calendar quarter to coincide with consumer holiday spending. Moreover, advertising inventory in the fourth quarter may be more expensive due to increased demand for it. Political advertising could also cause our revenue to increase during election cycles and decrease during other periods. Our historical revenue growth has lessened the impact of seasonality, however, seasonality could have a more significant impact on our revenue, cash flow and results of operations from period to period if our growth rate declines, if seasonal spending becomes more pronounced, or if seasonality otherwise differs from our expectations.

Failure to manage our growth effectively could cause our business to suffer and have an adverse effect on our financial condition and results of operations.

We have experienced and continue to experience significant growth in a short period of time. To manage our growth effectively, we must continually evaluate and evolve our organization. We must also manage our employees, operations, finances, technology and development and capital investments efficiently. Our efficiency, productivity and the quality of our platform and client service may be adversely impacted if we do not train our new personnel, particularly our sales and support personnel, quickly and effectively, or if we fail to appropriately coordinate across our organization. Additionally, our rapid growth may place a strain on our resources, infrastructure and ability to maintain the quality of our platform. Our revenue growth and levels of profitability in recent periods should not be considered as indicative of future performance. In future periods, our revenue or profitability could decline or grow more slowly than we expect. Failure to manage our growth effectively could cause our business to suffer and have an adverse effect on our financial condition and results of operations.

As our costs increase, we may not be able to generate sufficient revenue to sustain profitability.

We have expended significant resources to grow our business in recent years by increasing the offerings of our platform, growing our number of employees and expanding internationally. Despite the initial decline in revenue in response to the COVID-19 pandemic, we anticipate continued growth that could require substantial financial and other resources to, among other things:

- develop our platform, including by investing in our engineering team, creating, acquiring or licensing new products or features, and improving the availability and security of our platform;
- continue to expand internationally by growing our sales force and client services team in an effort to increase our client base and spend through our platform, and by adding inventory and data from countries our clients are seeking;
- improve our technology infrastructure, including investing in internal technology development and acquiring outside technologies;
- expand our platform's reach in new and growing channels such as CTV, including expanding the supply of CTV inventory;
- cover general and administrative expenses, including legal, accounting and other expenses necessary to support a larger organization;
- cover sales and marketing expenses, including a significant expansion of our direct sales organization;
- cover expenses relating to data collection and consumer privacy compliance, including additional infrastructure, automation and personnel; and
- explore strategic acquisitions.

Investing in the foregoing, however, may not yield anticipated returns, especially during the period of impact from the COVID-19 pandemic. Consequently, as our costs increase, we may not be able to generate sufficient revenue to sustain profitability.

We allow our clients to utilize application programming interfaces, or APIs, with our platform, which could result in outages or security breaches and negatively impact our business, financial condition and results of operations.

The use of APIs by our clients has significantly increased in recent years. Our APIs allow clients to build their own media buying and data management interface by using our APIs to develop custom integration of their business with our platform. The increased use of APIs increases security and operational risks to our systems, including the risk for intrusion attacks, data theft, or denial of service attacks. Furthermore, while APIs allow clients greater ease and power in accessing our platform, they also increase the risk of overusing our systems, potentially causing outages. We have experienced system slowdowns due to client overuse of our systems through our APIs. While we have taken measures intended to decrease security and outage risks associated with the use of APIs, we cannot guarantee that such measures will be successful. Our failure to prevent outages or security breaches resulting from API use could result in government enforcement actions against us, claims for damages by consumers and other affected individuals, costs associated with investigation and remediation damage to our reputation and loss of goodwill, any of which could harm our business, financial condition and results of operations.

We may experience outages and disruptions on our platform if we fail to maintain adequate security and supporting infrastructure as we scale our platform, which may harm our reputation and negatively impact our business, financial condition and results of operations.

As we grow our business, we expect to continue to invest in technology services and equipment, including data centers, network services and database technologies, as well as potentially increase our reliance on open source software. Without these improvements, our operations might suffer from unanticipated system disruptions, slow transaction processing, unreliable service levels, impaired quality or delays in reporting accurate information regarding transactions in our platform, any of which could negatively affect our reputation and ability to attract and retain clients. In addition, the expansion and improvement of our systems and infrastructure may require us to commit substantial financial, operational and technical resources, with no assurance our business will increase. If we fail to respond to technological change or to adequately maintain, expand, upgrade and develop our systems and infrastructure in a timely fashion, our growth prospects and results of operations could be adversely affected. The steps we take to increase the reliability, integrity and security of our platform as it scales are expensive and complex, and our execution could result in operational failures and increased vulnerability to cyberattacks. Such cyberattacks could include denial-of-service attacks impacting service availability (including the ability to deliver ads) and reliability, tricking company employees into releasing control of their systems to a hacker, or the introduction of computer viruses or malware into our systems with a view to steal confidential or proprietary data. Cyberattacks of increasing sophistication may be difficult to detect and could result in the theft of our intellectual property and data from our platform. We are also vulnerable to unintentional errors or malicious actions by persons with authorized access to our systems that exceed the scope of their access rights, distribute data erroneously, or, unintentionally or intentionally, interfere with the intended operations of our platform. Moreover, we could be adversely impacted by outages and disruptions in the online platforms of our inventory and data suppliers, such as real-time advertising exchanges. Outages and disruptions of our platform, including due to cyberattacks, may harm our reputation and negatively impact our business, financial condition and results of operations.

Operational performance and internal control issues with our platform, whether real or perceived, including a failure to respond to technological changes or to upgrade our technology systems, may adversely affect our business, financial condition and results of operations.

We depend upon the sustained and uninterrupted performance of our platform to manage our inventory supply; bid on inventory for each campaign; collect, process and interpret data; optimize campaign performance in real time; and provide billing information to our financial systems. If our platform cannot scale to meet demand, if there are errors in our execution of any of these functions on our platform or if we experience outages, then our business may be harmed. We may also face material delays in introducing new services, products and enhancements. If competitors introduce new products and services using new technologies or if new industry standards and practices emerge, our existing proprietary technology and systems may become obsolete.

Our platform is complex and multifaceted, and operational and performance issues could arise both from the platform itself and from outside factors. Errors, failures, vulnerabilities and bugs have been found in the past, and may be found in the future. Our platform also relies on third-party technology and systems to perform properly and is often used in connection with computing environments utilizing different operating systems, system management software, equipment and networking configurations, which may cause errors in, or failures of, our platform or such other computing environments. Operational and performance issues with our platform could include the failure of our user interface, outages, errors during upgrades or patches, discrepancies in costs billed versus costs paid, unanticipated volume overwhelming our databases, server failure, or catastrophic events affecting one or more server farms. While we have built redundancies in our systems, full redundancies do not exist. Some failures will shut our platform down completely, others only partially. Partial failures, which we have experienced in the past, could result in unauthorized bidding, cessation of our ability to bid or deliver impressions or deletion of our reporting, in each case resulting in unanticipated financial obligations or impact.

Operational, performance and internal control issues with our platform could also result in negative publicity, damage to our brand and reputation, loss of clients, loss of or delay in market acceptance of our platform, increased costs or loss of revenue, loss of the ability to access our platform, loss of competitive position, claims by clients for losses sustained by them and loss of stockholder confidence in the accuracy and completeness of our financial reports. Alleviating problems resulting from such issues could require significant expenditures of capital and other resources and could cause interruptions, delays or the cessation of our business, any of which may adversely affect our business, financial condition and results of operations.

If unauthorized access is obtained to user, client or inventory and third-party provider data, or our platform is compromised, our services may be disrupted or perceived as insecure, and as a result, we may lose existing clients or fail to attract new clients, and we may incur significant reputational harm and legal and financial liabilities.

Our products and services involve the storage and transmission of significant amounts of data from users, clients, and inventory and data providers, a large volume of which is hosted by third-party service providers. Our services and data could be exposed to unauthorized access due to activities that breach or undermine security measures, including: negligence or malfeasance by internal or external actors; attempts by outside parties to fraudulently induce employees, clients or vendors to disclose sensitive information in order to gain access to our data; or errors or vulnerabilities in our systems, products or processes or in those of our service providers, clients, and vendors. For example, from time to time, we experience cyberattacks of varying degrees and other attempts to obtain unauthorized access to our systems, including to employee mailboxes. We have dedicated and expect to continue to dedicate resources toward security protections that shield data from these activities. However, such measures cannot provide absolute security. Further,

we can expect that the deployment of techniques to circumvent our security measures may occur with more frequency and sophistication and may not be recognized until launched against a target. Accordingly, we may be unable to anticipate or detect these techniques or to implement adequate preventative measures. Finally, while we have developed worldwide incident response teams and dedicated resources to incident response processes, such processes could, among other issues, fail to be adequate or accurately assess the incident severity, not proceed quickly enough, or fail to sufficiently remediate an incident.

A breach of our security and/or our failure to respond sufficiently to a security incident could disrupt our services and result in theft, misuse, loss, corruption, or improper use or disclosure of data. This could result in government investigations, enforcement actions and other legal and financial liability, and/or loss of confidence in the availability and security of our products and services, all of which could seriously harm our reputation and brand and impair our ability to attract and retain clients. While we contractually prohibit clients, data providers and inventory suppliers from importing or otherwise providing information that directly identifies individuals onto our platform, if a partner provided such information in violation of our policies and our systems are breached, we could be subject to contractual breach and indemnification claims from other clients and partners. Our platform may also receive data or information that was identifiable prior to such data and information being aggregated or pseudonymized, and if our systems are breached and such data or information is compromised, it could be damaging to our brand, reputation, and business. Cyberattacks could also compromise our own trade secrets and other sensitive information and result in such information being disclosed to others and becoming less valuable, which could negatively affect our business.

Privacy and data protection laws to which we are subject may cause us to incur additional or unexpected costs, subject us to enforcement actions for compliance failures, or cause us to change our platform or business model, which may have a material adverse effect on our business.

Information relating to individuals and their devices (sometimes called “personal information” or “personal data”) is regulated under a wide variety of local, state, national, and international laws and regulations that apply to the collection, use, retention, protection, disclosure, transfer (including transfer across national boundaries) and other processing of such data. We typically collect and store IP addresses and other device identifiers (such as unique cookie identifiers and mobile application identifiers), which are or may be considered personal data or personal information in some jurisdictions or otherwise may be the subject of regulation.

The global regulatory landscape regarding the protection of personal information is evolving, and U.S. (state and federal) and foreign governments are considering enacting additional legislation related to privacy and data protection and we expect to see an increase in, or changes to, legislation and regulation in this area. For example, in the U.S., a federal privacy law is the subject of active discussion and several bills have been introduced.

Recently, the State of California adopted two laws broadly regulating businesses’ processing of personal information, the California Consumer Privacy Act of 2018, or CCPA, and the California Privacy Rights Act, or CPRA. The CCPA, which went into effect January 1, 2020, defines “personal information” broadly enough to include online identifiers provided by individuals’ devices, applications, and protocols (such as IP addresses, mobile application identifiers and unique cookie identifiers) and individuals’ location data, if there is potential that individuals can be identified by such data. The CCPA establishes a new privacy framework for covered businesses by, among other requirements, establishing new data privacy rights for consumers in the State of California (including rights to deletion of and access to personal information), imposing special rules on the collection of consumer data from minors, creating new notice obligations and new limits on the “sale” of personal information (interpreted by many observers to include common advertising technology practices), and creating a new and potentially severe statutory damages framework for violations of the CCPA and for businesses that fail to implement reasonable security procedures and practices to prevent data breaches. The CCPA also offers the possibility for a consumer to recover statutory damages for certain violations and could open the door more broadly to additional risks of individual and class-action lawsuits even though the statute’s private right of action is limited in scope.

Further, the CPRA recently passed, which imposes additional notice and opt out obligations on the digital advertising space, including an obligation to provide an opt-out for behavioral advertising. When the CPRA goes into full effect in January 2023, it will cause us to incur additional compliance costs and may impose additional restrictions on us and on our industry partners. Although we have attempted to mitigate certain risks posed by the CCPA and CPRA through contractual and platform changes, we cannot predict with certainty the effect of the CCPA and CPRA and their implementing regulations on our business. Responding to requirements under these laws and the related regulations will continue to affect our operations (and those of our industry partners).

Laws governing the processing of personal data in Europe (including the European Union and EEA, and the countries of Iceland, Liechtenstein, and Norway) also continue to impact us and continue to evolve. The General Data Protection Regulation, or GDPR, which applies to us, came into effect on May 25, 2018. Like the CCPA, the GDPR defines “personal data” broadly, and it enhances data protection obligations for controllers of such data and for service providers processing the data. It also provides certain rights, such as access and deletion, to the individuals about whom the personal data relates. The digital advertising industry has collaborated to create a user-facing framework for establishing and managing legal bases under the GDPR and other EU privacy laws including ePrivacy (discussed below). Although the framework is actively in use, we cannot predict its effectiveness over the long term. European regulators have questioned its viability and activists have filed complaints with regulators of alleged non-compliance by specific companies that employ the framework. Non-compliance with the GDPR can trigger steep fines of up to the greater of €20

million or 4% of total worldwide annual revenue. Relatedly, following the United Kingdom's withdrawal from the EEA and the European Union, and the expiry of the transition period, we have to comply with both the GDPR and the United Kingdom Data Protection Act 2018, the latter regime having the ability to separately fine up to the greater of £17.5 million or 4% of global turnover. Continuing to maintain compliance with the requirements of the GDPR and the United Kingdom Data Protection Act 2018, including monitoring and adjusting to rulings and interpretations that affect our approach to compliance, requires significant time, resources and expense, as will the effort to monitor whether additional changes to our business practices and our backend configuration are needed, all of which may increase operating costs, or limit our ability to operate or expand our business.

Changes in data residency and cross-border transfer restrictions also impact our operations. For the transfer of personal data from the EU to the U.S., like many U.S. and European companies, we have relied upon, and are currently certified under the EU-U.S. and Swiss-U.S. Privacy Shield Frameworks. The Privacy Shield Framework, however, was struck down in July 2020 by the EU Court of Justice as an adequate mechanism by which EU companies may pass personal data to the US, and other EU mechanisms for adequate data transfer, such as the standard contractual clauses, were questioned by the Court of Justice and whether and how standard contractual clauses can be used to transfer personal data to the U.S. is in question. If there is no interim agreement or guidance from the EU and standard clauses also cannot be used, we could be left with no reasonable option for the lawful cross-border transfer of personal data. If successful challenges leave us with no reasonable option for the lawful cross-border transfer of personal data, and if we nonetheless continue to transfer personal data from the EU to the US, that could lead to governmental enforcement actions, litigation, fines and penalties or adverse publicity, which could have an adverse effect on our reputation and business or cause us to need to establish systems to maintain certain data in the EU, which may involve substantial expense and cause us to divert resources from other aspects of our operations, all of which may adversely affect our business. Other jurisdictions have adopted or are considering cross-border or data residency restrictions, which could reduce the amount of data we can collect or process and, as a result, significantly impact our business. It remains unclear how the recent withdrawal of the United Kingdom, or U.K., from the European Union, referred to as Brexit, will affect transborder data flows, regulators' jurisdiction over our business, and other matters related to how we do business and how we comply with applicable data protection laws. Accordingly, we cannot predict the additional expense, impact on revenue, or other business impact that may stem from Brexit.

Regulatory investigations and enforcement actions could also impact us. In the U.S., the Federal Trade Commission, or FTC, uses its enforcement powers under Section 5 of the Federal Trade Commission Act (which prohibits "unfair" and "deceptive" trade practices) to investigate companies engaging in online tracking. Other companies in the advertising technology space have been subject to government investigation by regulatory bodies; advocacy organizations have also filed complaints with data protection authorities against advertising technology companies, arguing that certain of these companies' practices do not comply with the GDPR. We cannot avoid the possibility that one of these investigations or enforcement actions will require us to alter our practices. Further, our legal risk depends in part on our clients' or other third parties' adherence to privacy laws and regulations and their use of our services in ways consistent with end user expectations. We rely on representations made to us by clients that they will comply with all applicable laws, including all relevant privacy and data protection regulations. Although we make reasonable efforts to enforce such representations and contractual requirements, we do not fully audit our clients' compliance with our recommended disclosures or their adherence to privacy laws and regulations. If our clients fail to adhere to our expectations or contracts in this regard, we and our clients could be subject to adverse publicity, damages, and related possible investigation or other regulatory activity.

Adapting our business to the CCPA, the CPRA and their implementing regulations and to the enhanced and evolving privacy obligations in the EU and elsewhere could continue to involve substantial expense and may cause us to divert resources from other aspects of our operations, all of which may adversely affect our business. Additionally, as the advertising industry evolves, and new ways of collecting, combining and using data are created, governments may enact legislation in response to technological advancements and changes that could result in our having to re-design features or functions of our platform, therefore incurring unexpected compliance costs. Further, adaptation of the digital advertising marketplace requires increasingly significant collaboration between participants in the market, such as publishers and advertisers. Failure of the industry to adapt to changes required for operating under laws including the CCPA, CPRA and the GDPR and user response to such changes could negatively impact inventory, data, and demand. We cannot control or predict the pace or effectiveness of such adaptation, and we cannot currently predict the impact such changes may have on our business.

In addition to laws regulating the processing of personal information, we are also subject to regulation with respect to political advertising activities, which are governed by various federal and state laws in the U.S., and national and provincial laws worldwide. Online political advertising laws are rapidly evolving, and in certain jurisdictions have varying transparency and disclosure requirements. We saw publishers impose varying prohibitions and restrictions on the types of political advertising and breadth of targeted advertising allowed on their platforms with respect to advertisements for the 2020 U.S. presidential election in response to political advertising scandals, such as the scandal involving Cambridge Analytica. The lack of uniformity and increasing requirements on transparency and disclosure could adversely impact the inventory made available for political advertising and the demand for such inventory on our platform, and otherwise increase our operating and compliance costs. Concerns about political advertising or other advertising in areas deemed sensitive, whether or not valid and whether or not driven by applicable laws and regulations, industry standards, client or inventory provider expectations, or public perception, may harm our reputation, result in loss of goodwill, and inhibit use of our platform by current and future clients.

These laws and other obligations may be interpreted and applied in a manner that is inconsistent with our existing data management practices or the features of our platform. If so, in addition to the possibility of fines, lawsuits and other claims, we could be required to fundamentally change our business activities and practices or modify our products, which could have an adverse effect on our business. We may be unable to make such changes and modifications in a commercially reasonable manner or at all, and our ability to develop new products and features could be limited. All of this could impair our or our clients' ability to collect, use, or disclose information relating to consumers, which could decrease demand for our platform, increase our costs, and impair our ability to maintain and grow our client base and increase our revenue.

Commitments to advertising technology industry self-regulation may subject us to investigation by government or self-regulatory bodies, government or private litigation, and operational costs or harm to reputation or brand.

In addition to our legal obligations, we have committed to comply, and generally require our clients and partners to comply, with applicable self-regulatory principles, such as the Network Advertising Initiative's Code of Conduct and the Digital Advertising Alliance's Self-Regulatory Principles for Online Behavioral Advertising in the U.S., and similar self-regulatory principles in Europe and Canada adopted by the local Digital Advertising Alliance. Trade associations and industry self-regulatory groups have also promulgated best practices and other industry standards relating to targeted advertising. Our efforts to comply with these self-regulatory principles include offering Internet users notice and choice when advertising is served to them based, in part, on their interests. If we or our clients or partners make mistakes in the implementation of these principles, or if self-regulatory bodies expand these guidelines or government authorities issue different guidelines regarding Internet-based advertising, or opt out mechanisms fail to work as designed, or if Internet users misunderstand our technology or our commitments with respect to these principles, we may, as a result, be subject to negative publicity, government investigation, government or private litigation, or investigation by self-regulatory bodies or other accountability groups. Any such action against us, or investigations, even if meritless, could be costly and time consuming, require us to change our business practices, cause us to divert management's attention and our resources, and be damaging to our brand, reputation, and business. In addition, privacy advocates and industry groups may propose new and different self-regulatory standards that either legally or contractually apply to us. We cannot yet determine the impact such future standards may have on our business.

Third parties control our access to unique identifiers, and if the use of "third-party cookies" or other technology to uniquely identify devices is rejected by Internet users, restricted or otherwise subject to unfavorable regulation, blocked or limited by technical changes on end users' devices and web browsers, or our and our clients' ability to use data on our platform is otherwise restricted, our performance may decline and we may lose advertisers and revenue.

Our ability to successfully leverage user data and generate revenue from opportunities to serve advertisements could be impacted by restrictions imposed by third parties, including restrictions on our ability to use or read cookies, device identifiers, or other tracking features or our ability to use real-time bidding networks or other bidding networks. For example, if publishers or supply-side platforms decide to limit the data that we receive in order to comply (in their view) with the opt-out of sale provisions of the CCPA or a potential federal privacy law, then our service may prove to be less valuable to our clients and we may find it more difficult to generate revenue. That is, if third parties on which we rely for data or opportunities to serve advertisements impose limitations (for whatever reason) or are restricted by other ecosystem participants or applicable regulations, we may lose the ability to access data, bid on opportunities, or purchase digital ad space, which could have a substantial impact on our revenue.

Digital advertising mostly relies on the ability to uniquely identify devices across websites and applications, and to collect data about user interactions with those devices for purposes such as serving relevant ads and measuring the effectiveness of ads. Devices are identified through unique identifiers stored in cookies, provided by device operating systems for advertising purposes, or generated based on statistical algorithms applied to information about a device, such as the IP address and device type. We use device identifiers to record such information as when an Internet user views an ad, clicks on an ad, or visits one of our advertiser's websites or applications. We use device identifiers to help us achieve our advertisers' campaign goals, including to limit the instances that an Internet user sees the same advertisement, report information to our advertisers regarding the performance of their advertising campaigns, and detect and prevent malicious behavior and invalid traffic throughout our network of inventory. We also use data associated with device identifiers to help our clients decide whether to bid on, and how to price, an opportunity to place an advertisement in a specific location, at a given time, in front of a particular Internet user. Additionally, our clients rely on device identifiers to add information they have collected or acquired about users into our platform. Without such data, our clients may not have sufficient insight into an Internet user's activity, which may compromise their and our ability to determine which inventory to purchase for a specific campaign and may undermine the effectiveness of our platform or our ability to improve our platform and remain competitive.

Today, digital advertising, including our platform, makes significant use of cookies to store device identifiers for the advertising activities described above. When we use cookies, they are generally considered third-party cookies, which are cookies owned and used by parties other than the owners of the website visited by the Internet user. The most commonly used Internet browsers—Chrome, Firefox, Internet Explorer and Safari—allow Internet users to modify their browser settings to prevent some or all cookies from being accepted by their browsers. Internet users can delete cookies from their computers at any time. Additionally, some browsers currently, or may in the future, block or limit some third-party cookies by default or may implement user control settings that algorithmically block or limit some cookies. Today, three major web browsers—Apple’s Safari, Mozilla’s Firefox, and Microsoft’s Edge—block third-party cookies by default. Google’s Chrome has introduced new controls over third-party cookies and announced plans to deprecate support for third-party cookies and user agent strings entirely by January 2022. Some Internet users also download free or paid ad blocking software that not only prevents third-party cookies from being stored on a user’s computer, but also blocks all interaction with a third-party ad server. In addition, Google has introduced ad blocking software in its Chrome web browser that will block certain ads based on quality standards established under a multi-stakeholder coalition. If such a feature inadvertently or mistakenly blocks ads that are not within the established blocking standards, or if such capabilities become widely adopted and the advertising technology industry does not collaboratively develop alternative technologies, our business could be harmed. The IAB and DAA have also developed frameworks that allow users to opt out of the “sale” of their personal information under the CCPA in ways that stop or severely limit the ability to show targeted ads.

Advertising shown on mobile applications can also be affected by blocking or restricting use of mobile device identifiers. Data regarding interactions between users and devices are tracked mostly through stable, pseudonymous advertising identifiers that are built into the device operating system with privacy controls that allow users to express a preference with respect to data collection for advertising, including to disable the identifier. These identifiers and privacy controls are defined by the developers of the platforms through which the applications are accessed and could be changed by the platforms in a way that may negatively impact our business. For example, Apple announced last year that it will require user opt-in before permitting access to Apple’s unique identifier, or IDFA. Apple initially targeted fall 2020 for implementing these changes but has pushed that date out until at least early 2021. This shift from enabling user opt-out to an opt-in requirement is likely to have a substantial impact on the mobile advertising ecosystem and could impact our growth in this channel.

In addition, in the EU, Directive 2002/58/EC (as amended by Directive 2009/136/EC), commonly referred to as the ePrivacy or Cookie Directive, directs EU member states to ensure that accessing information on an Internet user’s computer, such as through a cookie and other similar technologies, is allowed only if the Internet user has been informed about such access and given his or her consent. A recent ruling by the Court of Justice of the European Union clarified that such consent must be reflected by an affirmative act of the user, and European regulators are increasingly agitating for more robust forms of consent. These developments may result in decreased reliance on implied consent mechanisms that have been used to meet requirements of the Cookie Directive in some markets. A replacement for the Cookie Directive is currently under discussion by EU member states to complement and bring electronic communication services in line with the GDPR and force a harmonized approach across EU member states. Like the GDPR, the proposed ePrivacy Regulation has extra-territorial application as it applies to businesses established outside the EU who provide publicly available electronic communications services to, or gather data from the devices of, users in the EU. Though still subject to debate, the proposed ePrivacy Regulation may further raise the bar for the use of cookies and the fines and penalties for breach may be significant. We may be required to, or otherwise may determine that it is advisable to, make significant changes in our business operations and product and services to obtain user opt-in for cookies and use of cookie data, or develop or obtain additional tools and technologies to compensate for a lack of cookie data.

As the collection and use of data for digital advertising has received media attention over the past several years, some government regulators, such as the FTC, and privacy advocates have suggested creating a “Do Not Track” standard that would allow Internet users to express a preference, independent of cookie settings in their browser, not to have their online browsing activities tracked. “Do Not Track” has seen renewed emphasis from proponents of the CCPA, and the final regulations browser-based or similar “do not sell” signals. California’s CPRA, similarly contemplates the use of technical opt outs for the sale and sharing of personal information for advertising purposes as well as to opt out of the use of sensitive information for advertising purposes and allows for AG rulemaking to develop these technical signals. If a “Do Not Track,” “Do Not Sell,” or similar control is adopted by many Internet users or if a “Do Not Track” standard is imposed by state, federal, or foreign legislation (as it arguably is to some degree under the CCPA regulations), or is agreed upon by standard setting groups, we may have to change our business practices, our clients may reduce their use of our platform, and our business, financial condition, and results of operations could be adversely affected.

Increased transparency into the collection and use of data for digital advertising, introduced both through features in browsers and devices and regulatory requirements, such as the GDPR, the CCPA, “Do Not Track”, and ePrivacy, as well as compliance with such requirements, may create operational burdens to implement and may lead more users to choose to block the collection and use of data about them. Adapting to these and similar changes has in the past and may in the future require significant time, resources and expense, which may increase our cost of operation or limit our ability to operate or expand our business.

Concerns regarding data privacy and security relating to our industry's technology and practices, and perceived failure to comply with laws and industry self-regulation, could damage our reputation and deter current and potential clients from using our products and services.

Public perception regarding data protection and privacy are significant in the programmatic advertising buying industry. Concerns about industry practices with regard to the collection, use, and disclosure of personal information, whether or not valid and whether driven by applicable laws and regulations, industry standards, client or inventory provider expectations, or the broader public, may harm our reputation, result in loss of goodwill, and inhibit use of our platform by current and future clients. For example, perception that our practices involve an invasion of privacy, whether or not such practices are consistent with current or future laws, regulations, or industry practices, may subject us to public criticism, private class actions, reputational harm, or claims by regulators, which could disrupt our business and expose us to increased liability.

Our failure to meet standards and provide services that our advertisers and inventory suppliers trust, could harm our brand and reputation and those of our partners and negatively impact our business, financial condition and results of operations.

We do not provide or control the content of the advertisements that we serve or the content of the websites providing the inventory. Advertisers provide the advertising content and inventory suppliers provide the inventory. Both advertisers and inventory suppliers are concerned about being associated with content they consider inappropriate, competitive or inconsistent with their brands, or illegal, and they are hesitant to spend money or make inventory available, respectively, without some guarantee of brand security. Consequently, our reputation depends in part on providing services that our advertisers and inventory suppliers trust, and we have contractual obligations to meet content and inventory standards. We contractually prohibit the misuse of our platform by our clients and inventory suppliers. Additionally, we use our proprietary technology and third-party services to, and we participate in industry co-ops that work to, detect malware and other content issues as well as click fraud (whether by humans or software known as "bots") and to block fraudulent inventory, including "tool bar" inventory, which is inventory that appears within an application and displaces any advertising that would otherwise be displayed on the website. Despite such efforts, our clients may inadvertently purchase inventory that proves to be unacceptable for their campaigns, in which case we may not be able to recoup the amounts paid to inventory suppliers. Preventing and combating fraud is an industry-wide issue that requires constant vigilance, and we cannot guarantee that we will be successful in our efforts. Our clients could intentionally run campaigns that do not meet the standards of our inventory suppliers or attempt to use illegal or unethical targeting practices or seek to display advertising in jurisdictions that do not permit such advertising or in which the regulatory environment is uncertain, in which case our supply of ad inventory from such suppliers could be jeopardized. Some of our competitors undertake human review of content, but because our platform is self-service, and because such means are cost-intensive, we do not utilize all means available to decrease these risks. We may provide access to inventory that is objectionable to our advertisers, serve advertising that contains malware, objectionable content, or is based on questionable targeting criteria to our inventory suppliers, or be unable to detect and prevent non-human traffic, any one of which could harm our or our clients' brand and reputation, decrease their trust in our platform, and negatively impact our business, financial condition and results of operations.

If we fail to offer sufficient client training and support, our business and reputation would suffer.

Because we offer a self-service platform, client training and support is important for the successful marketing and continued use of our platform and for maintaining and increasing spend through our platform from existing and new clients. Providing this training and support requires that our platform operations personnel have specific domain knowledge and expertise along with the ability to train others, which makes it more difficult for us to hire qualified personnel and to scale up our support operations due to the extensive training required. The importance of high-quality client service will increase as we expand our business and pursue new clients. If we are not responsive and proactive regarding our clients' advertising needs, or do not provide effective support for our clients' advertising campaigns, our ability to retain our existing clients would suffer and our reputation with existing or potential clients would be harmed, which would negatively impact our business.

If the non-proprietary technology, software, products and services that we use are unavailable, have future terms we cannot agree to, or do not perform as we expect, our business, financial condition and results of operations could be harmed.

We depend on various technology, software, products and services from third parties or available as open source, including data centers and API technology, payment processing, payroll and other technology and professional services, some of which are critical to the features and functionality of our platform. For example, in order for clients to target ads in ways they desire and otherwise optimize and verify campaigns, our platform must have access to data regarding Internet user behavior and reports with demographic information regarding Internet users. Identifying, negotiating, complying with and integrating with third-party terms and technology are complex, costly and time-consuming matters. Failure by third-party providers to maintain, support or secure their technology either generally or for our accounts specifically, or downtime, errors or defects in their products or services, could adversely impact our platform, our administrative obligations or other areas of our business. Having to replace any third-party providers or their technology, products or services could result in outages or difficulties in our ability to provide our services. If we are unsuccessful in establishing or maintaining our relationships with our third-party providers or otherwise need to replace them, internal resources may need to be diverted and our business, financial condition and results of operations could be harmed.

Disruptions to service from our third-party data center hosting facilities and cloud computing and hosting providers could impair the delivery of our services and harm our business.

A significant portion of our business relies upon hardware and services that are hosted, managed and controlled by third-party co-location providers for our data centers, and we are dependent on these third parties to provide continuous power, cooling, Internet connectivity and physical and technological security for our servers. In the event that these third-party providers experience any interruption in operations or cease business for any reason, or if we are unable to agree on satisfactory terms for continued hosting relationships, we would be forced to enter into a relationship with other service providers or assume some hosting responsibilities ourselves. Even a disruption as brief as a few minutes could have a negative impact on marketplace activities and could result in a loss of revenue. These facilities may be located in areas prone to natural disasters and may experience catastrophic events such as earthquakes, fires, floods, power loss, telecommunications failures, public health crises and similar events. They may also be subject to break-ins, sabotage, intentional acts of vandalism, cyber-attacks and similar misconduct. Although we have made certain disaster recovery and business continuity arrangements, such events could cause damage to, or failure of, our systems generally, or those of the third-party cloud computing and hosting providers, which could result in disruptions to our service.

We face potential liability and harm to our business based on the human factor of inputting information into our platform.

Campaigns are set up using several variables available to our clients on our platform. While our platform includes several checks and balances, it is possible for human error to result in significant overspending. The system requires a daily cap at the ad group level. We also provide for the client to input daily and overall caps at the advertising inventory campaign level at their discretion. Additionally, we set a credit limit for each user so that they cannot spend beyond the level of credit risk we are willing to accept. Despite these protections, the ability for overspend exists. For example, campaigns which last for a period of time can be set to pace evenly or as quickly as possible. If a client with a high credit limit enters the wrong daily cap with a campaign set to a rapid pace, it is possible for a campaign to accidentally go significantly over budget. While our client contracts state that clients are responsible for media purchased through our platform, we are ultimately responsible for paying the inventory providers, and we may be unable to collect from clients facing such issues, in which case our results of operations would be harmed.

We have international operations and plan to continue expanding abroad where we have more limited operating experience, which may subject us to additional cost and economic risks that can adversely affect our business, financial condition and results of operations.

Our international operations and expansion plans create challenges associated with supporting a rapidly growing business across a multitude of cultures, customs, monetary, legal and regulatory systems and commercial infrastructures. We have a limited operating history outside of the U.S., and our ability to manage and expand our business and conduct our operations internationally requires considerable attention and resources.

We have personnel in countries within North America, Central America, Europe, Asia, and Australia, and we are continuing to expand our international operations. Some of the countries into which we are, or potentially may, expand score unfavorably on the Corruption Perceptions Index, or CPI, of the Transparency International. Our teams in locations outside the U.S. are substantially smaller than some of our teams in the U.S. To the extent we are unable to effectively engage with non-U.S. advertising agencies or international divisions of U.S. agencies due to our limited sales force capacity, or we are unable to secure quality non-U.S. ad inventory and data on reasonable terms due to our limited inventory and data team capacity, we may be unable to effectively grow in international markets.

Our international operations and expansion subject us to a variety of additional risks, including:

- risks related to local advertising markets, where adoption of programmatic ad buying may be slower than in the U.S., advertising buyers and inventory and data providers may be less familiar with demand-side platforms and our brand, and business models may not support our value proposition;
- exposure to public health issues, and to travel restrictions and other measures undertaken by governments in response to such issues;
- risks related to compliance with local laws and regulations, including those relating to privacy, cybersecurity, data security, antitrust, data localization, anti-bribery, import and export controls, economic sanctions (including to existing and potential partners and clients), tax and withholding (including overlapping of different tax regimes), varied labor and employment laws (including those relating to termination of employees); corporate formation, partnership, restrictions on foreign ownership or investment, and other regulatory limitations or obligations on our operations (such as obtaining requisite licenses or other governmental requirements); and the increased administrative costs and risks associated with such compliance;
- operational and execution risk, and other challenges caused by distance, language and cultural differences, which may burden management, increase travel, infrastructure and legal compliance costs, and add complexity to our enforcement of advertising standards across languages and countries;
- geopolitical and social factors, such as concerns regarding negative, unstable or changing economic conditions in the countries and regions where we operate, global and regional recessions, political instability, and trade disputes;

- risks related to pricing structure, payment and currency, including aligning our pricing model and payment terms with local norms, higher levels of credit risk and payment fraud, difficulties in invoicing and collecting in foreign currencies and associated foreign currency exposure, and difficulties in repatriating or transferring funds from or converting currencies; and
- reduced protection for intellectual property rights in some countries and practical difficulties in enforcing contractual and intellectual property rights abroad.

We have a U.K. entity through which we have entered into international client and partner agreements, including with those in the EU, which are governed by English Law, and some of our clients and partners pay us in British Pounds and Euros. It is unclear what effects Brexit will have on the operational execution and enforcement of those agreements, transborder transactions generally, matters of taxation, transborder data flows, regulators' jurisdiction over our business, and other matters related to how we do business in the U.K. and EU. Brexit may adversely affect economic conditions in the U.K., EU and elsewhere across the globe, and could contribute to volatility in foreign exchange markets with respect to the British Pound and Euro, which we may not be able to effectively manage, and our financial results could be adversely affected. Further, Brexit may add additional complexity to our European operations, which are headquartered in the U.K. Accordingly, we cannot predict the additional expense, impact on revenue, or other business impact that may stem from Brexit.

We may incur significant operating expenses as a result of our international operations and expansion, and we may not be successful. Our international business also subjects us to the impact of differing regulatory requirements, costs and difficulties in managing a distributed workforce, and potentially adverse tax consequences in the U.S. and abroad. If our international activities were found to be in violation of any existing or future international laws or regulations or if interpretations of those laws and regulations were to change, our business in those countries could be subject to fines and other financial penalties, have licenses revoked, or be forced to restructure operations or shut down entirely. In addition, advertising markets outside of the U.S. are not as developed as those within the U.S., and we may be unable to grow our business sufficiently. Any failure to successfully manage the risks and challenges related to our international operations could adversely affect our business, financial condition and results of operations.

We have entered into, and may in the future enter into, credit facilities which may contain operating and financial covenants that restrict our business and financing activities.

We have entered into, and may in the future enter into, credit facilities which contain restrictions that limit our flexibility in operating our business. Our credit facility contains, and any future credit facility may contain, various covenants that limit our ability to engage in specified types of transactions. Subject to limited exceptions, these covenants limit our ability to, among other things:

- sell assets or make changes to the nature of our business;
- engage in mergers or acquisitions;
- incur, assume or permit additional indebtedness and guarantees;
- make restricted payments, including paying dividends on, repurchasing, redeeming or making distributions with respect to our capital stock;
- make specified investments;
- engage in transactions with our affiliates; and
- make payments in respect of subordinated debt.

Our obligations under our credit facility are collateralized by a pledge of substantially all of our assets, including accounts receivable, deposit accounts, intellectual property, and investment property and equipment. The covenants in our credit facility may limit our ability to take actions and, in the event that we breach one or more covenants, our lenders may choose to declare an event of default and require that we immediately repay all amounts outstanding, terminate the commitment to extend further credit and foreclose on the collateral granted to them to collateralize such indebtedness, which includes our intellectual property. In addition, if we fail to meet the required covenants, we will not have access to further draw-downs under our credit facility.

Our future success depends on the continuing efforts of our key employees, including Jeff T. Green and David R. Pickles, and our ability to attract, hire, retain and motivate highly skilled employees in the future.

Our future success depends on the continuing efforts of our executive officers and other key employees, including our two founders, Jeff T. Green, our Chief Executive Officer, and David R. Pickles, our Chief Technology Officer. We rely on the leadership, knowledge, and experience that our executive officers provide. They foster our corporate culture, which has been instrumental to our ability to attract and retain new talent. We also rely on our ability to hire and retain qualified and motivated employees, particularly those employees in our product development, support, and sales teams that attract and keep key clients.

The market for talent in many of our areas of operations, including California and New York, is intensely competitive, as technology companies like ours compete to attract the best talent. As a business-to-business company, we do not have the same level of name recognition among potential recruits as business-to-consumer companies. Additionally, we have less experience with recruiting and less name recognition in geographies outside of the U.S. and may face additional challenges in attracting and retaining international employees. As a result, we may incur significant costs to attract and retain employees, including significant expenditures related to salaries and benefits and compensation expenses related to equity awards, and we may lose new employees to our competitors or other companies before we realize the benefit of our investment in recruiting and training them. New employees often require significant training and, in many cases, take significant time before they achieve full productivity. Our account managers, for instance, need to be trained quickly on the features of our platform since failure to offer high-quality support may adversely affect our relationships with our clients.

Employee turnover, including changes in our management team, could disrupt our business. None of our founders or other key employees have an employment agreement for a specific term, and all of our employees may terminate his or her employment with us at any time. The loss of one or more of our executive officers, especially our two founders, or our inability to attract and retain highly skilled employees could have an adverse effect on our business, financial condition and results of operations.

If we do not effectively grow and train our sales and client service teams, we may be unable to add new clients or increase sales to our existing clients and our business will be adversely affected.

We are substantially dependent on our sales and client service teams to obtain new clients and to increase spend by our existing clients. We believe that there is significant competition for sales personnel with the skills and technical knowledge that we require. Our ability to achieve revenue growth will depend, in large part, on our success in recruiting, training, integrating and retaining sufficient numbers of sales personnel to support our growth. Due to the complexity of our platform, new hires require significant training and it may take significant time before they achieve full productivity. Our recent and planned hires may not become productive as quickly as we expect, and we may be unable to hire or retain sufficient numbers of qualified individuals in the markets where we do business or plan to do business. If we are unable to hire and train sufficient numbers of effective sales personnel, or the sales personnel are not successful in obtaining new clients or increasing our existing clients' spend with us, our business will be adversely affected.

Our corporate culture has contributed to our success and, if we are unable to maintain it as we grow, our business, financial condition, and results of operations could be harmed.

We have experienced and may continue to experience rapid expansion of our employee ranks. We believe our corporate culture has been a key element of our success. However, as our organization grows, it may be difficult to maintain our culture, which could reduce our ability to innovate and operate effectively. The failure to maintain the key aspects of our culture as our organization grows could result in decreased employee satisfaction, increased difficulty in attracting top talent, increased turnover and could compromise the quality of our client service, all of which are important to our success and to the effective execution of our business strategy. In the event we are unable to maintain our corporate culture as we grow to scale, our business, financial condition and results of operations could be harmed.

Our proprietary rights may be difficult to enforce, which could enable others to copy or use aspects of our technology without compensating us, thereby eroding our competitive advantages and harming our business.

We rely upon a combination of trade secrets, third-party confidentiality and non-disclosure agreements, additional contractual restrictions on disclosure and use, and trademark, copyright, patent and other intellectual property laws to establish and protect our proprietary rights. These laws, procedures and restrictions provide only limited protection. We currently have "theTradeDesk" and variants and other marks registered as trademarks or pending registrations in the U.S. and certain foreign countries. We also rely on copyright laws to protect computer programs related to our platform and our proprietary technologies, although to date we have not registered for statutory copyright protection. We have registered numerous Internet domain names in the U.S. and certain foreign countries related to our business. We endeavor to enter into agreements with our employees and contractors in order to limit access to and disclosure of our proprietary information, as well as to clarify rights to intellectual property associated with our business. Protecting our intellectual property is a challenge, especially after our employees or our contractors end their relationship with us, and, in some cases, decide to work for our competitors. Our contracts with our employees and contractors that relate to intellectual property issues generally restrict the use of our confidential information solely in connection with our services, and strictly prohibit reverse engineering. However, reverse engineering our software or the theft or misuse of our proprietary information could occur by employees or other third parties who have access to our technology. Enforceability of the non-compete agreements that we have in place is not guaranteed, and contractual restrictions could be breached without discovery or adequate remedies. Historically, we have prioritized keeping our technology architecture, trade secrets, and engineering roadmap private, and as a general matter, have not patented our proprietary technology. As a result, we cannot look to patent enforcement rights to protect much of our proprietary technology. Furthermore, our patent strategy is still in its early stages. We may not be able to obtain any further patents, and our pending applications may not result in the issuance of patents. Any issued patents may be challenged, invalidated or circumvented, and any rights granted under these patents may not actually provide adequate defensive protection or competitive advantages to us. Additionally, the process of obtaining patent protection is expensive and time-consuming, and we may not be able to prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner.

Policing unauthorized use of our technology is difficult. In addition, the laws of some foreign countries may not be as protective of intellectual property rights as those of the U.S., and mechanisms for enforcement of our proprietary rights in such countries may be inadequate. If we are unable to protect our proprietary rights (including in particular, the proprietary aspects of our platform) we may find ourselves at a competitive disadvantage to others who have not incurred the same level of expense, time and effort to create and protect their intellectual property.

We may be sued by third parties for alleged infringement of their proprietary rights, which would result in additional expense and potential damages.

There is significant patent and other intellectual property development activity in the digital advertising industry. Third-party intellectual property rights may cover significant aspects of our technologies or business methods or block us from expanding our offerings. Our success depends on the continual development of our platform. From time to time, we may receive claims from third parties that our platform and underlying technology infringe or violate such third parties' intellectual property rights. To the extent we gain greater public recognition, we may face a higher risk of being the subject of intellectual property claims. The cost of defending against such claims, whether or not the claims have merit, is significant, regardless of whether we are successful in our defense, and could divert the attention of management, technical personnel and other employees from our business operations. Litigation regarding intellectual property rights is inherently uncertain due to the complex issues involved, and we may not be successful in defending ourselves in such matters. Additionally, we have obligations to indemnify our clients or inventory and data suppliers in connection with certain intellectual property claims. If we are found to infringe these rights, we could potentially be required to cease utilizing portions of our platform. We may also be required to develop alternative non-infringing technology, which could require significant time and expense. Additionally, we could be required to pay royalty payments, either as a one-time fee or ongoing, as well as damages for past use that was deemed to be infringing. If we cannot license or develop technology for any allegedly infringing aspect of our business, we would be forced to limit our service and may be unable to compete effectively. Any of these results could harm our business.

We face potential liability and harm to our business based on the nature of our business and the content on our platform.

Advertising often results in litigation relating to misleading or deceptive claims, copyright or trademark infringement, public performance royalties or other claims based on the nature and content of advertising that is distributed through our platform. Though we contractually require clients to generally represent to us that their advertisements comply with our ad standards and our inventory providers' ad standards and that they have the rights necessary to serve advertisements through our platform, we do not independently verify whether we are permitted to deliver, or review the content of, such advertisements. If any of these representations are untrue, we may be exposed to potential liability and our reputation may be damaged. While our clients are typically obligated to indemnify us, such indemnification may not fully cover us, or we may not be able to collect. In addition to settlement costs, we may be responsible for our own litigation costs, which can be expensive.

We are subject to anti-bribery, anti-corruption and similar laws and non-compliance with such laws can subject us to criminal penalties or significant fines and harm our business and reputation.

We are subject to anti-bribery and similar laws, such as the U.S. Foreign Corrupt Practices Act of 1977, as amended, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the USA PATRIOT Act, U.S. Travel Act, the U.K. Bribery Act 2010 and Proceeds of Crime Act 2002, and possibly other anti-corruption, anti-bribery and anti-money laundering laws in countries in which we conduct business. Anti-corruption laws have been enforced with great rigor in recent years and are interpreted broadly. Such laws prohibit companies and their employees and their agents from making or offering improper payments or other benefits to government officials and others in the private sector. As we increase our international sales and business, particularly in countries with a low score on the CPI by Transparency International, and increase our use of third parties such as sales agents, distributors, resellers or consultants, our risks under these laws will increase. We adopt appropriate policies and procedures and conduct training, but cannot guarantee that improprieties will not occur. Noncompliance with these laws could subject us to investigations, sanctions, settlements, prosecution, other enforcement actions, disgorgement of profits, significant fines, damages, other civil and criminal penalties or injunctions, suspension and/or debarment from contracting with specified persons, the loss of export privileges, reputational harm, adverse media coverage, and other collateral consequences. Any investigations, actions and/or sanctions could have a material negative impact on our business, financial condition and results of operations.

We are subject to governmental economic sanctions requirements and export and import controls that could impair our ability to compete in international markets or subject us to liability if we are not in compliance with applicable laws.

As a U.S. company, we are subject to U.S. export control and economic sanctions laws and regulations, and we are required to export our technology and services in compliance with those laws and regulations, including the U.S. Export Administration Regulations and economic embargo and trade sanctions programs administered by the Treasury Department's Office of Foreign Assets Control. U.S. economic sanctions and export control laws and regulations prohibit the shipment of specified products and services to countries, governments and persons targeted by U.S. sanctions. While we take precautions to prevent doing any business, directly or indirectly, with countries, governments and persons targeted by U.S. sanctions and to ensure that our technology and services are not exported or used by countries, governments and persons targeted by U.S. sanctions, such measures may be

circumvented. There can be no assurance that we will be in compliance with U.S. export control or economic sanctions laws and regulations in the future. Any such violation could result in significant criminal or civil fines, penalties or other sanctions and repercussions, including reputational harm that could materially adversely impact our business.

Furthermore, if we export our technology, the exports may require authorizations, including a license, a license exception or other appropriate government authorization. Complying with export control and sanctions regulations may be time-consuming and may result in the delay or loss of opportunities.

In addition, various countries regulate the import of encryption technology, including the imposition of import permitting and licensing requirements, and have enacted laws that could limit our ability to offer our platform or could limit our clients' ability to use our platform in those countries. Changes in our platform or future changes in export and import regulations may create delays in the introduction of our platform in international markets or prevent our clients with international operations from deploying our platform globally. Any change in export or import regulations, economic sanctions or related legislation, or change in the countries, governments, persons, or technologies targeted by such regulations, could result in decreased use of our platform by, or in our decreased ability to export our technology and services to, existing or potential clients with international operations. Any decreased use of our platform or limitation on our ability to export our platform would likely adversely affect our business, financial condition and results of operations.

Risks Related to Ownership of Our Class A Common Stock

The market price of our Class A common stock may be volatile or may decline regardless of our operating performance, and you may not be able to resell your shares at or above your purchase price.

The market price of our stock and of equity securities of technology companies has historically experienced high levels of volatility. If you purchase shares of our Class A common stock, you may not be able to resell those shares at or above your purchase price. The market price of our Class A common stock has fluctuated and may fluctuate significantly in response to numerous factors, some of which are beyond our control and may not be related to our operating performance, including:

- announcements of new offerings, products, services or technologies, commercial relationships, acquisitions, or other events by us or our competitors;
- price and volume fluctuations in the overall stock market from time to time;
- significant volatility in the market price and trading volume of technology companies in general and of companies in the digital advertising industry in particular;
- fluctuations in the trading volume of our shares or the size of our public float;
- actual or anticipated changes or fluctuations in our results of operations;
- whether our results of operations meet the expectations of securities analysts or investors;
- actual or anticipated changes in the expectations of investors or securities analysts;
- litigation involving us, our industry, or both;
- regulatory developments in the U.S., foreign countries, or both;
- general economic conditions and trends;
- terrorist attacks, political upheaval, natural disasters, public health crises, or other major catastrophic events;
- sales of large blocks of our common stock;
- departures of key employees; or
- an adverse impact on us from any of the other risks cited herein.

In addition, if the stock market for technology companies, or the stock market generally, experiences a loss of investor confidence, the trading price of our Class A common stock could decline for reasons unrelated to our business, financial condition, or results of operations. Stock prices of many technology companies have fluctuated in a manner unrelated or disproportionate to the operating performance of those companies. The trading price of our Class A common stock might also decline in reaction to events that affect other companies in our industry even if these events do not directly affect us. In the past, stockholders have filed securities class action litigation following periods of market volatility. If we were to become involved in securities litigation, it could subject us to substantial costs, divert resources and the attention of management from our core business, and adversely affect our business.

Substantial future sales of shares of our common stock could cause the market price of our Class A common stock to decline.

The market price of our Class A common stock could decline as a result of substantial sales of our common stock, particularly sales by our directors, executive officers, and significant stockholders or the perception in the market that holders of a large number of shares intend to sell their shares.

Additionally, our directors, executive officers, employees and, in certain instances, service providers, hold shares of common stock subject to outstanding options, restricted stock awards and restricted stock units under our equity incentive plans. Those shares and the shares reserved for future issuance under our equity incentive plans are and will become eligible for sale in the public market, subject to certain legal and contractual limitations.

Certain holders of our common stock have rights, subject to some conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or our stockholders.

Insiders have substantial control over our company, including as a result of the dual class structure of our common stock, which could limit your ability to influence the outcome of key decisions, including a change of control.

Our Class B common stock has ten votes per share, and our Class A common stock has one vote per share. Because of the ten-to-one voting ratio between our Class B and Class A common stock, the holders of our Class B common stock collectively continue to control a majority of the combined voting power of our common stock and therefore are able to control all matters submitted to our stockholders for approval so long as the shares of Class B common stock represent at least 9.1% of all outstanding shares of our Class A and Class B common stock in the aggregate. Our certificate of incorporation provides that all Class B common stock will convert automatically into Class A common stock on December 22, 2025 unless converted prior to such date. As of December 31, 2020, stockholders who hold shares of Class B common stock, including our executive officers, employees, and directors and their affiliates, together hold approximately 54% of the voting power of our outstanding capital stock. This concentrated control limits or precludes your ability to influence corporate matters, as the holders of Class B common stock are able to influence or control matters requiring approval by our stockholders, including the election of the directors, excluding the director we plan to designate as a Class A director, and the approval of mergers, acquisitions or other extraordinary transactions. Their interests may differ from yours and they may vote in a manner that is adverse to your interests. This ownership concentration may deter, delay or prevent a change of control of our company, deprive our stockholders of an opportunity to receive a premium for their common stock as part of a sale of our company and may ultimately affect the market price of our common stock. Furthermore, in connection with the amendments and related matters voted on at the Special Meeting of Stockholders held on December 22, 2020, or the Special Meeting, we may experience legal proceedings, including securities class action claims and/or derivative litigation. Any legal proceedings related to items voted upon at the Special Meeting may divert management's time and attention and may result in the incurrence of significant expense, including legal fees.

Transfers by holders of Class B common stock will generally result in those shares converting to Class A common stock, subject to limited exceptions, such as transfers effected for estate planning or charitable purposes. However, until the conversion of all outstanding shares of Class B common stock, the conversion of Class B common stock to Class A common stock will have the effect, over time, of increasing the voting power of those holders of Class B common stock who retain their shares in the long term.

Our charter documents and Delaware law could discourage takeover attempts and other corporate governance changes.

Our certificate of incorporation and bylaws contain provisions that could delay or prevent a change in control of our company. These provisions could also make it difficult for stockholders to elect directors that are not nominated by the current members of our board of directors or take other corporate actions, including effecting changes in our management. These provisions include the following provisions:

- permit the board of directors to establish the number of directors and fill any vacancies and newly created directorships;
- provide that our board of directors will be classified into three classes with staggered, three-year terms and that directors may only be removed for cause;
- require super-majority voting to amend certain provisions in our certificate of incorporation and bylaws;
- authorize the issuance of "blank check" preferred stock that our board of directors could use to implement a stockholder rights plan;
- specify that special meetings of our stockholders can be called only by our board of directors, the chairman of our board of directors, our chief executive officer, or a stockholder that has held at least 20% of our outstanding shares of common stock continuously for one year;
- prohibit stockholder action by written consent until the outstanding shares of Class B common stock represent less than 50% of our outstanding voting power, which until such time requires all stockholder actions to be taken at a meeting of our stockholders;

- provide that the board of directors is expressly authorized to make, alter or repeal our bylaws;
- provide that vacancies on our board of directors may be filled only by a majority of directors then in office, even though less than a quorum;
- prohibit cumulative voting in the election of directors;
- restrict the forum for certain litigation against us to Delaware;
- permit our board of directors to alter our bylaws without obtaining stockholder approval;
- reflect the dual class structure of our common stock, as discussed above; and
- establish advance notice requirements for nominations for election to our board of directors or for proposing matters that can be acted upon by stockholders at annual stockholder meetings.

In addition, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a period of time.

Our certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for substantially all disputes between us and our stockholders, which limits our stockholders' ability to choose other forums for disputes with us or our directors, officers or employees.

Our certificate of incorporation provides that the Court of Chancery of the State of Delaware is the sole and exclusive forum for: (1) any derivative action or proceeding brought on our behalf; (2) any action asserting a claim of breach of a fiduciary duty by any of our directors, officers, employees, or our stockholders owed to us or our stockholders; (3) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our bylaws, or as to which the Delaware General Corporation Law confers jurisdiction on the Court of Chancery of the State of Delaware; or (4) any action asserting a claim governed by the internal affairs doctrine. This choice of forum provision may limit a stockholder's ability to bring a claim in other judicial forums for disputes with us or our directors, officers, or other employees, which may discourage lawsuits against us and our directors, officers and other employees in jurisdictions other than Delaware. Alternatively, if a court were to find the choice of forum provision contained in our certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could have a material adverse effect on our business, financial condition, or results of operations.

General Risk Factors

If we fail to maintain an effective system of internal control over financial reporting in the future, we may not be able to accurately or timely report our financial condition or results of operations. If our internal control over financial reporting is not effective, it may adversely affect investor confidence in us and the price of our common stock.

As a public company, we are required to maintain internal control over financial reporting and to report any material weaknesses in such internal control. Section 404 of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, requires that we evaluate and determine the effectiveness of our internal control over financial reporting and provide a management report on internal control over financial reporting.

Our platform system applications are complex, multi-faceted and include applications that are highly customized in order to serve and support our clients, advertising inventory and data suppliers, as well as support our financial reporting obligations. We regularly make improvements to our platform to maintain and enhance our competitive position. In the future, we may implement new offerings and engage in business transactions, such as acquisitions, reorganizations or implementation of new information systems. These factors require us to develop and maintain our internal controls, processes and reporting systems, and we expect to incur ongoing costs in this effort. We may not be successful in developing and maintaining effective internal controls, and any failure to develop or maintain effective controls, or any difficulties encountered in their implementation or improvement, could harm our operating results or cause us to fail to meet our reporting obligations and may result in a restatement of our financial statements for prior periods.

If we identify material weaknesses in our internal control over financial reporting, we will be unable to assert that our internal control over financial reporting is effective. If we are unable to assert that our internal control over financial reporting is effective, if our independent registered public accounting firm is unable to express an opinion as to the effectiveness of our internal control over financial reporting, or if we are unable to comply with the requirements of the Sarbanes-Oxley Act in a timely manner, then, we may be late with the filing of our periodic reports, investors may lose confidence in the accuracy and completeness of our financial reports and the market price of our common stock could be negatively affected. Such failures could also subject us to investigations by Nasdaq, the stock exchange on which our securities are listed, the SEC or other regulatory authorities, and to litigation from stockholders, which could harm our reputation, financial condition or divert financial and management resources from our core business.

The requirements of being a public company may strain our resources, divert our management's attention and affect our ability to attract and retain qualified board members.

As a public company, we are subject to the reporting requirements of the Exchange Act, and are required to comply with the applicable requirements of the Sarbanes-Oxley Act and the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of NASDAQ, and other applicable securities rules and regulations. Compliance with these rules and regulations increases our legal and financial compliance costs, make some activities more difficult, time-consuming or costly and increase demand on our systems and resources. Among other things, the Exchange Act requires that we file annual, quarterly and current reports with respect to our business and results of operations and maintain effective disclosure controls and procedures and internal controls over financial reporting. Significant resources and management oversight are required to maintain and, if required, improve our disclosure controls and procedures and internal controls over financial reporting to meet this standard. As a result, management's attention may be diverted from other business concerns, which could harm our business and results of operations.

Exposure to foreign currency exchange rate fluctuations could negatively impact our results of operations.

While the majority of the transactions through our platform are denominated in U.S. dollars, we have transacted in foreign currencies, both for inventory and for payments by clients from use of our platform. We also have expenses denominated in currencies other than the U.S. Dollar. Given our anticipated international growth, we expect the number of transactions in a variety of foreign currencies to continue to grow in the future. While we generally require a fee from our clients that pay in non-U.S. currency, this fee may not always cover foreign currency exchange rate fluctuations. Although we currently have a program to hedge exposure to foreign currency fluctuations, the use of hedging instruments may not be available for all currencies or may not always offset losses resulting from foreign currency exchange rate fluctuations. Moreover, the use of hedging instruments can itself result in losses if we are unable to structure effective hedges with such instruments.

Future acquisitions, strategic investments or alliances could disrupt our business and harm our business, financial condition and results of operations.

We explore, on an ongoing basis, potential acquisitions of companies or technologies, strategic investments, or alliances to strengthen our business, however, we have limited experience in acquiring and integrating businesses, products and technologies. Even if we identify an appropriate acquisition candidate, we may not be successful in negotiating the terms or financing of the acquisition, and our due diligence may fail to identify all of the problems, liabilities or other shortcomings or challenges of an acquired business, product or technology, including issues related to intellectual property, product quality or architecture, regulatory compliance practices, revenue recognition or other accounting practices or employee or client issues. Acquisitions involve numerous risks, any of which could harm our business, including:

- regulatory hurdles;
- anticipated benefits may not materialize;
- diversion of management time and focus from operating our business to addressing acquisition integration challenges;
- retention of employees from the acquired company;
- cultural challenges associated with integrating employees from the acquired company into our organization;
- integration of the acquired company's products and technology;
- integration of the acquired company's accounting, management information, human resources and other administrative systems;
- 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;
- coordination of product development and sales and marketing functions;
- liability for activities of the acquired company before the acquisition, including relating to privacy and data security, patent and trademark infringement claims, violations of laws, commercial disputes, tax liabilities and other known and unknown liabilities; and
- litigation or other claims in connection with the acquisition, including claims from terminated employees, users, former stockholders or other third parties.

Failure to appropriately mitigate these risks or other issues related to such acquisitions and strategic investments could result in reducing or completely eliminating any anticipated benefits of transactions, 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 or the impairment of goodwill, any of which could harm our business, financial condition and results of operations.

We may not be able to secure additional financing on favorable terms, or at all, to meet our future capital needs, which may in turn impair our growth.

We intend to continue to grow our business, which will require additional capital to develop new features or enhance our platform, improve our operating infrastructure, finance working capital requirements, or acquire complementary businesses and technologies. We cannot assure you that our business will generate sufficient cash flow from operations or that future borrowings will be available to us under our existing credit facility in an amount sufficient to fund our working capital needs. Accordingly, we may need to engage in additional equity or debt financings to secure additional capital. We cannot assure you that we would be able to locate additional financing on commercially reasonable terms or at all. Any debt financing that we secure in the future could involve restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and to pursue business opportunities. If our cash flows and credit facility borrowings are insufficient to fund our working capital requirements, we may not be able to grow at the rate we currently expect or at all. In addition, in the absence of sufficient cash flows from operations, we might be unable to meet our obligations under our credit facility, and we may therefore be at risk of default thereunder. If we raise additional funds through future issuances of equity or convertible debt securities, our existing stockholders could suffer significant dilution, and any new equity securities we issue could have rights, preferences and privileges superior to those of holders of our common stock. If we are unable to secure additional funding on favorable terms, or at all, when we require it, our ability to continue to grow our business to react to market conditions could be impaired and our business may be harmed.

The phase out of the London Interbank Offered Rate (LIBOR), or the replacement of LIBOR with a different reference rate, may adversely affect interest rates.

Our revolving credit facility has interest rates tied to LIBOR. On November 30, 2020, the ICE Benchmark Administration (the Financial Conduct Authority-regulated and authorized administrator of LIBOR) announced that it would cease the publication of the one week and two-month USD LIBOR settings at the end of 2021 and phase out the remaining USD LIBOR settings by the end of 2023. Although many of our LIBOR-based obligations provide for alternative methods of calculating the interest rate payable if LIBOR is not reported, the extent and manner of any future changes with respect to methods of calculating LIBOR or replacing LIBOR with another benchmark are unknown and impossible to predict at this time and, as such, may result in interest rates that are materially higher than current interest rates. This could materially and adversely affect our results of operations, cash flows and liquidity.

Our tax liabilities may be greater than anticipated.

The U.S. and non-U.S. tax laws applicable to our business activities are subject to interpretation and are changing. We are subject to audit by the Internal Revenue Service and by taxing authorities of the state, local and foreign jurisdictions in which we operate. Our tax obligations are based in part on our corporate operating structure, including the manner in which we develop, value, use and hold our intellectual property, the jurisdictions in which we operate, how tax authorities assess revenue-based taxes such as sales and use taxes, the scope of our international operations and the value we ascribe to our intercompany transactions. Taxing authorities may challenge, and have challenged, our tax positions and methodologies for valuing developed technology or intercompany arrangements, positions regarding the collection of sales and use taxes, and the jurisdictions in which we are subject to taxes, which could expose us to additional taxes. Any adverse outcomes of such challenges to our tax positions could result in additional taxes for prior periods, interest and penalties, as well as higher future taxes. In addition, our future tax expense could increase as a result of changes in tax laws, regulations or accounting principles, or as a result of earning income in jurisdictions that have higher tax rates. For example, the European Commission has proposed, and various jurisdictions have enacted or are considering enacting laws that impose separate taxes on specified digital services, which may increase our tax obligations in such jurisdictions. Any increase in our tax expense could have a negative effect on our financial condition and results of operations. Moreover, the determination of our provision for income taxes and other tax liabilities requires significant estimates and judgment by management, and the tax treatment of certain transactions is uncertain. Given uncertainty with respect to the impact of the COVID-19 pandemic on our operations, the income tax benefit/expense we record may vary significantly in future periods. Any changes, ambiguity, or uncertainty in taxing jurisdictions' administrative interpretations, decisions, policies and positions, including, the position of taxing authorities with respect to revenue generated by reference to certain digital services, could also materially impact our income tax liabilities. Although we believe we will make reasonable estimates and judgments, the ultimate outcome of any particular issue may differ from the amounts previously recorded in our financial statements and any such occurrence could materially affect our financial condition and results of operations.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We maintain our principal offices in Ventura, California. We also lease office and data center space in various cities within the U.S., Europe, Asia and Australia. We believe that our facilities are adequate to meet our needs for the immediate future and that, should it be needed, we will be able to secure additional space to accommodate expansion of our operations.

Item 3. Legal Proceedings

We are not currently a party to any legal proceedings, litigation or claims, which, if determined adversely to us, would have a material adverse effect on our business, financial condition, results of operations or cash flows. We may from time to time, be party to litigation and subject to claims incident to the ordinary course of business. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Our Class A common stock began trading on the NASDAQ Global Market on September 21, 2016 under the symbol "TTD". Prior to this date, there was no public trading market for our Class A common stock. There is no public trading market for our Class B common stock. Refer to Note 9 to our audited consolidated financial statements for more information regarding capitalization.

Holders of Record

As of January 31, 2021, there were approximately 14 holders of record of our Class A common stock and 13 holders of record of our Class B common stock. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees. This number of holders also does not include stockholders whose shares may be held in trust by other entities.

Dividend Policy

We have never declared or paid any dividends on our Class A or Class B common stock, and we do not anticipate paying any cash dividends in the foreseeable future. We currently intend to retain any earnings to finance the operation and expansion of our business. Any future determination to pay dividends will be at the discretion of our board of directors and will be dependent upon then-existing conditions, including our earnings, capital requirements, results of operations, financial condition, business prospects and other factors that our board of directors considers relevant. Refer to "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" for additional information regarding our financial condition. In addition, our credit facility contains restrictions on our ability to pay dividends.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

None.

Recent Sales of Unregistered Securities

None.

Stock 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 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 ours under the Securities Act of 1933, as amended, except as shall be expressly set forth by specific reference in such filing.

The following graph compares the cumulative total stockholder return on an initial investment of \$100 in our Class A common stock between September 21, 2016 (our initial trading day) and December 31, 2020, with the comparative cumulative total returns of the Standard & Poor’s (S&P) 500 Index, NASDAQ 100 Index and Russell 3000 Index over the same period. As previously discussed, we have not paid any cash dividends and, therefore, the cumulative total return calculation for us is based solely upon stock price appreciation (depreciation) and not reinvestment of cash dividends, whereas the data for the S&P 500 Index, NASDAQ 100 Index and Russell 3000 Index assumes reinvestments of dividends. The graph assumes the closing market price on September 21, 2016 of \$30.10 per share as the initial value of our Class A common stock. The returns shown are based on historical results and are not necessarily indicative of, nor intended to forecast, future stock price performance.



Item 6. Selected Financial Data

The following tables set forth our selected consolidated financial data for the periods indicated. We have derived the selected consolidated statements of operations data for 2020, 2019, and 2018 and the selected consolidated balance sheet data as of December 31, 2020 and 2019 from our audited consolidated financial statements included elsewhere in this Annual Report on Form 10-K. The selected consolidated statements of operations data for 2017 and 2016 and the selected consolidated balance sheet data as of December 31, 2018, 2017 and 2016 were derived from our audited consolidated financial statements that are not included in this Annual Report on Form 10-K.

The following selected consolidated financial data should be read in conjunction with “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our consolidated financial statements and the related notes appearing in “Item 8. Financial Statements and Supplementary Data” in this Annual Report on Form 10-K. Our historical results are not necessarily indicative of our future results.

	Year Ended December 31,				
	2020	2019	2018	2017	2016
	(in thousands, except per share data)				
Consolidated Statements of Operations Data:					
Revenue	\$ 836,033	\$ 661,058	\$ 477,294	\$ 308,217	\$ 202,926
Operating expenses (1):					
Platform operations	178,812	156,180	114,098	66,230	39,876
Sales and marketing	174,742	132,882	87,071	61,379	46,056
Technology and development	166,654	116,752	83,892	52,806	27,313
General and administrative	171,617	143,048	84,910	58,446	32,163
Total operating expenses	691,825	548,862	369,971	238,861	145,408
Income from operations	144,208	112,196	107,323	69,356	57,518
Total other expense (income), net	305	(4,024)	1,586	5,731	13,684
Income before income taxes	143,903	116,220	105,737	63,625	43,834
Provision for (benefit from) income taxes	(98,414)	7,902	17,597	12,827	23,352
Net income	\$ 242,317	\$ 108,318	\$ 88,140	\$ 50,798	\$ 20,482
Net income (loss) attributable to common stockholders (2)	\$ 242,317	\$ 108,318	\$ 88,140	\$ 50,798	\$ (26,727)
Net income (loss) per share attributable to common stockholders—basic (2)	\$ 5.24	\$ 2.43	\$ 2.08	\$ 1.26	\$ (1.46)
Net income (loss) per share attributable to common stockholders—diluted (2)	\$ 4.95	\$ 2.27	\$ 1.92	\$ 1.15	\$ (1.46)

	Year Ended December 31,				
	2020	2019	2018	2017	2016
	(in thousands)				
Financial and Operating Data:					
Gross spend (3)	\$ 4,198,568	\$ 3,128,872	\$ 2,350,877	\$ 1,555,856	\$ 1,027,984
Gross billings (4)	\$ 4,168,260	\$ 3,095,687	\$ 2,285,013	\$ 1,491,742	\$ 990,561

	As of December 31,				
	2020	2019	2018	2017	2016
	(in thousands)				
Consolidated Balance Sheet Data:					
Cash, cash equivalents and short-term investments	\$ 624,038	\$ 254,988	\$ 207,232	\$ 155,950	\$ 133,400
Accounts receivable, net	1,584,109	1,166,376	834,764	599,565	377,240
Total assets (5)	2,753,645	1,728,761	1,117,872	797,164	537,596
Accounts payable	1,348,480	868,618	669,147	490,377	321,163
Long-term debt, net of current portion	—	—	—	27,000	25,847
Total liabilities (5)	1,740,500	1,116,244	723,305	551,581	373,216
Total stockholders' equity	1,013,145	612,517	394,567	245,583	164,380

(1) Includes stock-based compensation expense as follows:

	Year Ended December 31,				
	2020	2019	2018	2017	2016
	(in thousands)				
Platform operations	\$ 8,794	\$ 5,350	\$ 4,463	\$ 2,674	\$ 756
Sales and marketing	29,726	20,769	11,306	6,261	1,707
Technology and development	36,672	26,553	13,855	6,661	1,513
General and administrative	36,583	28,086	12,586	5,721	1,080
Total	<u>\$ 111,775</u>	<u>\$ 80,758</u>	<u>\$ 42,210</u>	<u>\$ 21,317</u>	<u>\$ 5,056</u>

Refer to Note 10 to our audited consolidated financial statements for more information regarding stock-based compensation expense.

- (2) Refer to Note 3 to our audited consolidated financial statements for a description of the net income (loss) attributable to common stockholders and net income (loss) per share attributable to common stockholders—basic and diluted computations.
- (3) Gross spend includes the value of a client's purchases through our platform plus our platform fee, which is a percentage of a client's purchases through the platform. We review gross spend for internal management purposes to assess market share and scale, and to plan for optimal levels of support for our clients. Some companies in our industry report revenue on a gross basis or use similar metrics, so tracking our gross spend allows us to compare our results to the results of those companies. Gross spend does not represent our revenue reported net on a GAAP basis. Our gross spend is influenced by the volume and characteristics of bids for advertising inventory won through our platform. We expect our revenue as a percentage of gross spend, which is sometimes referred to as take rate, to fluctuate due to the types of services and features selected by our clients through our platform and certain volume discounts. Other companies, including companies in our industry, may calculate gross spend or similarly titled measures differently, which reduces its usefulness as a comparative measure.
- (4) Gross billings represents the amount we invoice our clients, net of allowances. As some of our clients have payment relationships directly with advertising inventory suppliers for the amount of advertising inventory the clients purchase through our platform, we do not invoice these clients for this spend, and we only invoice such clients for data, other services and our platform fee. Accordingly, gross billings are less than gross spend and represent gross spend, less platform discounts and less the value of advertising inventory and data that our clients purchase directly from publishers through our platform. We report revenue on a net basis which represents gross billings net of amounts we pay suppliers for the cost of advertising inventory, data and add-on features. We expect our revenue as a percentage of gross billings to fluctuate due to the types of services and features selected by our clients through our platform and certain volume discounts. We review gross billings for internal management purposes to adequately plan for our working capital needs and monitor collection risk.
- (5) The selected financial data for 2020 and 2019 reflects the adoption of Accounting Standards Update ("ASU") No. 2016-02, Leases (Topic 842). Refer to Note 2 – Basis of Presentation and Summary of Significant Accounting Policies for further detail. The selected financial data for 2018, 2017 and 2016 does not reflect the adoption of ASU No. 2016-02.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion and analysis of our financial condition and results of operations together with the consolidated financial statements and the related notes to those statements included in Item 8 to this Annual Report on Form 10-K. In addition to historical financial information, the following discussion contains forward-looking statements that reflect our plans, estimates, beliefs, and expectations, and involve risks and uncertainties. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Annual Report on Form 10-K, particularly in the section titled "Item 1A. Risk Factors" and the "Special Note About Forward-Looking Statements".

The following generally discusses 2020 and 2019 items and year-to-year comparisons between 2020 and 2019. Discussion of historical items and year-to-year comparisons between 2019 and 2018 that are not included in this discussion can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report on Form 10-K for the fiscal year ended December 31, 2019 filed with SEC on February 28, 2020. References to "Notes" are notes included in our consolidated financial statements appearing elsewhere in this Annual Report on Form 10-K.

Overview

We are a technology company that empowers buyers of advertising. Through our self-service, cloud-based platform, ad buyers can create, manage, and optimize more expressive data-driven digital advertising campaigns across ad formats, including display, video, audio, native and social, on a multitude of devices, such as computers, mobile devices, and CTV. Our platform's integrations with major data, inventory, and publisher partners provides ad buyers reach and decisioning capabilities, and our enterprise APIs enable our clients to develop on top of the platform.

We commercially launched our platform in 2011, targeting the display advertising channel. Since launching, we have added additional advertising channels. In 2020, the gross spend on our platform came from multiple channels including mobile, video (which includes CTV), display, audio, native and social channels.

Our clients are primarily the advertising agencies and other service providers for advertisers, with whom we enter into ongoing MSAs. We generate revenue by charging our clients a platform fee based on a percentage of a client's total spend on advertising. We also generate revenue from providing data and other value-added services and platform features.

Executive Summary

Highlights

For the years ended December 31, 2020 and 2019:

- our revenue was \$836.0 million and \$661.1 million, respectively, representing an increase of 26%; and
- our net income was \$242.3 million and \$108.3 million, respectively.

Trends, Opportunities and Challenges

The growing digitization of media and fragmentation of audiences has increased the complexity of advertising, and thereby increased the need for automation in ad buying, which we provide on our platform. In order to grow, we will need to continue to develop our platform's programmatic capabilities and advertising inventory. We believe that key opportunities include our ongoing global expansion, continuing development of our CTV, video, audio, and native ad inventory, and continuing development of data usage and advertising targeting capabilities.

We believe that growth of the programmatic advertising market is important for our ability to grow our business. Adoption of programmatic advertising by advertisers allows us to acquire new clients and grow revenue from existing clients. Although our clients include some of the largest advertising agencies in the world, we believe there is significant room for us to expand further within these clients and gain a larger amount of their advertising spend through our platform. We also believe that the industry trends noted above will lead to advertisers adopting programmatic advertising through platforms such as ours.

Similarly, the adoption of programmatic advertising by inventory owners and content providers allows us to expand the volume and type of advertising inventory that we present to our clients. For example, we have expanded our CTV, native and audio advertising offerings through our recent integrations with supply-side partners.

We invest for long-term growth. We anticipate that our operating expenses will continue to increase significantly in the foreseeable future as we invest in platform operations and technology and development to enhance our product features, including programmatic buying of CTV ad inventory, and in sales and marketing to acquire new clients and reinforce our relationships with existing clients. In addition, we expect to continue making investments in our infrastructure, including our information technology, financial and administrative systems and controls, to support our growing operations.

We believe the markets outside of the U.S., and in particular China, offer an opportunity for growth, although such markets also may pose challenges related to compliance with local laws and regulations, restrictions on foreign ownership or investment, uncertainty related to trade relations, and variety of additional risks. We intend to make additional investments in sales and marketing and product development to expand in these markets, including China, where we are making significant investments in our platform and growing our team.

We believe that these investments will contribute to our long-term growth, although they may negatively impact profitability in the near term.

Our business model has allowed us to grow significantly, and we believe that our operating leverage enables us to support future growth profitably.

COVID-19

The worldwide spread of COVID-19 has resulted, and is expected to continue to result, in a global slowdown of economic activity which is likely to decrease demand for a broad variety of goods and services, including those provided by our clients, while also disrupting sales channels and advertising and marketing activities for an unknown period of time until the virus is contained or economic activity normalizes. With the current decline in economic activity, our revenue growth has slowed, and the impact on our revenue and our results of operations is likely to continue, the size and duration of which we are currently unable to accurately predict. The extent of the impact of the COVID-19 pandemic on our operational and financial performance will depend on a variety of factors, including the duration and spread of the virus and its impact on our clients, partners, industry, and employees, all of which are uncertain at this time and cannot be accurately predicted. See “Risk Factors” for further discussion of the adverse impacts of the COVID-19 pandemic on our business.

Factors Affecting Our Performance

Growth in and Retention of Client Spend

Our recent growth has been driven by expanding our share of spend by our existing clients and adding new clients. Our clients include some of the largest advertising agencies in the world, and we believe there is significant room for us to expand further within these clients. As a result, future revenue growth depends upon our ability to retain our existing clients and to gain a larger amount of their advertising spend through our platform.

In order to analyze gross spend contributions and growth from existing clients, we measure annual gross spend for the set of clients, or cohort, that commenced spending on our platform in a specific year relative to subsequent periods. The gross spend from each of our cohorts has increased over subsequent periods. However, over time we will likely lose clients from each cohort, clients may spend less on our platform and the growth rate of gross spend may change. Any such change could have a significant negative impact on gross spend and operating results.

Ability to Expand our Omnichannel Reach, Including CTV and Digital Radio

We enable the purchase of advertising inventory in a wide variety of formats, such as display, mobile, video, audio, social and native. Our future growth will depend on our ability to maintain and grow the inventory of, and spend on, other channels in addition to display advertising. We believe that our ability to integrate and offer CTV and digital radio advertising inventory for purchase through our platform, and in particular our ability to manage the increased costs that will accompany these purchases, will impact the future growth of our business.

Growth of the Programmatic Advertising Market

Our operating results and prospects will be impacted by the overall adoption of programmatic advertising by inventory owners and content providers, as well as advertisers and the agencies and service providers that represent them. Programmatic advertising has grown rapidly in recent years, and any acceleration, or slowing, of this growth would affect our operating and financial performance. In addition, even if the programmatic advertising market continues to grow at its current rate, our ability to position ourselves within the market will impact the future growth of our business.

Development of International Markets

We have been increasing our focus on markets outside the U.S. to serve the global needs of our clients. We believe that the global opportunity for programmatic advertising is significant due to the growing middle class abroad, and should continue to expand as publishers and advertisers outside the U.S. seek to adopt the benefits that programmatic advertising provides. To capitalize on this opportunity, we intend to continue investing in our presence internationally. Our growth and the success of our initiatives in newer markets will depend on the continued adoption of our platform by our existing clients, as well as new clients, in these markets. Information about geographic gross billings is set forth in Note 12—Segment and Geographic Information.

Seasonality

In the advertising industry, companies commonly experience seasonal fluctuations in revenue. For example, many advertisers allocate the largest portion of their budgets to the fourth quarter of the calendar year in order to coincide with increased holiday purchasing. Historically, the fourth quarter of the year reflects our highest level of advertising activity and the first quarter reflects the lowest level of such activity. We expect our revenue to continue to fluctuate based on seasonal factors that affect the advertising industry as a whole.

Components of Our Results of Operations

We have one primary business activity and operate in one reportable and operating segment.

Revenue

We generate revenue from clients who enter into agreements with us to use our platform to purchase advertising inventory, data and other add-on features.

We report revenue on a net basis which represents gross billings net of amounts we pay suppliers for the cost of advertising inventory, data and add-on features. Our accounts receivable are recorded at the amount of gross billings to clients, net of allowances, for the amounts we are responsible to collect, and our accounts payable are recorded at the amount payable to suppliers. Accordingly, both accounts receivable and accounts payable appear large in relation to revenue reported on a net basis.

Revenue as a percentage of gross spend may fluctuate from period to period due to a number of factors, such as changes in the proportion of spend represented by our larger clients with the lowest platform fees, our clients' use of platform features and volume discounts. We expect that our revenue as a percentage of gross spend will fluctuate in the future, especially as we introduce and as our clients select new platform features, expand our omnichannel capabilities, extend our reach to more CTV inventory and add additional clients whose businesses may have different underlying business models.

Refer to "Critical Accounting Policies and Estimates—Revenue Recognition" below for a description of our revenue recognition policies.

Operating Expenses

We classify our operating expenses into the following four categories and allocate overhead such as information technology infrastructure, rent and occupancy charges based on headcount for these categories:

Platform Operations. Platform operations expense consists of expenses related to hosting our platform, which includes "internet traffic" associated with the viewing of available impressions or queries per second ("QPS") and providing support to our clients. Platform operations expense includes hosting costs, personnel costs, and amortization of acquired technology and capitalized software costs for the development of our platform. Personnel costs included in platform operations include salaries, bonuses, stock-based compensation, and employee benefit costs, and are primarily attributable to personnel who provide our clients with support using our platform and the personnel who support our platform. We capitalize certain costs associated with the development of our platform and amortize these costs in platform operations over their estimated useful lives.

We expect platform operations expenses to increase in absolute dollars in future periods as we continue to experience increased volumes of QPS through our platform and hire additional personnel to support our clients.

Sales and Marketing. Sales and marketing expense consists primarily of personnel costs, including salaries, bonuses, stock-based compensation, employee benefits costs and commission costs, for our sales and marketing personnel. Sales and marketing expense also includes costs for market development programs, advertising, promotional and other marketing activities. Commissions costs are expensed as incurred.

Our sales organization focuses on marketing our platform to increase its adoption by existing and new clients. We are also focused on expanding our international business by growing our sales teams in countries in which we currently operate, as well as establishing a presence in additional countries. As a result, we expect sales and marketing expenses to increase in absolute dollars in future periods. Sales and marketing expense as a percentage of revenue may fluctuate from period to period based on revenue levels and the timing of our investments in our sales and marketing functions as these investments may vary in scope and scale over periods and are impacted by the revenue seasonality in our industry and business.

Technology and Development. Our technology and development expense consists primarily of personnel costs, including salaries, bonuses, stock-based compensation and employee benefits costs, third-party consultant costs associated with the ongoing development and maintenance of our platform and integrations with our advertising and data inventory suppliers, and amortization of capitalized third-party software used in the development of our platform. Technology and development costs are expensed as incurred, except to the extent that such costs are associated with software development that qualifies for capitalization, which are then recorded as capitalized software development costs included in other assets, non-current on our consolidated balance sheet. We amortize capitalized software development costs relating to our platform in platform operations expense.

We believe that continued investment in our platform is critical to attaining our strategic objectives and long-term growth. We therefore expect technology and development expense to increase as we continue to invest in the development of our platform to support additional features and functions, increase the number of advertising and data inventory suppliers and ramp up the volume of advertising spend on our platform. Our development efforts also include additional platform functionality to support our international expansion. We also intend to invest in technology to further automate our business processes.

General and Administrative. Our general and administrative expense consists primarily of personnel costs, including salaries, bonuses, stock-based compensation, and employee benefits costs associated with our executive, finance, legal, human resources, compliance, and other administrative personnel, as well as accounting and legal professional services fees, and credit loss expense.

We expect to continue to invest in corporate infrastructure to support growth. We expect general and administrative expenses to increase in absolute dollars in future periods.

Other Expense (Income), Net

Interest Expense. Interest expense is mainly related to our debt, which carries a variable interest rate.

Interest Income. Interest income is mainly related to our cash, cash equivalents and short-term investments, which carry variable interest rates.

Foreign Currency Exchange Loss, Net. Foreign currency exchange loss, net consists primarily of gains and losses on foreign currency transactions. We have foreign currency exposure related to our accounts receivable and, to a much lesser extent, accounts payable that are denominated in currencies other than the U.S. Dollar, principally the Euro, British Pound, Australian Dollar, Canadian Dollar, Japanese Yen and Indonesian Rupiah.

Provision for (benefit from) Income Taxes

The provision for (benefit from) income taxes consists primarily of U.S. federal, state, and foreign income taxes. Our income tax provision (benefit) may be significantly affected by changes to our estimates for tax in jurisdictions in which we operate, and other estimates utilized in determining the global effective tax rate. Actual results may also differ from our estimates based on changes in economic conditions. Such changes could have a substantial impact on the income tax provision. We evaluate the judgments surrounding our estimates and make adjustments, as appropriate, each reporting period. Our income tax provision (benefit) may also be affected by the timing of vesting and/or exercise of our stock-based awards. The extent of the impact may be subject to volatility resulting from changes in our stock price and volume of transactions by employees.

Our effective tax rate differs from the U.S. federal statutory tax rate of 21% primarily due to tax benefits associated with employee exercises of stock options and vesting of restricted stock units, state taxes, research and development tax credits, the federal rate differential on NOL carrybacks, and foreign tax rate differences.

Realization of our deferred tax assets is dependent primarily on the generation of future taxable income. In considering the need for a valuation allowance, we consider our historical, as well as future, projected taxable income along with other objectively verifiable evidence. Objectively verifiable evidence includes our realization of tax attributes, assessment of tax credits and utilization of net operating loss carryforwards during the year.

Results of Operations

The following tables set forth our consolidated results of operations and our consolidated results of operations as a percentage of revenue for the periods presented.

	For the Year Ended December 31,	
	2020	2019
	(in thousands)	
Revenue	\$ 836,033	\$ 661,058
Operating expenses:		
Platform operations	178,812	156,180
Sales and marketing	174,742	132,882
Technology and development	166,654	116,752
General and administrative	171,617	143,048
Total operating expenses	691,825	548,862
Income from operations	144,208	112,196
Total other expense (income), net	305	(4,024)
Income before income taxes	143,903	116,220
Provision for (benefit from) income taxes	(98,414)	7,902
Net income	\$ 242,317	\$ 108,318

	For the Year Ended December 31,	
	2020	2019
	(as a percentage of revenue*)	
Revenue	100%	100%
Operating expenses:		
Platform operations	21	24
Sales and marketing	21	20
Technology and development	20	18
General and administrative	21	22
Total operating expenses	83	83
Income from operations	17	17
Total other expense (income), net	—	(1)
Income before income taxes	17	18
Provision for (benefit from) income taxes	(12)	1
Net income	29%	16%

* Percentages may not sum due to rounding.

Comparison of the Years Ended December 31, 2020 and 2019

Revenue

	Year Ended December 31,		2020 vs 2019	
	2020	2019	\$	%
	(in thousands, except percentages)			
Revenue	\$ 836,033	\$ 661,058	\$ 174,975	26%

The increase in revenue was primarily due to an increase in gross spend on our platform driven by our existing clients. Gross spend on our platform by existing clients added prior to 2020 increased by 28% in the aggregate in 2020, and these existing clients represented approximately 94% of the total gross spend in 2020. In 2020, 53% of existing clients added prior to 2020 increased their gross spend on our platform and their average increase in gross spend was approximately \$3.3 million.

Revenue as a percentage of gross spend in the aggregate may fluctuate from period to period based on our client mix and the extent to which clients utilize our platform's features.

Platform Operations

	Year Ended December 31,		2020 vs 2019 Change	
	2020	2019	\$	%
	(in thousands, except percentages)			
Platform operations	\$ 178,812	\$ 156,180	\$ 22,632	14%
Percent of revenue	21%	24%		

The increase in platform operations expense was primarily due to increases of \$14.6 million in hosting costs and \$5.7 million in facilities costs and allocated overhead. The increase in hosting costs was primarily attributable to supporting the increased use of our platform by our clients. The increase in facilities costs was primarily driven by new data center locations and leases for additional office space to support our growth.

We expect platform operations expenses to increase in absolute dollars in future periods, as we continue to experience increased volumes of QPS through our platform and hire additional personnel to support our clients.

Sales and Marketing

	Year Ended December 31,		2020 vs 2019 Change	
	2020	2019	\$	%
	(in thousands, except percentages)			
Sales and marketing	\$ 174,742	\$ 132,882	\$ 41,860	32%
Percent of revenue	21%	20%		

The increase in sales and marketing expense was primarily due to increases of \$39.8 million in personnel costs, including \$9.0 million of stock-based compensation, and \$5.6 million in allocated facilities costs. These increases were partially offset by lower marketing costs of \$3.5 million. The increase in personnel costs was primarily due to an increase in headcount in order to support our sales efforts and to continue to develop and maintain relationships with our clients. The increase in allocated facilities costs was primarily driven by new leases for additional office space to support our growth. The decrease in overall marketing expenses was largely driven by brand identity campaign expenses incurred in 2019 combined with curtailment of our participation in industry events, tradeshow, and related public relations activities due to the COVID-19 pandemic in 2020. These sales and marketing expenses may increase in 2021 depending on the impact of the COVID-19 pandemic and the potential return of in-person events.

We expect sales and marketing expenses to increase in absolute dollars in future periods, as we focus on increasing the adoption of our platform with existing and new clients and expanding our international business.

Technology and Development

	Year Ended December 31,		2020 vs 2019 Change	
	2020	2019	\$	%
	(in thousands, except percentages)			
Technology and development	\$ 166,654	\$ 116,752	\$ 49,902	43%
Percent of revenue	20%	18%		

The increase in technology and development expense was primarily due to increases of \$45.3 million in personnel costs, including \$10.1 million of stock-based compensation, and \$7.6 million in allocated facilities costs. The increase in personnel costs was primarily attributable to increased headcount to maintain and support further development of our platform. The increase in allocated facilities costs was primarily driven by new leases for additional office space to support our growth.

We expect technology and development expense to increase in absolute dollars, as we continue to invest in the development of our platform to support additional features and functions, increase the number of advertising and data inventory suppliers and ramp up the volume of advertising spend on our platform. We also intend to invest in technology to further automate our business processes.

General and Administrative

	Year Ended December 31,		2020 vs 2019 Change	
	2020	2019	\$	%
	(in thousands, except percentages)			
General and administrative	\$ 171,617	\$ 143,048	\$ 28,569	20%
Percent of revenue	21%	22%		

The increase in general and administrative expense was primarily due to increases of \$12.2 million in professional services fees, \$9.1 million in personnel costs, and \$6.8 million in allocated facilities costs. The increase in professional services fees was primarily related to the proxy solicitation for our special meeting of stockholders in December 2020. The increase in personnel costs was primarily driven by increases in payroll related costs of \$10.2 million and stock-based compensation costs of \$8.6 million due to our hiring and growth, partially offset by a decrease of \$9.6 million in reduced employee-related corporate events and travel due to the COVID-19 pandemic. The increase in allocated facilities costs was primarily driven by new leases for additional office space to support our growth.

We expect general and administrative expenses to increase in absolute dollars in future periods, as we continue to invest in corporate infrastructure to support our growth.

Other Expense (Income), Net

	Year Ended December 31,		2020 vs 2019 Change	
	2020	2019	\$	
	(in thousands)			
Total other expense (income), net	\$ 305	\$ (4,024)	\$ 4,329	

The increase in total other expense (income), net was primarily due to an increase in interest expense of \$1.2 million and a decrease in interest income of \$2.9 million. The increase in interest expense was attributable to a draw under the Credit Facility earlier in 2020 to provide increased liquidity due to the COVID-19 pandemic. In October 2020, this debt was paid down in full. The decrease in interest income was attributable to lower interest rates during 2020.

Provision for (benefit from) Income Taxes

	Year Ended December 31,		
	2020	2019	
	(in thousands, except percentages)		
Provision for (benefit from) income taxes	\$ (98,414)	\$ 7,902	
Effective tax rate	(68)%	7%	

The difference between the effective tax rate in 2020 of (68)% and the U.S. federal statutory income tax rate of 21% was primarily due to the impact of tax benefits associated with stock-based awards, research and development tax credits, and net operating loss carryback from the Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act"), partially offset by the impact of taxes in foreign jurisdictions. For 2020, the provision for income taxes included \$134.6 million of benefits associated with stock-based awards, \$20.2 million of research and development tax credits, and \$17.0 million of benefits associated with net operating loss carryback from the CARES Act.

The difference between the effective tax rate in 2019 of 7% and the U.S. federal statutory income tax rate of 21% was primarily due to the impact of tax benefits associated with stock-based awards partially offset by the impact of taxes in foreign jurisdictions. For 2019, the provision for income taxes included \$43.1 million of benefits associated with stock-based awards.

Quarterly Results of Operations

The following tables set forth our quarterly unaudited consolidated statements of operations data in dollars and as a percentage of total revenue for each of the eight quarters in the period ended December 31, 2020. We have prepared the quarterly unaudited consolidated statements of operations data on a basis consistent with the audited consolidated financial statements included in “Item 8. Financial Statements and Supplementary Data” of this Annual Report on Form 10-K. In the opinion of management, the financial information in these tables reflects all adjustments, consisting only of normal recurring adjustments, which management considers necessary for a fair statement of this data. This information should be read in conjunction with the audited consolidated financial statements and related notes included in “Item 8. Financial Statements and Supplementary Data” of this Annual Report on Form 10-K. The results of historical periods are not necessarily indicative of the results for any future period.

	Three Months Ended							
	Dec 31, 2020	Sept 30, 2020	Jun 30, 2020	Mar 31, 2020	Dec 31, 2019	Sept 30, 2019	Jun 30, 2019	Mar 31, 2019
Revenue	\$ 319,905	\$ 216,113	\$ 139,355	\$ 160,660	\$ 215,944	\$ 164,203	\$ 159,924	\$ 120,987
Operating expenses:								
Platform operations	51,645	44,826	42,133	40,208	47,267	39,932	35,330	33,651
Sales and marketing	58,740	44,637	37,071	34,294	42,931	36,142	31,072	22,737
Technology and development	48,723	41,079	40,058	36,794	32,803	29,185	29,452	25,312
General and administrative	54,365	42,789	35,865	38,598	40,293	37,017	32,121	33,617
Total operating expenses	213,473	173,331	155,127	149,894	163,294	142,276	127,975	115,317
Income (loss) from operations	106,432	42,782	(15,772)	10,766	52,650	21,927	31,949	5,670
Total other expense (income), net	(529)	223	194	417	(1,045)	(1,892)	(1,420)	333
Income (loss) before income taxes	106,961	42,559	(15,966)	10,349	53,695	23,819	33,369	5,337
Provision for (benefit from) income taxes	(44,941)	1,312	(41,077)	(13,708)	2,750	4,397	5,569	(4,814)
Net income	\$ 151,902	\$ 41,247	\$ 25,111	\$ 24,057	\$ 50,945	\$ 19,422	\$ 27,800	\$ 10,151
Earnings per share:								
Basic	\$ 3.24	\$ 0.89	\$ 0.54	\$ 0.53	\$ 1.13	\$ 0.43	\$ 0.63	\$ 0.23
Diluted	\$ 3.05	\$ 0.84	\$ 0.52	\$ 0.50	\$ 1.06	\$ 0.40	\$ 0.58	\$ 0.21

	Three Months Ended							
	Dec 31, 2020	Sept 30, 2020	Jun 30, 2020	Mar 31, 2020	Dec 31, 2019	Sept 30, 2019	Jun 30, 2019	Mar 31, 2019
	(as a percentage of revenue*)							
Revenue	100%	100%	100%	100%	100%	100%	100%	100%
Operating expenses:								
Platform operations	16	21	30	25	22	24	22	28
Sales and marketing	18	21	27	21	20	22	19	19
Technology and development	15	19	29	23	15	18	18	21
General and administrative	17	20	26	24	19	23	20	28
Total operating expenses	67	80	111	93	76	87	80	95
Income (loss) from operations	33	20	(11)	7	24	13	20	5
Total other expense (income), net	—	—	—	—	—	(1)	(1)	—
Income (loss) before income taxes	33	20	(11)	6	25	14	21	4
Provision for (benefit from) income taxes	(14)	1	(29)	(9)	1	3	3	(4)
Net income	47%	19%	18%	15%	24%	11%	18%	8%

* Percentages may not sum due to rounding.

Liquidity and Capital Resources

As of December 31, 2020, we had cash and cash equivalents of \$437.4 million, including cash of \$61.1 million held by our international subsidiaries, and short-term investments in marketable securities of \$186.7 million, and working capital of \$835.6 million.

We believe our existing cash and cash equivalents, cash flow from operations, and our undrawn available balance under our credit facility (refer to the section captioned “Credit Facility” below) will be sufficient to meet our working capital requirements for at least the next 12 months. Our current credit facility matures in May 2022. Further, in November 2020, we filed a shelf registration statement on Form S-3 with the SEC, or the Shelf Registration, which permits us to issue equity securities and equity-linked securities from time to time, subject to certain limitations. The Shelf Registration is intended to provide us with additional flexibility to access capital markets for general corporate purposes, subject to market conditions and our capital needs. Our future capital requirements and the adequacy of available funds will depend on many factors, including those set forth under “Risk Factors” within this Annual Report on Form 10-K.

In the future, we may attempt to raise additional capital through the sale of equity securities or through equity-linked or debt financing arrangements. If we raise additional funds by issuing equity or equity-linked securities, the ownership of our existing stockholders will be diluted. If we raise additional financing by the incurrence of additional indebtedness, we may be subject to increased fixed payment obligations and could also be subject to additional restrictive covenants, such as limitations on our ability to incur additional debt, and other operating restrictions that could adversely impact our ability to conduct our business. Any future indebtedness we incur may result in terms that could be unfavorable to equity investors.

There can be no assurances that we will be able to raise additional capital. The inability to raise capital would adversely affect our ability to achieve our business objectives. In addition, if our operating performance during the next 12 months is below our expectations, our liquidity and ability to operate our business could be adversely affected. In light of the recent worldwide COVID-19 pandemic we are closely monitoring the effect that current economic conditions may have on our working capital requirements.

Credit Facility

On October 26, 2018, we and a syndicate of banks, led by Citibank, N.A., as agent, entered into the Second Amended and Restated Loan and Security Agreement (the “Second A&R Credit Agreement”, which we also refer to as “our credit facility”). Available funding commitments to us under our credit facility, subject to certain conditions, total up to \$150.0 million, with a \$20.0 million sublimit for swingline borrowings and a \$15.0 million sublimit for the issuance of letters of credit. Under certain circumstances, we have the right to increase our credit facility by an amount not to exceed \$100.0 million. In March 2020, we drew down \$143.0 million under our credit facility as a precautionary measure to provide increased liquidity and preserve financial flexibility in light of the worldwide decline in business activity resulting from the COVID-19 pandemic. By October 2020, we repaid the entire balance on our credit facility from available working capital. As of December 31, 2020, availability under the Second A&R Credit Facility was \$142.8 million.

For additional information regarding the Second A&R Credit Agreement, refer to Note 7—Debt.

Cash Flows

The following table summarizes our cash flows for the periods presented:

	Year Ended December 31,	
	2020	2019
	(in thousands)	
Cash flows provided by operating activities	\$ 405,069	\$ 60,205
Cash flows used in investing activities	\$ (143,271)	\$ (163,841)
Cash flows provided by financing activities	\$ 44,679	\$ 27,280

Operating Activities

Our cash flows from operating activities are primarily influenced by growth in our operations, increases or decreases in collections from our clients and related payments to our suppliers for advertising inventory and data. We typically pay suppliers in advance of collections from our clients. Our collection and payment cycles can vary from period to period. In addition, we expect seasonality to impact cash flows from operating activities on a sequential quarterly basis during the year.

In 2020, cash provided by operating activities of \$405.1 million resulted primarily from net income adjusted for non-cash items of \$390.1 million and a net increase in our operating assets and liabilities of \$15.0 million. The net increase in working capital was primarily related to an increase in accounts payable of \$481.3 million, partially offset by an increase in accounts receivable of \$418.1 million and \$66.7 million increase in prepaid expenses and other assets. The increase in account payable was primarily due to an increase in payables to suppliers for the cost of advertising inventory, data, and add-on features as a result of increased spend through our platform. The increase in accounts receivable resulted from the increase in spend through our platform, seasonality and the timing of cash receipts from clients. The increase in prepaid expenses and other assets was attributable to an increase in the income tax receivable primarily related to the tax benefits associated with employee exercises of stock options, vesting of restricted stock units and refunds due from the taxing authorities relating to net operating loss carrybacks.

In 2019, cash provided by operating activities of \$60.2 million resulted primarily from net income adjusted for non-cash items of \$222.9 million, partially offset by a net decrease in our operating assets and liabilities of \$162.7 million. The net decrease in working capital was primarily related to an increase in accounts receivable of \$331.4 million, partially offset by an increase in accounts payable of \$191.8 million. The increase in accounts receivable was primarily due to the increase in spend through our platform and the timing of cash receipts from clients and the increase in accounts payable was primarily due to the timing of payments to suppliers.

Investing Activities

Our primary investing activities consist of investing in short-term investments in marketable securities, purchases of property and equipment in support of our expanding headcount as a result of our growth, and capital expenditures to develop our software in support of enhancing our technology platform. As our business grows, we expect our capital expenditures and our investment activity to continue to increase.

In 2020, we used \$143.3 million of cash in investing activities, consisting of \$230.8 million to purchase short-term investments, \$74.1 million to purchase property and equipment and \$6.1 million of investments in capitalized software, partially offset by maturities of short-term investments of \$167.6 million. Purchases of property and equipment, leasehold improvements and investments in capitalized software support our growth and further development of our platform.

In 2019, we used \$163.8 million of cash in investing activities, consisting of \$212.8 million to purchase short-term investments, \$35.7 million to purchase property and equipment and \$4.9 million of investments in capitalized software, partially offset by maturities of short-term investments of \$89.5 million. Purchases of property and equipment, leasehold improvements and investments in capitalized software support our growth and further development of our platform.

Financing Activities

Our financing activities consisted primarily of borrowings and repayments of our debt, proceeds from our equity compensation plans and taxes paid related to net settlement of restricted stock awards.

In 2020, cash provided by financing activities of \$44.7 million was primarily due to \$76.1 million proceeds from stock option exercises and \$21.7 million proceeds from the employee stock purchase plan, partially offset by \$53.1 million of taxes paid for restricted stock award settlements.

In 2019, cash provided by financing activities of \$27.3 million was primarily due to the \$29.9 million proceeds from stock option exercises and \$16.7 million proceeds from the employee stock purchase plan, partially offset by \$19.3 million of taxes paid for restricted stock award settlements.

Off-Balance Sheet Arrangements

We do not have any relationships with other entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities that have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. We did not have any other off-balance sheet arrangements as of December 31, 2020 other than the indemnification agreements described in Note 13—Commitments and Contingencies.

Contractual Obligations and Known Future Cash Requirements

Our principal commitments consist of non-cancelable operating leases for our various office facilities, and other contractual commitments consisting of obligations to our hosting services providers, marketing contracts and providers of software as a service. In certain cases, the terms of the lease agreements provide for rental payments on a graduated basis.

The following table summarizes our non-cancellable contractual obligations, at December 31, 2020:

	Payments Due by Period				
	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years	Total
	(in thousands)				
Operating lease obligations	\$ 43,561	\$ 97,562	\$ 73,141	\$ 134,440	\$ 348,704
Other contractual commitments	52,404	65,437	16,784	—	134,625
Total	<u>\$ 95,965</u>	<u>\$ 162,999</u>	<u>\$ 89,925</u>	<u>\$ 134,440</u>	<u>\$ 483,329</u>

As of December 31, 2020, our total amount of gross unrecognized tax benefits was \$66.9 million before netting with deferred tax assets for tax credit carryforwards and is considered a long-term obligation. Due to their nature, there is a high degree of uncertainty regarding the time of future cash outflows and other events that extinguish these liabilities.

In the ordinary course of business, we enter into agreements in which we may agree to indemnify clients, suppliers, vendors, lessors, business partners, lenders, stockholders and other parties with respect to certain matters, including losses resulting from claims of intellectual property infringement, damages to property or persons, business losses, or other liabilities. Generally, these indemnity and defense obligations relate to our own business operations, obligations, and acts or omissions. However, under some circumstances, we agree to indemnify and defend contract counterparties against losses resulting from their own business operations, obligations, and acts or omissions, or the business operations, obligations, and acts or omissions of third parties. These indemnity provisions generally survive termination or expiration of the agreements in which they appear. In addition, we have entered into indemnification agreements with our directors, executive officers and other officers that will require us to indemnify them against liabilities that may arise by reason of their status or service as directors, officers or employees. No demands have been made upon us to provide indemnification under such agreements and there are no claims that we are aware of that could have a material effect on our consolidated financial statements.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America (“GAAP”). The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, expenses and related disclosures. We evaluate our estimates and assumptions on an ongoing basis. Our estimates are based on historical experience and various other assumptions that we believe to be reasonable under the circumstances. Our actual results could differ from these estimates.

We believe that the assumptions and estimates associated with the evaluation of revenue recognition criteria, including the determination of revenue recognition as net versus gross in our revenue arrangements, stock-based compensation expense and income taxes have the greatest potential impact on our consolidated financial statements. Therefore, we consider these to be our critical accounting policies and estimates. Except for the changes described in Note 2—Basis of Presentation and Summary of Significant Accounting Policies, there were no other changes to our critical accounting policies and estimates.

Revenue Recognition

We generate revenue from clients who enter into agreements with us to use our platform to purchase advertising inventory, data and other add-on features. We charge our clients a platform fee, which is a percentage of a client’s purchases through the platform. In addition, we invoice our clients for the cost of advertising inventory purchased, plus data and any add-on features purchased through the platform.

We determine revenue recognition through the following steps:

- Identification of a contract with a customer;
- Identification of the performance obligations in the contract;
- Determination of the transaction price;
- Allocation of the transaction price to the performance obligations in the contract; and
- Recognition of revenue when or as the performance obligations are satisfied.

We maintain agreements with each client and supplier in the form of MSAs, which set out the terms of the relationship and access to our platform. Our performance obligation is to provide the use of our platform to clients to develop ad campaigns and select the advertising inventory, data and other add-on features. We charge clients a platform fee, based on a percentage of a client's purchases through the platform, and the transaction price is determined based on the consideration to which we expect to be entitled in exchange for the completion of a transaction, that is, when a bid is won. The platform fee percentage is based on the level of purchases by the client through the platform during the month. We recognize revenue for our platform fee at a point in time when a purchase by the client occurs through our platform, which is when a bid is won. Subsequent to a bid being won through our platform, the associated fees are generally not subject to adjustment or refund. Historically, any refunds and adjustments have not been material.

We report revenue net of amounts we pay suppliers for the cost of advertising inventory, third-party data and other add-on features (collectively, "Supplier Features"). The determination of whether we are the principal or agent, and hence whether to report revenue on a gross basis for the amount of the Supplier Features the clients purchase using the platform plus our platform fees or on a net basis for the amount of platform fees charged to the client, requires judgment. We determined that we are not primarily responsible for the purchase of Supplier Features, but rather, we are primarily responsible to provide a platform that enables clients to bid on advertising inventory, and use data and other add-on features in designing and executing their campaigns. We do not control the Supplier Features prior to the purchase by the client, and we do not have pricing latitude with respect to the cost of such features. The platform fee we charge clients is a percentage of their purchases through our platform, similar to a commission, and the platform fee is not contingent on the results of an advertising campaign. Based on these and other factors, we determined that we are not the principal in the purchase and sale of Supplier Features in all of our arrangements, and therefore, we report revenue on a net basis for the platform fees charged to clients.

Stock-Based Compensation

Compensation expense related to stock options, restricted stock awards and units, which we refer to, collectively, as restricted stock, and awards granted under our employee stock purchase plan, or ESPP, is measured and recognized in our consolidated financial statements based on the fair value of the awards granted. The fair value of each option award is estimated on the grant date using the Black-Scholes option-pricing model. The fair value of restricted stock is calculated using the closing market price of our common stock on the date of grant. Stock-based compensation expense related to stock options and restricted stock is recognized on a straight-line basis over the requisite service periods of the awards, which is generally four years. Stock-based compensation expense for ESPP awards is recognized on a graded-vesting attribution basis over the requisite service period of each award.

For additional information regarding stock-based compensation and the assumptions used for determining the fair value of stock options and ESPP awards, refer to Note 2—Basis of Presentation and Summary of Significant Accounting Policies and Note 10—Stock-Based Compensation.

Income Taxes

Our income tax provision may be significantly affected by changes to our estimates for tax in jurisdictions in which we operate and other estimates utilized in determining the global effective tax rate. Actual results may also differ from our estimate based on changes in economic conditions. Such changes could have a substantial impact on the income tax provision. We evaluate the judgments surrounding our estimates and make adjustments, as appropriate, each reporting period.

Deferred income tax assets and liabilities are determined based upon the net effects of the differences between the consolidated financial statements carrying amounts and the tax basis of assets and liabilities and are measured using the enacted tax rate expected to apply to taxable income in the years in which the differences are expected to be reversed. A valuation allowance is used to reduce some or all of the deferred tax assets if, based upon the weight of available evidence, it is more likely than not that those deferred tax assets will not be realized.

We recognize the tax benefit from an uncertain tax position only if 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. The tax benefits recognized in the consolidated financial statements from such positions are then measured based on the largest benefit that has a greater than 50% likelihood of being realized. We recognize interest and penalties accrued related to our uncertain tax positions in our income tax provision in the accompanying consolidated statement of operations.

Recently Issued Accounting Pronouncements

For information regarding recent accounting pronouncements, refer to Note 2—Basis of Presentation and Summary of Significant Accounting Policies.

Item 7A. Quantitative and Qualitative Disclosure about Market Risk

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

Interest Rate Risk

We are exposed to market risk from changes in interest rates on our credit facility, which accrues interest at a variable rate. No amount was owed on our revolving credit facility as of December 31, 2020. We have not used any derivative financial instruments to manage our interest rate risk exposure. Based upon the short-term investment amount as of December 31, 2020, a hypothetical one percentage point increase or decrease in the interest rate would result in a corresponding increase or decrease in investment income of approximately \$1.9 million annually.

Foreign Currency Exchange Risk

We have foreign currency risks related to our revenue and expenses denominated in currencies other than the U.S. Dollar, principally the Euro, British Pound, Australian Dollar, Canadian Dollar, Japanese Yen and Indonesian Rupiah. The volatility of exchange rates depends on many factors that we cannot forecast with reliable accuracy. We have experienced and will continue to experience fluctuations in our net income as a result of transaction gains and losses related to translating cash balances, trade accounts receivable and payable balances that are denominated in currencies other than the U.S. Dollar. The effect of an immediate 10% adverse change in foreign exchange rates on foreign-denominated accounts as of December 31, 2020, would result in a foreign currency loss of approximately \$24.8 million. In the event our non-U.S. Dollar denominated sales and expenses increase, our operating results may be more greatly affected by fluctuations in the exchange rates of the currencies in which we do business.

We enter into forward contracts or other derivative transactions in an attempt to hedge our foreign currency risk. There can be no assurance that such transactions will be effective in hedging some or all of our foreign currency exposures and under some circumstances could generate losses for us.

Item 8. Financial Statements and Supplementary Data

THE TRADE DESK, INC.
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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

To the Board of Directors and Stockholders of The Trade Desk, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of The Trade Desk, Inc. and its subsidiaries (the “Company”) as of December 31, 2020 and 2019, and the related consolidated statements of operations, of stockholders’ equity and of cash flows for each of the three years in the period ended December 31, 2020, including the related notes (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 – Platform Fees

As described in Note 2 to the consolidated financial statements, the Company maintains agreements with each client and supplier in the form of master service agreements, which set out the terms of the relationship and access to the Company's platform. The Company's performance obligation is to provide the use of its platform to clients to develop ad campaigns and select the advertising inventory, data and other add-on features. The Company charges clients a platform fee, based on a percentage of a client's purchases through the platform. The Company recognizes revenue for its platform fee at a point in time when the purchase by a client occurs through its platform. Management reports revenue on a net basis for the platform fees charged to clients. For the year ended December 31, 2020, the Company's revenue was \$836 million.

The principal considerations for our determination that performing procedures relating to revenue recognition – platform fees is a critical audit matter are the significant audit effort required in performing audit procedures and in evaluating audit evidence relating to client purchases through the Company's platform to recognize revenue.

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 completeness and accuracy of the revenue recognized for platform fees charged to clients, including both manual and automated controls operating over the information generated from the Company's platform and controls over the accuracy in calculating revenue invoices based on client purchases. These procedures also included, among others, evaluating the completeness, accuracy, and relevance of underlying information generated from the Company's platform by inspecting a sample of master service agreements and contracts for selected clients and evaluating the appropriateness of the revenue recognized by recalculating platform fees due and validating related cash receipts.

/s/ PricewaterhouseCoopers LLP
Los Angeles, California
February 18, 2021

We have served as the Company's auditor since 2015.

THE TRADE DESK, INC.
CONSOLIDATED BALANCE SHEETS
(In thousands, except par values)

	As of December 31,	
	2020	2019
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 437,353	\$ 130,876
Short-term investments, net	186,685	124,112
Accounts receivable, net of allowance for credit losses of \$7,253 and \$3,920 as of December 31, 2020 and 2019, respectively	1,584,109	1,166,376
Prepaid expenses and other current assets	102,170	27,857
TOTAL CURRENT ASSETS	2,310,317	1,449,221
Property and equipment, net	115,863	64,012
Operating lease assets	248,143	173,449
Deferred income taxes	50,168	18,950
Other assets, non-current	29,154	23,129
TOTAL ASSETS	\$ 2,753,645	\$ 1,728,761
LIABILITIES AND STOCKHOLDERS' EQUITY		
LIABILITIES		
Current liabilities:		
Accounts payable	\$ 1,348,480	\$ 868,618
Accrued expenses and other current liabilities	88,335	47,178
Operating lease liabilities	37,868	14,577
TOTAL CURRENT LIABILITIES	1,474,683	930,373
Operating lease liabilities, non-current	254,562	174,873
Other liabilities, non-current	11,255	10,998
TOTAL LIABILITIES	1,740,500	1,116,244
Commitments and contingencies (Note 13)		
STOCKHOLDERS' EQUITY		
Preferred stock, par value \$0.000001; 100,000 shares authorized, zero shares issued and outstanding as of December 31, 2020 and 2019	—	—
Common stock, par value \$0.000001		
Class A, 1,000,000 shares authorized; 42,338 and 40,305 shares issued and outstanding as of December 31, 2020 and 2019, respectively		
Class B, 95,000 shares authorized; 5,002 and 5,171 shares issued and outstanding as of December 31, 2020 and 2019, respectively	—	—
Additional paid-in capital	538,778	380,079
Retained earnings	474,367	232,438
TOTAL STOCKHOLDERS' EQUITY	1,013,145	612,517
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	\$ 2,753,645	\$ 1,728,761

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

THE TRADE DESK, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share amounts)

	Year Ended December 31,		
	2020	2019	2018
Revenue	\$ 836,033	\$ 661,058	\$ 477,294
Operating expenses:			
Platform operations	178,812	156,180	114,098
Sales and marketing	174,742	132,882	87,071
Technology and development	166,654	116,752	83,892
General and administrative	171,617	143,048	84,910
Total operating expenses	691,825	548,862	369,971
Income from operations	144,208	112,196	107,323
Other expense (income):			
Interest income, net	(656)	(4,719)	(333)
Foreign currency exchange loss, net	961	695	1,919
Total other expense (income), net	305	(4,024)	1,586
Income before income taxes	143,903	116,220	105,737
Provision for (benefit from) income taxes	(98,414)	7,902	17,597
Net income	\$ 242,317	\$ 108,318	\$ 88,140
Earnings per share:			
Basic	\$ 5.24	\$ 2.43	\$ 2.08
Diluted	\$ 4.95	\$ 2.27	\$ 1.92
Weighted average shares outstanding:			
Basic	46,287	44,533	42,442
Diluted	48,988	47,806	45,793

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

THE TRADE DESK, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands)

	Class A and B Common Stock (1)		Additional Paid-In Capital	Retained Earnings	Total Stockholders' Equity
	Shares	Amount			
Balance as of December 31, 2017	41,641	\$ —	\$ 209,603	\$ 35,980	\$ 245,583
Exercise of common stock options	1,446	—	10,021	—	10,021
Stock-based compensation	—	—	43,695	—	43,695
Issuance of common stock under employee stock purchase plan	699	—	13,805	—	13,805
Restricted stock, net of forfeitures and shares withheld for taxes	78	—	(6,677)	—	(6,677)
Net income	—	—	—	88,140	88,140
Balance as of December 31, 2018	43,864	—	270,447	124,120	394,567
Exercise of common stock options	1,264	—	29,874	—	29,874
Stock-based compensation	—	—	82,346	—	82,346
Issuance of common stock under employee stock purchase plan	287	—	16,746	—	16,746
Restricted stock, net of forfeitures and shares withheld for taxes	61	—	(19,334)	—	(19,334)
Net income	—	—	—	108,318	108,318
Balance as of December 31, 2019	45,476	—	380,079	232,438	612,517
Impact upon adoption of new accounting standard (Note 2)	—	—	—	(388)	(388)
Exercise of common stock options	1,545	—	76,146	—	76,146
Stock-based compensation	—	—	114,020	—	114,020
Issuance of common stock under employee stock purchase plan	268	—	21,671	—	21,671
Restricted stock, net of forfeitures and shares withheld for taxes	51	—	(53,138)	—	(53,138)
Net income	—	—	—	242,317	242,317
Balance as of December 31, 2020	47,340	\$ —	\$ 538,778	\$ 474,367	\$ 1,013,145

(1) Refer to Note 9—Capitalization for discussion of the Company's two classes of common stock.

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

THE TRADE DESK, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,		
	2020	2019	2018
OPERATING ACTIVITIES:			
Net income	\$ 242,317	\$ 108,318	\$ 88,140
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	28,632	21,662	11,822
Stock-based compensation	111,775	80,758	42,210
Deferred income taxes	(31,218)	(10,490)	(5,101)
Allowance for credit losses on accounts receivable	3,149	2,702	2,115
Noncash lease expense	33,269	21,894	—
Other	2,190	(1,939)	2,905
Changes in operating assets and liabilities:			
Accounts receivable	(418,054)	(331,369)	(239,901)
Prepaid expenses and other assets	(66,655)	(19,597)	(10,551)
Accounts payable	481,313	191,763	177,675
Accrued expenses and other liabilities	35,446	6,845	17,289
Operating lease liabilities	(17,095)	(10,342)	—
Net cash provided by operating activities	405,069	60,205	86,603
INVESTING ACTIVITIES:			
Purchases of investments	(230,759)	(212,776)	—
Maturities of investments	167,602	89,539	—
Purchases of property and equipment	(74,061)	(35,693)	(19,795)
Capitalized software development costs	(6,053)	(4,911)	(5,396)
Net cash used in investing activities	(143,271)	(163,841)	(25,191)
FINANCING ACTIVITIES:			
Proceeds from line of credit	143,000	—	—
Repayment on line of credit	(143,000)	—	(27,000)
Payment of debt financing costs	—	(6)	(279)
Proceeds from exercise of stock options	76,146	29,874	10,021
Proceeds from employee stock purchase plan	21,671	16,746	13,805
Taxes paid related to net settlement of restricted stock awards	(53,138)	(19,334)	(6,677)
Net cash provided by (used in) financing activities	44,679	27,280	(10,130)
Increase (decrease) in cash and cash equivalents	306,477	(76,356)	51,282
Cash and cash equivalents—Beginning of year	130,876	207,232	155,950
Cash and cash equivalents—End of year	\$ 437,353	\$ 130,876	\$ 207,232
SUPPLEMENTAL CASH FLOW INFORMATION:			
Cash paid for income taxes	\$ 4,983	\$ 19,727	\$ 17,287
Cash paid for interest	\$ 1,554	\$ 412	\$ 817
Capitalized assets financed by accounts payable	\$ 6,766	\$ 9,252	\$ 1,944
Tenant improvements paid by lessor	\$ —	\$ —	\$ 1,811
Stock-based compensation included in capitalized software development costs	\$ 2,245	\$ 1,588	\$ 1,485
Asset retirement obligation	\$ 2,049	\$ 3,543	\$ 907
Cash paid for amounts included in the measurement of lease liabilities included in operating cash flows	\$ 27,448	\$ 16,923	\$ —
Operating lease assets obtained in exchange for operating lease liabilities	\$ 106,833	\$ 150,467	\$ —

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1—Nature of Operations

The Trade Desk, Inc. (the “Company”) was formed in November 2009 as a Delaware corporation. The Company is headquartered in Ventura, California and has offices in various cities in North America, Europe, Asia and Australia. The Company is a technology company that empowers buyers of advertising by providing a self-service cloud-based platform on which ad buyers can create, manage, and optimize more expressive data-driven digital advertising campaigns across ad formats, including display, video, audio, native and, social, on a multitude of devices, such as computers, mobile devices, and connected TV.

Note 2—Basis of Presentation and Summary of Significant Accounting Policies***Basis of Presentation and Principles of Consolidation***

The accompanying consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America (“GAAP”) and include the operations of the Company and its wholly owned subsidiaries. All intercompany transactions have been eliminated in consolidation.

Use of Estimates

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

On an on-going basis, management evaluates its estimates, primarily those related to: (1) revenue recognition criteria, including the determination of revenue reporting as net versus gross in the Company’s revenue arrangements, (2) allowances for credit losses accounts, (3) operating lease assets and liabilities, including our incremental borrowing rate and terms and provisions of each lease (4) the useful lives of property and equipment and capitalized software development costs, (5) income taxes, (6) assumptions used in the Black-Scholes option pricing model to determine the fair value of stock-based compensation and (7) the recognition and disclosure of contingent liabilities. These estimates are based on historical data and experience, as well as various other factors that management believes to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources.

As of December 31, 2020, the impact of the Coronavirus pandemic (“COVID-19”) on our business continues to evolve. As a result, many of our estimates and assumptions, including the allowance for credit losses, consider macro-economic factors in the market, which require increased judgment and carry a higher degree of variability and volatility. As events continue to evolve and additional information becomes available, our estimates may change materially in future periods.

Revenue Recognition

The Company generates revenue from clients who enter into agreements with the Company to use its platform to purchase advertising inventory, data and other add-on features. The Company charges its clients a platform fee, which is a percentage of a client’s purchases through the platform. In addition, the Company invoices its clients for the cost of advertising inventory purchased, plus data and any add-on features purchased through the platform.

The Company determines revenue recognition through the following steps:

- Identification of a contract with a customer;
- Identification of the performance obligations in the contract;
- Determination of the transaction price;
- Allocation of the transaction price to the performance obligations in the contract; and
- Recognition of revenue when or as the performance obligations are satisfied.

The Company maintains agreements with each client and supplier in the form of master service agreements, which set out the terms of the relationship and access to the Company’s platform. The Company’s performance obligation is to provide the use of its platform to clients to develop ad campaigns and select the advertising inventory, data and other add-on features. The Company charges clients a platform fee, based on a percentage of a client’s purchases through the platform, and the transaction price is determined based on the consideration to which it expects to be entitled in exchange for the completion of a transaction, that is, when a bid is won. The platform fee percentage is based on the level of purchases by the client through the platform during the month. The Company recognizes revenue for its platform fee at a point in time when a purchase by the client occurs through its platform, which is when a bid is won. Subsequent to a bid being won through the Company’s platform, the associated fees are generally not subject to refund or adjustment. Historically, any refunds and adjustments have not been material.

The Company reports revenue net of amounts it pays suppliers for the cost of advertising inventory, third-party data and other add-on features (collectively, “Supplier Features”). The determination of whether the Company is the principal or agent, and hence whether to report revenue on a gross basis for the amount of the Supplier Features the clients purchase using the platform plus the Company’s platform fees or on a net basis for the amount of platform fees charged to the client, requires judgment. The Company determined that it is not primarily responsible for the purchase of Supplier Features, but rather, it is primarily responsible to provide a platform that enables clients to bid on advertising inventory, and use data and other add-on features in designing and executing their campaigns. The Company does not control the Supplier Features prior to the purchase by the client, and it does not have pricing latitude with respect to the cost of such features. The platform fee the Company charges clients is a percentage of their purchases through its platform, similar to a commission, and the platform fee is not contingent on the results of an advertising campaign. Based on these and other factors, the Company determined that it is not the principal in the purchase and sale of Supplier Features in all of its arrangements, and therefore, it reports revenue on a net basis for the platform fees charged to clients.

The Company generally bills clients for the gross amount of Supplier Features they purchase through its platform and the platform fees, net of allowances (“Gross Billings”). Some of the Company’s clients have payment relationships directly with advertising inventory suppliers in which case the Company only bills these clients for third-party data, other add-on features and its platform fees. The Company invoices its clients on a monthly basis for the purchases occurring during the month. Invoice payment terms, negotiated on a client-by-client basis, are typically between 30 to 90 days. However, for certain agency clients with sequential liability terms, payments are not due to the Company until such agency client has received payment from its clients who are advertisers. The Company’s accounts receivable are recorded at the amount of Gross Billings for the amounts it is responsible to collect, and accounts payable are recorded at the net amount payable to suppliers. Accordingly, both accounts receivable and accounts payable appear large in relation to revenue reported on a net basis.

Refer to Note 12—Segment and Geographic Information for geographic information related to Gross Billings.

Operating Expenses

The Company classifies its operating expenses into four categories and allocates overhead such as information technology infrastructure, rent and occupancy charges based on headcount for all these categories:

Platform Operations. Platform operations expense consists of expenses related to hosting the Company’s platform, which includes “internet traffic” associated with the viewing of available impressions or queries per second (“QPS”) and providing support to clients. Platform operations expense includes hosting costs, personnel costs, and amortization of acquired technology and capitalized software costs for the development of the Company’s platform, including allocated overhead. Personnel costs included in platform operations include salaries, bonuses, stock-based compensation, and employee benefit costs, and are primarily attributable to personnel who provide the Company’s clients with support using the Company’s platform and the personnel who support the Company’s platform. The Company capitalizes certain costs associated with the development of the Company’s platform and amortizes these costs over their estimated useful lives in platform operations expense.

Sales and Marketing. Sales and marketing expense consists primarily of personnel costs, including salaries, bonuses, stock-based compensation, employee benefits costs and commission costs, for the Company’s sales and marketing personnel. Sales and marketing expense also includes costs for market development programs, advertising, promotional and other marketing activities, and allocated overhead. Commissions costs are expensed as incurred.

Technology and Development. The Company’s technology and development expense consists primarily of personnel costs, including salaries, bonuses, stock-based compensation and employee benefits costs, third-party consultant costs associated with the ongoing development and maintenance of the Company’s platform and integrations with our advertising and data inventory suppliers, amortization of capitalized third-party software used in the development of the Company’s platform and allocated overhead. Technology and development costs are expensed as incurred, except to the extent that such costs are associated with software development that qualifies for capitalization, which are then recorded as capitalized software development costs included in other assets, non-current on the Company’s consolidated balance sheet. The Company amortizes capitalized software development costs relating to the Company’s platform to platform operations expense.

General and Administrative. The Company’s general and administrative expense consists primarily of personnel costs, including salaries, bonuses, stock-based compensation, and employee benefits costs associated with the Company’s executive, finance, legal, human resources, compliance, and other administrative personnel, as well as accounting and legal professional services fees, credit loss expense and allocated overhead.

Stock-Based Compensation

Compensation expense related to stock options, restricted stock awards and units, which are referred to collectively as restricted stock, and awards granted under the Company's employee stock purchase plan ("ESPP"), is measured and recognized in the consolidated financial statements based on the fair value of the awards granted. The fair value of each option award is estimated on the grant date using the Black-Scholes option-pricing model. The fair value of restricted stock is calculated using the closing market price of the Company's common stock on the date of grant. Stock-based compensation expense related to stock options and restricted stock is recognized on a straight-line basis over the requisite service periods of the awards, which is generally four years. Stock-based compensation expense for ESPP awards is recognized on a graded-vesting attribution basis over the requisite service period of each award.

Determining the fair value of stock options and ESPP awards requires judgment. The Company's use of the Black-Scholes option pricing model requires the input of subjective assumptions. The assumptions used in the Company's option-pricing model represent management's best estimates. These estimates involve inherent uncertainties and the application of management's judgment.

These assumptions and estimates are as follows:

Risk-Free Interest Rate. The risk-free interest rate is based on the yields of U.S. Treasury securities with maturities approximating the expected term of the awards.

Expected Term. Given insufficient historical data relating to stock option exercises, to determine the expected term, the Company applies the simplified approach, in which the expected term of an award is presumed to be the mid-point between the vesting date and the expiration date of the award. For ESPP awards, the expected term is the time period from the grant date to the respective purchase dates included within each offering period.

Volatility. Prior to 2020, the Company determined the price volatility based on a blend of the historical volatilities of a publicly traded peer group, implied volatilities from its traded options, and its historical volatility, based on daily price observations over a period equivalent to the expected term of the award. During 2020, the Company eliminated the peer group from this analysis and began to determine its price volatility based on a blend of historical and implied volatilities.

Dividend Yield. The dividend yield assumption is based on the Company's history and current expectations of dividend payouts. The Company has never declared or paid any cash dividends on its common stock and does not anticipate paying any cash dividends in the foreseeable future, so the Company used an expected dividend yield of zero.

The Company will continue to use judgment in evaluating the assumptions related to the Company's stock-based compensation.

Income Taxes

Deferred income tax assets and liabilities are determined based upon the net tax effects of the differences between the Company's consolidated financial statements carrying amounts and the tax basis of assets and liabilities and are measured using the enacted tax rate expected to apply to taxable income in the years in which the differences are expected to be reversed. A valuation allowance is used to reduce some or all of the deferred tax assets if, based upon the weight of available evidence, it is more likely than not that those deferred tax assets will not be realized.

The Company recognizes the tax benefit from an uncertain tax position only if 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. The tax benefits recognized in the consolidated financial statements from such positions are then measured based on the largest benefit that has a greater than 50% likelihood of being realized. The Company recognizes interest and penalties accrued related to its uncertain tax positions in its income tax provision in the accompanying consolidated statements of operations.

Net Income Per Share Attributable to Common Stockholders

Basic net income per share attributable to common stockholders is calculated by dividing the net income attributable to common stockholders by the weighted-average number of shares of common stock outstanding.

Diluted net income per share attributable to common stockholders adjusts the basic net income per share attributable to common stockholders and the weighted-average number of shares of common stock outstanding for the potentially dilutive impact of stock options, restricted stock and ESPP using the treasury-stock method.

Cash, Cash Equivalents and Marketable Securities

The Company considers all short-term highly liquid investments with an original maturity of three months or less to be cash equivalents. Cash equivalents, consisting of money market funds, commercial paper, corporate debt securities and U.S. government and agency securities, are carried at fair value. Refer to Note 6—Cash, Cash Equivalents and Short-Term Investments for additional information regarding the fair value of cash equivalents and marketable securities.

The Company uses Accounting Standards Update (“ASU”) No. 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* (Accounting Standards Codification (“ASC”) 326 or “CECL”), to assess the investment portfolio for impairment at the individual security level and evaluates all securities in an unrealized loss position to determine if the impairment is credit-related (resulting in realized credit loss, recorded in earnings) or non-credit-related (resulting in an unrealized loss, recorded in stockholders' equity).

The Company classifies its marketable securities as available-for-sale (“AFS”) investments in its current assets because they represent investments of cash available for current operations. AFS investments are carried at fair value with any unrealized gains and losses, net of taxes, included in accumulated other comprehensive income (loss) in stockholders' equity. AFS debt securities with an amortized cost basis in excess of estimated fair value are assessed to determine what amount of that difference, if any, is caused by expected credit losses. Expected credit loss on AFS debt securities are recognized in other expense (income), net on consolidated statement of operations and any remaining unrealized losses, net of taxes, are included in accumulated other comprehensive income (loss) in stockholders' equity. We have not recorded any impairment charges for unrealized losses in the periods presented.

Accounts Receivable and Allowance for Credit Losses (formerly Allowance for Doubtful Accounts)

Accounts receivable are recorded at the invoiced amount, are unsecured and do not bear interest. The Company performs ongoing credit evaluations of its clients and certain advertisers when the Company's agreements with its clients contain sequential liability terms that provide that the client payments are not due to the Company until the client has received payment from its clients who are advertisers. We maintain an allowance for credit losses for expected uncollectible accounts receivable, which is recorded as an offset to accounts receivable and changes in such are classified as general and administrative expense on the Consolidated Statements of Operations.

On January 1, 2020, the Company adopted ASC 326 to assess the allowance for credit losses. The Company used the modified retrospective transition method, which required a cumulative-effect adjustment to the opening balance of retained earnings to be recognized on the date of adoption with prior periods not restated. The cumulative-effect adjustment recorded on January 1, 2020, was not material. ASC 326 requires the measurement of all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. As a result, the Company revised its impairment model to utilize an expected loss methodology in place of an incurred loss methodology related to its marketable securities and the related allowance for credit losses. The industry specific default rates are applied to the advertiser's industry if the receivables are subject to sequential liability or the Company is engaged with the advertiser directly.

For the year ended December 31, 2020, the Company's assessment considered business and market disruptions caused by COVID-19 and estimates of credit defaults by industry. We continue to monitor the financial implications of the COVID-19 on expected credit losses. The Company reviews the allowance for credit losses and financial implications of the COVID-19 on expected credit losses on a quarterly basis. Account balances are charged off against the allowance when the Company believes it is probable the receivable will not be recovered.

The following table presents changes in the accounts receivable allowance for credit losses (in thousands):

	Year Ended December 31,		
	2020	2019	2018
Beginning balance	\$ 3,920	\$ 2,973	\$ 2,257
Add: Impact upon adoption of new accounting standard	553	—	—
Add: bad debt expense	3,149	2,702	2,115
Less: write-offs, net of recoveries	(369)	(1,755)	(1,399)
Ending balance	\$ 7,253	\$ 3,920	\$ 2,973

Property and Equipment, Net

Property and equipment are recorded at historical cost, less accumulated depreciation and amortization. Depreciation is computed using the straight-line method based upon the following estimated useful lives:

	Years
Computer equipment	2 – 3
Purchased software	3 – 5
Furniture, fixtures and office equipment	5
Leasehold improvements	*

* Leasehold improvements are amortized on a straight-line basis over the term of the lease, or the useful life of the assets, whichever is shorter.

Repair and maintenance costs are charged to expense as incurred, while renewals and improvements are capitalized. When assets are retired or otherwise disposed of, the cost and related accumulated depreciation are removed from the accounts and any resulting gain or loss is reflected in the Company's operating results.

Capitalized Software Development Costs

The Company capitalizes certain costs associated with creating and enhancing internally developed software related to the Company's technology infrastructure. These costs include personnel and related employee benefits expenses for employees who are directly associated with and who devote time to software development projects, and external direct costs of materials and services consumed in developing or obtaining the software. Software development costs that do not qualify for capitalization, as further discussed below, are expensed as incurred and recorded in technology and development expenses in the consolidated statements of operations.

Software development activities typically consist of three stages: (1) the planning phase; (2) the application and infrastructure development stage; and (3) the post implementation stage. Costs incurred in the planning and post implementation phases, including costs associated with the post-configuration training and repairs and maintenance of the developed technologies, are expensed as incurred. The Company capitalizes costs associated with software developed when the preliminary project stage is completed, management implicitly or explicitly authorizes and commits to funding the project and it is probable that the project will be completed and perform as intended. Costs incurred in the application and infrastructure development phases, including significant enhancements and upgrades, are capitalized. Capitalization ends once a project is substantially complete and the software is ready for its intended purpose. Software development costs are amortized using a straight-line method over the estimated useful life of two years, commencing when the software is ready for its intended use. The straight-line recognition method approximates the manner in which the expected benefit will be derived.

The Company does not transfer ownership of its internally developed software, or lease its software, to third parties.

Cloud computing arrangements ("CCAs"), such as software as a service and other hosting arrangements, are evaluated for capitalized implementation costs in a similar manner as capitalized software development costs. If a CCA includes a software license, the software license element of the arrangement is accounted for in a manner consistent with the acquisition of other software licenses. If a CCA does not include a software license, the service element of the arrangement is accounted for as a service contract. The Company capitalized certain implementation costs for its CCAs that are service contracts, which are included in other assets, non-current. The Company amortizes capitalized implementation costs in a CCA over the life of the service contract. The Company capitalized \$1.0 million and \$2.9 million of CCA implementation costs in 2020 and 2019, respectively. Amortization expense was \$0.9 million and \$0.6 million for 2020 and 2019, respectively.

Operating Leases

On January 1, 2019, the Company adopted ASU No. 2016-02, codified as ASC 842, using the modified retrospective adoption approach. The Company elected the transition option provided by ASU No. 2018-11, Leases (Topic 842): Targeted Improvements, to not restate comparative periods, but rather to initially adopt the requirements of ASC 842 on January 1, 2019. The most significant impact of the adoption of ASC 842 resulted in the recognition of operating lease right-of-use assets ("operating lease assets") of approximately \$41 million, net of deferred rent and direct costs, and operating lease liabilities of approximately \$47 million on its consolidated balance sheet. The impact on the Company's consolidated statements of income and cash flows was not material.

ASC 842 provides various optional transition practical expedients. Upon transition to ASC 842, the Company elected the use of the package of practical expedients to not reassess: whether a contract is or contains a lease, lease classification and indirect costs. The Company did not elect the hindsight practical expedient in transition. The Company has elected to not separate lease and non-lease components.

Operating lease assets represent the Company's right to control the use of an identified asset for a period of time, or term, in exchange for consideration, and operating lease liabilities represent its obligation to make lease payments arising from the aforementioned right.

The Company determines if an arrangement is, or contains, a lease at inception. Operating leases are included in operating lease assets, operating lease liabilities and operating lease liabilities, non-current on our consolidated balance sheets for all leases except for short-term leases with a term of 12 months or less. Operating lease assets and liabilities are initially recorded based on the present value of lease payments over the lease term, which includes the minimum unconditional term of the lease, and may include options to extend or terminate the lease when it is reasonably certain at the commencement date that such options will be exercised. As the rate implicit for each of the Company's leases is not readily determinable, the Company uses its incremental borrowing rate, based on the information available at the lease commencement date in determining the present value of its expected lease payments. Operating lease assets also include any initial direct costs and any lease payments made prior to the lease commencement date and are reduced by any lease incentives received. Operating lease assets are amortized on a straight-line basis as the operating lease cost over the lease term on the consolidated statements of income. The related amortization, referred to as noncash lease expense, along with the change in the operating lease liabilities are separately presented within the cash flows from operating activities on the consolidated statements of cash flows.

Refer to Note 8—Leases for additional information.

Fair Value of Financial Instruments

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) 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. Fair value measurements are based on a fair value hierarchy, based on three levels of inputs, of which the first two are considered observable and the last unobservable, which are the following:

Level 1—Quoted prices (unadjusted) in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date.

Level 2—Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly, such as quoted market prices for similar assets and 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 asset or liability.

Level 3—Unobservable inputs.

Observable inputs are based on market data obtained from independent sources.

The carrying amounts of accounts receivable, accounts payable, accrued expenses and other current liabilities approximate fair value due to the short-term nature of these instruments. The carrying value of the line of credit approximates fair value based on borrowing rates currently available to the Company for financing with similar terms and were determined to be Level 2.

Certain long-lived assets including capitalized software development costs are also subject to measurement at fair value on a non-recurring basis if they are deemed to be impaired as a result of an impairment review. To date, no material impairments have been recorded on those assets.

Concentration of Risk

Financial instruments that potentially subject the Company to concentration of credit risk consist principally of cash and cash equivalents, marketable securities and accounts receivable. The Company maintains its cash and cash equivalents with financial institutions and its cash levels exceed the Federal Deposit Insurance Corporation (FDIC) federally insured limits. Marketable securities and short-term investments consist of investments in U.S. government securities, U.S. government agency securities, and high credit quality corporate debt securities.

For 2020, two clients each accounted for 11% of Gross Billings. For 2019, two clients accounted for 13% and 10%, respectively, of Gross Billings. For 2018, two clients accounted for 20% and 10%, respectively, of Gross Billings.

As of December 31, 2020, four clients accounted for 15%, 12%, 12% and 12%, respectively, of consolidated accounts receivable. As of December 31, 2019, three clients accounted for 18%, 16% and 16%, respectively, of consolidated accounts receivable.

As of December 31, 2020, and 2019, no suppliers accounted for more than 10% of consolidated accounts payable.

Foreign Currency Transactions and Translation

The Company has entities operating in various countries. Each of these entities' functional currency is the U.S. Dollar. Transactions in foreign currencies are translated into U.S. Dollars at the rates of exchange in effect at the date of the transaction. Net transaction losses were approximately \$1.0 million, \$0.7 million, and \$1.9 million for the years ended December 31, 2020, 2019 and 2018, respectively, and are included in foreign currency exchange loss, net in the accompanying consolidated statements of operations.

The Company enters into forward contracts to hedge foreign currency exposures related primarily to the Company's foreign currency denominated accounts receivable. The Company does not designate the foreign exchange forward contracts as hedges for accounting purposes and changes in the fair value of the foreign exchange forward contracts are recorded in foreign currency exchange loss, net in the accompanying consolidated statements of operations. As of December 31, 2020, and 2019, the Company had open forward contracts with aggregate notional amounts of \$169.9 million and \$92.9 million, respectively. The fair value of the open forward contracts was not material. The Company's forward contracts generally have terms of 30-60 days.

Recent Accounting Pronouncements

In December 2019, the FASB issued Accounting Standard Update No. 2019-12, Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes (ASU 2019-12), which simplifies the accounting for income taxes. This guidance will be effective in the first quarter of 2021 on a prospective basis, and early adoption is permitted. The Company is currently evaluating the impact of the new guidance on our consolidated financial statements.

In March 2020, the FASB issued ASU No. 2020-04, *Reference Rate Reform (Topic 848)* ("ASU 2020-04"), which provides optional expedients and exceptions for applying GAAP to contracts, hedging relationships, and other transactions affected by the discontinuation of the London Interbank Offered Rate or by another reference rate expected to be discontinued. The amendments are effective for all entities as of March 12, 2020 through December 31, 2022 and can be adopted as of any date from the beginning of an interim period that includes or is subsequent to March 12, 2020. The Company is currently evaluating the impacts of the provisions of ASU 2020-04 on our financial condition, results of operations, and cash flows.

Note 3—Net Income Per Share Attributable to Common Stockholders

The Company has two classes of common stock, Class A and Class B. Basic and diluted earnings per share (“EPS”) attributable to common stockholders for Class A and Class B common stock were the same because they were entitled to the same liquidation and dividend rights.

The computation of basic and diluted EPS is as follows (in thousands, except per share amounts):

	Year Ended December 31,		
	2020	2019	2018
Numerator:			
Net income	\$ 242,317	\$ 108,318	\$ 88,140
Denominator:			
Weighted-average shares outstanding—basic	46,287	44,533	42,442
Effect of dilutive securities:			
Options to purchase common stock	2,293	2,794	2,845
ESPP shares	77	131	251
Restricted stock	331	348	255
Weighted-average shares outstanding—diluted	48,988	47,806	45,793
Basic EPS	\$ 5.24	\$ 2.43	\$ 2.08
Diluted EPS	\$ 4.95	\$ 2.27	\$ 1.92
Anti-dilutive equity awards under stock-based award plans excluded from the determination of diluted EPS	32	691	472

Note 4—Property and Equipment, Net

Major classes of property and equipment were as follows (in thousands):

	As of December 31,	
	2020	2019
Computer equipment	\$ 28,528	\$ 13,594
Purchased software	10,179	9,898
Furniture and fixtures	17,971	11,304
Construction in progress (1)	13,862	20,034
Leasehold improvements	87,803	36,523
	158,343	91,353
Less: Accumulated depreciation	(42,480)	(27,341)
	\$ 115,863	\$ 64,012

(1) Includes leasehold improvement projects which are not yet ready for intended use.

Depreciation expense for 2020, 2019 and 2018 was \$21.2 million, \$14.9 million and \$8.1 million, respectively.

For the years ended December 31, 2020, 2019 and 2018 there were no impairment charges to property and equipment.

Note 5—Capitalized Software Development Costs

Capitalized software development costs, included in other assets, non-current, were as follows (in thousands):

	As of December 31,	
	2020	2019
Capitalized software development costs, gross	\$ 16,730	\$ 15,203
Less: Accumulated amortization	(5,225)	(6,121)
Capitalized software development costs, net	\$ 11,505	\$ 9,082

The Company capitalized \$8.2 million, \$6.5 million and \$6.9 million of software development costs in 2020, 2019 and 2018, respectively. Amortization expense was \$5.8 million, \$5.5 million and \$3.2 million for 2020, 2019 and 2018, respectively. Based on the Company's capitalized software development costs ready for intended use as of December 31, 2020, estimated amortization expense of \$4.2 million and \$1.7 million is expected to be recognized in 2021 and 2022, respectively. Amortization has not started on \$5.6 million of capitalized software development costs that are not yet ready for intended use as of December 31, 2020.

When fully amortized capitalized software is no longer being used, the Company removes the cost and amortization from the consolidated balance sheet. Accordingly, during 2020 and 2019, approximately \$6.7 million and \$2.8 million of costs and accumulated amortization, respectively, were removed from the consolidated balance sheet, related to capitalized software development costs which were fully amortized.

Note 6—Cash, Cash Equivalents and Short-Term Investments

Cash, cash equivalents and short-term investments in marketable securities were as follows (in thousands):

As of December 31, 2020			
	Cash and Cash Equivalents	Short-Term Investments	Total
Cash	\$ 132,372	—	\$ 132,372
Level 1:			
Money market funds	259,434	—	259,434
Level 2:			
Commercial paper	45,547	63,372	108,919
Corporate debt securities	—	79,342	79,342
U.S. government and agency securities	—	43,971	43,971
Total	\$ 437,353	\$ 186,685	\$ 624,038

As of December 31, 2019			
	Cash and Cash Equivalents	Short-Term Investments	Total
Cash	\$ 32,123	—	\$ 32,123
Level 1:			
Money market funds	45,588	—	45,588
Time deposits	35,000	—	35,000
Level 2:			
Commercial paper	15,666	24,975	40,641
Corporate debt securities	—	78,998	78,998
U.S. government and agency securities	2,499	20,139	22,638
Total	\$ 130,876	\$ 124,112	\$ 254,988

The Company's gross unrealized gains or losses from its short-term investments, recorded at fair value, for the years ended December 31, 2020, 2019 and 2018 were immaterial.

The contractual maturities of the Company's short-term investments are as follows (in thousands):

	December 31, 2020
Due in one year	\$ 162,291
Due in one to two years	24,394
Total	\$ 186,685

Note 7—Debt**Credit Facility**

On October 26, 2018, the Company and a syndicate of banks, led by Citibank, N.A., as agent, entered into a second amended and restated loan and security agreement (the “Second A&R Credit Agreement”). The Second A&R Credit Agreement amends and restates the Company’s existing credit facility previously entered into on May 9, 2017, and consists of a \$150.0 million revolving loan facility, with a \$20.0 million sublimit for swingline borrowings and a \$15.0 million sublimit for the issuance of letters of credit (the “Second A&R Credit Facility”). Under certain circumstances, the Company has the right to increase the Second A&R Credit Facility by an amount not to exceed \$100.0 million. The Second A&R Credit Agreement is collateralized by substantially all of the Company’s assets, including a pledge of certain of its accounts receivable, deposit accounts, intellectual property, investment property, and equipment.

Loans under the Second A&R Credit Facility bear interest through maturity at a variable rate based upon, at the Company’s option, an annual rate of either a Base Rate or a LIBOR rate, plus an applicable margin (“Base Rate Borrowings” and “LIBOR Rate Borrowings”). The Base Rate is defined as a fluctuating interest rate equal to the greatest of (1) the federal funds rate plus 0.50%, (2) Citibank, N.A.’s prime rate, and (3) one month LIBOR rate plus 2.00%. The applicable margin is between 0.25% to 1.25% for Base Rate Borrowings and between 1.25% and 2.25% for LIBOR Rate Borrowings based on the Company maintaining certain leverage ratios. The fee for undrawn amounts under the Second A&R Credit Facility ranges, based on the applicable leverage, from 0.225% to 0.400%. The Company will also be required to pay customary letter of credit fees, as necessary.

As of December 31, 2020, the Company did not have an outstanding debt balance under the Second Amended and Restated Loan and Security Agreement (the “Credit Facility”). In March 2020, the Company drew down \$143.0 million under the Credit Facility as a precautionary measure to provide increased liquidity and preserve financial flexibility in light of the worldwide decline in business activity brought about by COVID-19. By October 2020, the Company repaid the entire balance on its credit facility from available working capital. Availability under the credit facility was \$142.8 million as of December 31, 2020. The Second A&R Credit Facility matures, and all outstanding amounts become due and payable on May 9, 2022.

The Second A&R Credit Agreement contains customary conditions to borrowings, events of default and covenants, including covenants that restrict our ability to sell assets, make changes to the nature of our business, engage in mergers or acquisitions, incur, assume or permit to exist additional indebtedness and guarantees, create or permit to exist liens, pay dividends, issue equity instruments, make distributions or redeem or repurchase capital stock or make other investments, engage in transactions with affiliates and make payments in respect of subordinated debt. The Second A&R Credit Agreement also requires the Company to maintain compliance with (a) a maximum ratio of consolidated funded debt to consolidated EBITDA of 3.50 to 1.00 and (b) a minimum ratio of consolidated EBITDA to interest expense of at least 3.00 to 1.00. As of December 31, 2020, the Company was in compliance with all covenants.

The Company entered into the Second A&R Credit Agreement primarily to lower its borrowing costs and to change from an asset-based structure to a cash-flow based structure.

Note 8—Leases

The Company has operating leases for its offices. Its leases have remaining lease terms of up to 10 years, some of which include options to extend the leases for up to 5 years, and some of which include options to terminate the leases within 1 year with proper notification. Certain leases contain provisions for property-related costs that are variable in nature for which the Company is responsible, including common area maintenance and other property operating services. These costs are calculated based on a variety of factors including property values, tax and utility rates, property services fees, and other factors. The Company records rent expense for operating leases, some of which have escalating rent payments, on a straight-line basis over the lease term. The Company does not have any finance leases.

The components of lease expense were as follows (in thousands):

	Year Ended December 31,	
	2020	2019
Operating lease cost	\$ 42,272	\$ 28,181
Short-term lease cost	908	1,582
Variable lease cost	5,984	2,469
Sublease income	(3,645)	(1,266)
Total lease cost	<u>\$ 45,519</u>	<u>\$ 30,966</u>

Rent expense for non-cancelable operating leases was \$10.9 million for the year ended December 31, 2018.

Supplemental information related to leases were as follows:

	Year Ended December 31,	
	2020	2019
Weighted average remaining lease term	7.9 years	8.7 years
Weighted average discount rate	3.4%	4.5%

Maturities of lease commitments as of December 31, 2020 were as follows (in thousands):

Year	Amount
2021	\$ 43,561
2022	50,902
2023	46,660
2024	37,435
2025	35,706
Thereafter	134,440
Total undiscounted lease commitments	348,704
Less: commitments for leases not yet commenced	(13,670)
Less: interest	(42,604)
Present value of lease liabilities	292,430
Less: operating lease liabilities, current	(37,868)
Operating lease liabilities, non-current	\$ 254,562

Maturities of lease commitments as of December 31, 2019 were as follows (in thousands):

Year	Amount
2020	\$ 14,770
2021	45,522
2022	42,056
2023	38,310
2024	32,310
Thereafter	152,361
Total undiscounted lease commitments	325,329
Less: commitments for leases not yet commenced	(89,381)
Less: interest	(46,498)
Present value of lease liabilities	189,450
Less: operating lease liabilities, current	(14,577)
Operating lease liabilities, non-current	\$ 174,873

Note 9—Capitalization

The Class A and Class B common stock have the same rights and preferences including rights to dividends, except the Class B is entitled to ten votes per share and the Class A is entitled to one vote per share. Each share of Class B common stock is convertible at any time at the option of the holder into one share of Class A common stock. In addition, each share of Class B common stock will convert automatically into one share of Class A common stock upon any transfer, except for certain transfers described in the Company's restated certificate of incorporation, including, without limitation, certain transfers for tax and estate planning purposes. Our certificate of incorporation provides that all Class B common stock will convert automatically into Class A common stock on December 22, 2025 unless converted prior to such date.

The Company's board of directors has the discretion to determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock.

Note 10—Stock-Based Compensation**Stock-Based Compensation Expense**

Stock-based compensation expense recorded in the consolidated statements of operations was as follows (in thousands):

	Year Ended December 31,		
	2020	2019	2018
Platform operations	\$ 8,794	\$ 5,350	\$ 4,463
Sales and marketing	29,726	20,769	11,306
Technology and development	36,672	26,553	13,855
General and administrative	36,583	28,086	12,586
Total	<u>\$ 111,775</u>	<u>\$ 80,758</u>	<u>\$ 42,210</u>

Stock-Based Award Plans

The Company is authorized to issue stock options, restricted stock awards, restricted stock units, stock appreciation rights and other stock-based and cash-based awards under its 2016 Incentive Award Plan. As of December 31, 2020, 5.8 million shares remained available for grant under the Company's 2016 Incentive Award Plan. The number of shares authorized for grant is subject to increase each year on January 1, equal to the lesser of (a) 4% of the common stock outstanding (on an as-converted basis) on the final day of the immediately preceding calendar year and (b) such smaller number of shares as determined by the board of directors. On January 1, 2021, the number of shares authorized for grant under the Company's 2016 Incentive Award Plan was increased by 1.9 million shares in accordance with plan provisions.

Stock options granted under the Company's stock incentive plans generally vest over four years, subject to the holder's continued service through the vesting date, and expire no later than 10 years from the date of grant. Restricted stock awards generally vest over four years, subject to the holder's continued service through the vesting date.

Stock Options

The following summarizes stock option activity:

	Shares Under Option (in thousands)	Weighted- Average Exercise Price	Weighted- Average Contractual Life (years)	Aggregate Intrinsic Value (in thousands)
Outstanding as of December 31, 2019	4,064	\$ 70.74		
Granted	301	313.28		
Exercised	(1,545)	49.29		
Cancelled	(172)	125.57		
Outstanding as of December 31, 2020	<u>2,648</u>	<u>\$ 107.26</u>	<u>7.1</u>	<u>\$ 1,837,483</u>
Exercisable as of December 31, 2020	<u>1,354</u>	<u>\$ 58.64</u>	<u>6.3</u>	<u>\$ 1,004,852</u>

The fair value of options on the date of grant was estimated based on the Black-Scholes option pricing model. The weighted average assumptions used to value options granted to employees for the periods presented were as follows:

	Year Ended December 31,		
	2020	2019	2018
Expected term (years)	6.0	6.0	6.0
Expected volatility	60.5%	53.2%	48.2%
Risk-free interest rate	0.57%	2.26%	2.85%
Estimated dividend yield	—%	—%	—%

The weighted average grant date fair value per share of stock options granted for the years ended December 31, 2020, 2019 and 2018 and were \$172.52, \$94.91 and \$35.08, respectively. The total intrinsic value of options exercised during the years ended December 31, 2020, 2019 and 2018 were \$594.5 million, \$222.0 million and \$119.0 million, respectively.

Stock-based compensation expense related to stock options was \$45.3 million, \$37.2 million and \$17.7 million for the years ended December 31, 2020, 2019 and 2018, respectively. At December 31, 2020, the Company had unrecognized employee stock-based compensation relating to stock options of approximately \$103.0 million, which is expected to be recognized over a weighted-average period of 2.0 years.

Restricted Stock

The following summarizes restricted stock activity:

	Shares (in thousands)	Weighted- Average Grant Date Fair Value Per Share
Unvested as of December 31, 2019	457	\$ 120.65
Granted	379	343.79
Vested	(210)	131.50
Forfeited	(56)	163.30
Unvested as of December 31, 2020	570	\$ 261.03

Stock-based compensation expense related to restricted stock was \$33.5 million, \$17.9 million and \$7.4 million for the years ended December 31, 2020, 2019 and 2018, respectively. At December 31, 2020, the Company had unrecognized employee stock-based compensation relating to restricted stock of approximately \$136.3 million, which is expected to be recognized over a weighted-average period of 2.7 years.

Employee Stock Purchase Plan

In September 2016, the Company established an ESPP with 800,000 shares of Class A common stock available for issuance. As of December 31, 2020, 0.5 million shares remained available for grant under this plan. The number of shares authorized for grant is subject to increase each year on January 1, equal to the lesser of (a) 800,000 shares, (b) 1% of the Class A common stock outstanding (on an as-converted basis) on the final day of the immediately preceding calendar year, and (c) such smaller number of shares as determined by the Company's board of directors. On January 1, 2021, the number of shares available for issuance under the Company's Employee Stock Purchase Plan was increased by 0.4 million shares in accordance with plan provisions.

Under the ESPP, all eligible employees are permitted to authorize payroll deductions of up to 100% of their compensation to purchase shares of Class A common stock, subject to applicable ESPP and statutory limits. The ESPP provides for offering periods generally up to two years, with purchases occurring and new offering periods commencing generally every six months. ESPP purchases generally occur on May 15th and November 15th each year. At each purchase date, employees are able to purchase shares at 85% of the lower of (1) the closing market price per share of Class A common stock on the employee's enrollment into the applicable offering period and (2) the closing market price per share of Class A common stock on the purchase date. The ESPP has an automatic reset feature, whereby the offering period resets if the fair value of the Company's common stock on a purchase date is less than that on the original offering date.

The fair value of ESPP shares was estimated using the Black-Scholes option pricing model with the following weighted-average assumptions:

	Year ended December 31,		
	2020	2019	2018
Expected term (years)	0.6	0.7	0.8
Expected volatility	61.9%	53.2%	46.2%
Risk-free interest rate	0.40%	2.08%	2.32%
Estimated dividend yield	—%	—%	—%

The ESPP has a six-month holding period with respect to common stock purchases. Due to the holding period, the Company applies a discount to reflect the non-transferability of the shares. Stock-based compensation expense related to ESPP totaled \$33.0 million, \$25.7 million and \$17.1 million for the years ended December 31, 2020, 2019 and 2018, respectively. At December 31, 2020, the Company had unrecognized employee stock-based compensation relating to ESPP awards of approximately \$36.8 million, which is expected to be recognized over a weighted-average period of 0.5 years.

Note 11—Income Taxes

The following are the domestic and foreign components of the Company's income before income taxes (in thousands):

	Year Ended December 31,		
	2020	2019	2018
Domestic	\$ 212,531	\$ 162,252	\$ 115,706
Foreign	(68,628)	(46,032)	(9,969)
Income before income taxes	<u>\$ 143,903</u>	<u>\$ 116,220</u>	<u>\$ 105,737</u>

The following are the components of the provision for (benefit from) income taxes (in thousands):

	Year Ended December 31,		
	2020	2019	2018
Current:			
Federal	\$ (50,096)	\$ 9,180	\$ 11,683
State and local	(19,650)	7,800	9,295
Foreign	2,550	1,412	1,720
Total current provision	<u>(67,196)</u>	<u>18,392</u>	<u>22,698</u>
Deferred:			
Federal	(20,900)	(6,316)	(918)
State and local	(9,079)	(5,339)	(2,615)
Foreign	(1,239)	1,165	(1,568)
Total deferred provision	<u>(31,218)</u>	<u>(10,490)</u>	<u>(5,101)</u>
Total provision for (benefit from) income taxes	<u>\$ (98,414)</u>	<u>\$ 7,902</u>	<u>\$ 17,597</u>

A reconciliation of the statutory tax rate to the effective tax rate for the periods presented is as follows:

	Year Ended December 31,		
	2020	2019	2018
U.S. federal statutory income tax rate	21.0%	21.0%	21.0%
State and local income taxes, net of federal benefit	(15.7)	1.7	5.0
Foreign income at other than U.S. rates (1)	10.9	10.5	2.1
Stock-based compensation	(59.6)	(20.5)	(7.6)
Meals and entertainment	0.2	0.7	0.5
Nondeductible compensation	0.6	(1.3)	—
Research and development credit	(14.1)	(5.0)	(3.9)
Other permanent items	0.1	(0.3)	(0.4)
Benefit from carryback of NOLs	(11.8)	—	—
Effective income tax rate	<u>(68.4)%</u>	<u>6.8%</u>	<u>16.7%</u>

- (1) For the years ended December 31, 2020, and 2019, includes the impact of the valuation allowance associated with the United Kingdom ("U.K."). For additional information, see discussion below.

Set forth below are the tax effects of temporary differences that give rise to a significant portion of the deferred tax assets and deferred tax liabilities (in thousands):

	As of December 31,	
	2020	2019
Deferred tax assets (liabilities):		
Reserves and allowances	\$ 5,521	\$ 3,275
Accrued expenses	8,977	5,452
Net operating losses	58,813	19,225
Research and development tax credit	30,138	2,739
Stock-based compensation	13,584	10,641
Prepaid expenses	(1,365)	(685)
Property and equipment	(14,375)	(2,606)
Intangibles (1)	184,965	179,096
Capitalized software development costs	(2,836)	(2,056)
Operating lease assets	(55,685)	(37,394)
Operating lease liabilities	64,359	40,366
Other	487	111
Valuation allowance	(242,415)	(199,214)
Total deferred tax assets, net	\$ 50,168	\$ 18,950

(1) As of December 31, 2020, and 2019, includes intangibles associated with our international restructuring, net of amortization, offset by a reserve for uncertain tax position. See discussion below.

In April 2019, the Company completed a series of transactions resulting in changes to its international legal structure, including a transfer of certain intellectual property rights among wholly owned subsidiaries, primarily to align its structure to its evolving operations. The Company recorded a \$262.4 million deferred tax asset associated with this restructuring offset by a reserve for uncertain tax position of \$51.0 million. Based on available objective evidence, management believes it is not more-likely-than-not that these additional foreign deferred tax assets will be realizable as of December 31, 2019 and, therefore, are offset by a full valuation allowance to the extent not offset by reserves from uncertain tax positions. Management applied significant judgment in estimating the fair value of intangible assets, which involved the use of significant assumptions, including revenue growth rates, margins and discount rates.

As of each reporting date, the Company's management considers new evidence, both positive and negative, that could impact management's view with regard to future realization of deferred tax assets. During 2020, management recorded an additional valuation allowance of \$43.2 million against its U.K. net deferred tax assets, based on the history of cumulative losses and the conclusion that future taxable profit may not be available for the utilization of the deferred tax assets for U.K. income tax purposes.

As of December 31, 2020, the Company had net operating loss carryforwards in the U.K. of approximately \$326.6 million, which can be carried forward indefinitely. Additionally, the Company had net operating loss carryforwards in US state jurisdictions of approximately \$49.0 million, which can be carried forward up to twenty years. As of December 31, 2020, the Company had federal, state, and U.K. research and development tax credits of approximately \$27.9 million, \$17.5 million and \$0.6 million, respectively, which can be carried forward indefinitely.

As of December 31, 2020, unremitted earnings of the subsidiaries outside of the U.S. were approximately \$1.7 million, on which no state taxes have been paid. The Company's intention is to indefinitely reinvest these earnings outside the U.S. Upon distribution of those earnings in the form of a dividend or otherwise, the Company would be subject to both state income taxes and withholding taxes payable to various foreign countries. The amounts of such tax liabilities that might be payable upon repatriation of foreign earnings are not material.

As of December 31, 2020, the Company had gross unrecognized tax benefits of approximately \$66.9 million, \$63.1 million of which is a reduction to deferred tax assets and the remaining \$3.8 million which would affect the Company's effective tax rate if recognized. As of December 31, 2019, the Company had gross unrecognized tax benefits of approximately \$53.2 million. The Company classifies liabilities for unrecognized tax benefits in other liabilities, non-current.

The following table presents changes in gross unrecognized tax benefits (in thousands):

	Year Ended December 31,		
	2020 (1)	2019 (1)	2018
Beginning balance	\$ 53,213	\$ 4,330	\$ 3,101
Increases related to prior year tax positions	5,378	—	—
Decreases related to prior year tax positions	—	(20)	(270)
Increases related to current year tax positions	9,206	49,100	1,499
Settlements	(520)	(197)	—
Expiration of statute of limitations	(402)	—	—
Ending balance	<u>\$ 66,875</u>	<u>\$ 53,213</u>	<u>\$ 4,330</u>

(1) Includes the impact of a statutory rate change in the U.K.

Interest and penalties related to the Company's unrecognized tax benefits accrued as of December 31, 2020 were not material.

The Company files U.S. federal, state, and foreign tax returns. The Company is not currently under examination by any federal or state jurisdictions. The Company expects to reduce its unrecognized tax benefits by \$1.7 million during the next twelve months.

The 2017 through 2019 U.S. federal tax returns and 2017 through 2019 state tax returns remain open to examination. The majority of the Company's foreign subsidiaries remain subject to examination by local taxing authorities for 2015 and subsequent years.

Note 12—Segment and Geographic Information

The Company reports revenue net of amounts it pays suppliers for the cost of advertising inventory, third-party data and other add-on features (collectively, "Supplier Features"). The Company generally bills clients for the gross amount of Supplier Features they purchase through its platform and the platform fees, net of allowances ("Gross Billings"). The Company's accounts receivable are recorded at the amount of Gross Billings for the amounts it is responsible to collect, and accounts payable are recorded at the net amount payable to suppliers. Accordingly, both accounts receivable and accounts payable appear large in relation to revenue reported on a net basis.

Gross Billings, based on the billing address of the clients or client affiliates, were as follows (in thousands):

	Year Ended December 31,		
	2020	2019	2018
US	\$ 3,605,665	\$ 2,639,497	\$ 1,937,074
International	562,595	456,190	347,939
Total	<u>\$ 4,168,260</u>	<u>\$ 3,095,687</u>	<u>\$ 2,285,013</u>

Property and equipment, net and operating lease assets presented by principal geographic area, were as follows (in thousands):

	December 31, 2020	December 31, 2019
US	\$ 263,891	\$ 157,245
International	100,115	80,216
Total	<u>\$ 364,006</u>	<u>\$ 237,461</u>

Note 13—Commitments and Contingencies

As of December 31, 2020, the Company has various non-cancelable operating lease commitments for office space which as a result of the adoption of ASC 842, have been recorded as Lease Liabilities. Refer to Note 8—Leases for additional information regarding lease commitments.

As of December 31, 2020, the Company has non-cancelable commitments to its hosting services providers, marketing contracts and commitments to providers of software as a service. As of December 31, 2020, these purchase obligations were as follows (in thousands):

Year	Amount
2021	\$ 52,404
2022	35,029
2023	30,408
2024	16,642
2025	142
	<u>\$ 134,625</u>

Guarantees and Indemnification

In the ordinary course of business, the Company may provide indemnifications of varying scope and terms to clients, vendors, lessors, business partners, and other parties with respect to certain matters, including, but not limited to, losses arising out of breach of such agreements, services to be provided by the Company or from intellectual property infringement claims made by third parties. In addition, the Company has entered into indemnification agreements with directors and certain officers and employees that will require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors, officers or employees. No demands have been made upon the Company to provide indemnification under such agreements, and thus, there are no claims that the Company is aware of that could have a material effect on the Company's balance sheet, statement of operations or statement of cash flows. Accordingly, no amounts for any obligation have been recorded as of December 31, 2020 and 2019.

Litigation

From time to time, the Company is subject to various legal proceedings and claims, either asserted or unasserted, that arise in the ordinary course of business. Although the outcome of the various legal proceedings and claims cannot be predicted with certainty, management does not believe that any of these proceedings or other claims will have a material adverse effect on the Company's business, financial condition, results of operations or cash flows.

Employment Contracts

The Company has entered into agreements with severance terms with certain employees and officers, all of whom are employed on an at-will basis, subject to certain severance obligations in the event of certain involuntary terminations. The Company may be required to accelerate the vesting of certain stock options in the event of changes in control, as defined and involuntary terminations.

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 (“CEO”) and Chief Financial Officer (“CFO”), evaluated the effectiveness of our 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”), as of December 31, 2020. Our disclosure controls and procedures are designed to provide reasonable assurance that information we are required to disclose in the reports we file or submit under the Exchange Act is accumulated and communicated to our management, including our CEO and CFO, as appropriate to allow timely decisions regarding required disclosures, and is recorded, processed, summarized, and reported within the time periods specified in the SEC’s rules and forms. Based on this evaluation, our CEO and CFO have concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of December 31, 2020.

Management’s Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our financial statements for external purposes in accordance with generally accepted accounting principles.

Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2020 using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control—Integrated Framework* (2013). Based on its assessment, our management, including our CEO and CFO, has concluded that our internal control over financial reporting was effective as of December 31, 2020.

The effectiveness of our internal control over financial reporting as of December 31, 2020 has been audited by PricewaterhouseCoopers LLP, our independent registered public accounting firm, as stated in their report, which appears in Item 8 of this Annual Report on Form 10-K.

Changes in Internal Control over Financial Reporting

There have been no significant changes in our internal control over financial reporting during the quarter ended December 31, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Management recognizes that a control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud or error, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item will be included in our proxy statement relating to our 2021 annual meeting of stockholders to be filed by us with the SEC no later than 120 days after the close of our fiscal year ended December 31, 2020 (the "Proxy Statement") and is incorporated herein by reference.

We have a code of business ethics and conduct that applies to all of our employees, including our Principal Executive Officer, Principal Financial Officer, Principal Accounting Officer, and our Board of Directors. A copy of this code, "Code of Business Conduct and Ethics", is available on our website at <http://investors.thetradedesk.com>. We intend to satisfy the disclosure requirement under Item 5.05 of Form 8-K regarding amendment to, or waiver from, a provision of our Code of Business Conduct and Ethics by posting such information on our investor relations website under the heading "Leadership & Governance" at <http://investors.thetradedesk.com>.

Item 11. Executive Compensation

The information required by this item will be included in the 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 included in the Proxy Statement and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item will be included in the Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

The information required by this item will be included in the Proxy Statement and is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) We have filed the following documents as part of this Annual Report on Form 10-K:

1. Consolidated Financial Statements

Refer to Index to Consolidated Financial Statements in Item 8 herein.

2. Financial Statement Schedules

No financial statement schedules are provided because the information called for is not required or is shown in the financial statements of the notes thereto.

3. Exhibits

Exhibits required to be filed as part of this report are:

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Form	Filing Date	Number	
3.1	Amended and Restated Certificate of Incorporation.				X
3.2	Amended and Restated Bylaws.				X
4.1	Reference is made to Exhibits 3.1 and 3.2 .				
4.2	Form of Class A Common Stock Certificate.	S-1/A	9/6/2016	4.2	
4.3	Form of Class B Common Stock Certificate.	S-8	9/22/2016	4.4	
4.4	Second Amended and Restated Investor Rights Agreement dated as of February 9, 2016, by and among The Trade Desk, Inc. and the investors listed therein.	S-1/A	9/6/2016	10.1	
4.5	Description of Securities.				X
10.1	Second Amended and Restated Loan and Security Agreement, dated as of October 26, 2018, among The Trade Desk, Inc., the lenders party thereto, and Citibank, N.A., as administrative agent.	10-Q	11/9/2018	10.1	
10.2(a)+	The Trade Desk, Inc. 2010 Stock Plan.	S-1/A	9/6/2016	10.5 (a)	
10.2(b)+	Form of Stock Option Agreement under The Trade Desk, Inc. 2010 Stock Plan.	S-1/A	9/6/2016	10.5 (b)	
10.2(c)+	Exercise Notice under The Trade Desk, Inc. 2010 Stock Plan.	S-1/A	9/6/2016	10.5 (c)	
10.3(a)+	The Trade Desk, Inc. 2015 Equity Incentive Plan.	S-1/A	9/6/2016	10.6 (a)	
10.3(b)+	First Amendment to The Trade Desk, Inc. 2015 Equity Incentive Plan.	S-8	9/22/2016	99.2	
10.3(c)+	Form of Stock Option Agreement under The Trade Desk, Inc. 2015 Equity Incentive Plan.	S-1/A	9/6/2016	10.6 (b)	
10.3(d)+	Form of Stock Option Agreement under The Trade Desk, Inc. 2015 Equity Incentive Plan (with accelerated vesting).	S-1/A	9/6/2016	10.6 (c)	
10.3(e)+	Exercise Notice under The Trade Desk, Inc. 2015 Equity Incentive Plan.	S-1/A	9/6/2016	10.6 (d)	
10.4(a)+	The Trade Desk, Inc. 2016 Incentive Award Plan.	S-1	8/22/2016	10.7 (a)	
10.4(b)+	Form of Stock Option Agreement under The Trade Desk, Inc. 2016 Equity Incentive Plan.	S-1	8/22/2016	10.7 (b)	
10.4(c)+	Form of Restricted Stock Award Agreement under The Trade Desk, Inc. 2016 Equity Incentive Plan.	8-K	12/30/2016	10.1	

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Form	Filing Date	Number	
10.4(d)+	Form of Restricted Stock Unit Award Agreement under The Trade Desk, Inc. 2016 Equity Incentive Plan.	8-K	12/30/2016	10.2	
10.5+	The Trade Desk, Inc. 2016 Employee Stock Purchase Plan.	S-8	9/22/2016	99.5	
10.6+	Form of Indemnification Agreement.	S-1	8/22/2016	10.8	
10.7+	Employment Agreement, dated as of May 11, 2017, between The Trade Desk, Inc. and Jeff T. Green.	10-Q	05/11/17	10.2	
10.8+	Employment Agreement, dated as of May 11, 2017, between The Trade Desk, Inc. and David R. Pickles.	10-Q	05/11/17	10.3	
10.9+	Employment Agreement, dated as of November 1, 2017, between The Trade Desk, Inc. and Susan Vobejda.	10-Q	05/09/19	10.1	
10.10+	Offer Letter, dated October 29, 2019, by and between the Company and Blake Grayson.	8-K	11/15/19	10.1	
10.11+	Employment Agreement, dated October 29, 2019 between The Trade Desk, Inc. and Blake Grayson.	8-K	11/15/19	10.2	
10.12+	Employment Agreement, dated as of August 24, 2020 between The Trade Desk, Inc. and Jay Grant.	10-Q	11/06/20	10.1	
10.13+	Employment Agreement, dated January 11, 2021 between The Trade Desk, Inc. and Michelle Hulst.	8-K	01/14/21	10.1	
10.14+	Separation and Advisory Agreement, dated February 5, 2021 between The Trade Desk, Inc. and Brian Stempeck.				X
21.1	List of Subsidiaries of the Registrant.				X
23.1	Consent of PricewaterhouseCoopers LLP, independent registered public accounting firm.				X
24.1	Power of Attorney (included on signature page to this Annual Report on Form 10-K).				X
31.1	Certification of Principal 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.				X
31.2	Certification of Principal 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.				X
32.1 (1)	Certifications of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				X
101.ins	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document				X
101.sch	Inline XBRL Taxonomy Schema Linkbase Document				X
101.cal	Inline XBRL Taxonomy Calculation Linkbase Document				X
101.def	Inline XBRL Taxonomy Definition Linkbase Document				X
101.lab	Inline XBRL Taxonomy Label Linkbase Document				X
101.pre	Inline XBRL Taxonomy Presentation Linkbase Document				X

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Form	Filing Date	Number	
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)				X

+ Indicates a management contract or compensatory plan or arrangement.

(1) The information in this exhibit is furnished and deemed not filed with the Securities and Exchange Commission for purposes of section 18 of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and is not to be incorporated by reference into any filing of The Trade Desk, Inc. under the Securities Act of 1933, as amended, of the Securities Act, or the Exchange Act, whether made before or after the date hereof, regardless of any general incorporation language 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 report to be signed on its behalf by the undersigned, thereunto duly authorized, on the 18th day of February, 2021.

THE TRADE DESK, INC.

By: /s/ BLAKE J. GRAYSON
Blake J. Grayson
Chief Financial Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Jeff T. Green and Blake J. Grayson, jointly and severally, as his or her true and lawful attorneys-in-fact and agents, 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 that all said attorneys-in-fact and agents, or any of them or their or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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/ JEFF T. GREEN</u> Jeff T. Green	Chief Executive Officer, Director (principal executive officer)	February 18, 2021
<u>/s/ BLAKE J. GRAYSON</u> Blake J. Grayson	Chief Financial Officer (principal financial officer and principal accounting officer)	February 18, 2021
<u>/s/ DAVID R. PICKLES</u> David R. Pickles	Chief Technology Officer, Director	February 18, 2021
<u>/s/ LISE J. BUYER</u> Lise J. Buyer	Director	February 18, 2021
<u>/s/ KATHRYN E. FALBERG</u> Kathryn E. Falberg	Director	February 18, 2021
<u>/s/ THOMAS FALK</u> Thomas Falk	Director	February 18, 2021
<u>/s/ ERIC B. PALEY</u> Eric B. Paley	Director	February 18, 2021
<u>/s/ GOKUL RAJARAM</u> Gokul Rajaram	Director	February 18, 2021
<u>/s/ DAVID B. WELLS</u> David B. Wells	Director	February 18, 2021