

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, 2022
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

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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	TDD	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. ☐

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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, 2022, based on the closing sales price for the Registrant's Class A common stock, as reported on the Nasdaq Global Market, was approximately \$18,431,645,367. As of January 31, 2023, there were 446,505,568 shares of the registrant's Class A common stock outstanding and 44,289,230 shares of the registrant's Class B common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for the 2023 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, 2022.

THE TRADE DESK, INC.
ANNUAL REPORT ON FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2022

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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 (the “Securities Act”), and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). 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. Risk Factors” of this Annual Report on Form 10-K in greater detail 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 “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 could 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.
- 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.
- 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.

- If our access to quality advertising inventory is diminished or fails to expand, our revenue could decline and our growth could be impeded.
- Current or future global market uncertainties or downturns and associated macroeconomic conditions beyond our control could adversely affect our business, financial condition and results of operations.
- Seasonal fluctuations in advertising activity could have a negative impact on our revenue, cash flow and results of operations.
- We may experience outages, disruptions and malfunctions on our platform and related offerings if we fail to maintain adequate security and supporting infrastructure and processes, which may harm our reputation and negatively impact our business, financial condition and results of operations.
- Operational performance and internal control issues with our platform may adversely affect our business, financial condition and results of operations and subject us to liability.
- 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 preference signals, 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”) offers a self-service, cloud-based ad-buying platform that empowers our clients to plan, manage, optimize and measure more expressive data-driven digital advertising campaigns. Our platform allows clients to execute integrated campaigns across ad formats and channels, including video (which includes connected TV (“CTV”)), display, audio, digital-out-of-home, native and social, on a multitude of devices, such as computers, mobile devices, televisions and streaming devices. Our platform’s integrations with major inventory, publisher and data partners provide ad buyers reach and decisioning capabilities, and our enterprise application programming interfaces (“APIs”) enable our clients to customize and expand platform functionality.

Our clients are advertising agencies, brands 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, will result in programmatic advertising – the buying and selling of advertising inventory using algorithmic software that automates the process – being the predominant means by which companies reach consumers online and through connected devices.

Some of the key industry trends are:

Media is Increasingly Digital. Media is increasingly 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. As media becomes 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, social media platforms, streaming services and websites presents a challenge for advertisers trying to reach a large audience. Additionally, 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.

Emergence of CTV. 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 seamlessly over the Internet, accelerating consumer demand to watch what they want, when they want and where they want. The worldwide rollout of 5G, the fifth generational standard for wireless networks, has brought 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 and mobile video and bring about new opportunities for content owners and advertisers to connect with consumers. Consumers are increasingly shifting their viewing habits to decentralized CTV providers from traditional linear television, and CTV providers are increasingly providing customers with more choices by offering ad-supported subscription options. We believe these shifts will incentivize content owners to provide more relevant ads using data-driven advertising.

Increased Use of Data. Advances in software and hardware, and the growing use of the Internet, have enabled the generation of user data at an unprecedented scale. Data vendors and other organizations are able to collect this user data 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 data 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. At the same time, new laws and self-regulatory rules governing the collection, use, and disclosure of personal information continue to impact these practices.

Automation of Ad Buying. The growing complexity of digital advertising and the laws and rules that govern it have 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 ecosystem 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.

What We Do

We empower ad buyers, by providing a self-service cloud-based ad-buying platform that enables our clients to plan, manage, optimize and measure data-driven digital advertising campaigns. Our platform allows clients to execute integrated campaigns across various advertising channels and formats, including video (which includes CTV), display, audio, digital-out-of-home, native and social, on a multitude of devices, including computers, mobile devices, televisions and streaming devices.

- **We Are 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 core offerings with buyers, we are able to avoid 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 with the benefit of long-term and stable relationships with our clients.
- **We Are an Enabler, Not a Disruptor.** With our platform and related offerings, 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 third-party data providers improves 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 protocols governing the ingestion of client first-party data into our data management platform, our clients trust us with their most granular and expressive data. Our technology platform enables an effective use of this data, allowing our clients to run precisely targeted advertising campaigns that help 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 (subject to appropriate consumer choices). The breadth of data that we make available on our data marketplace from numerous 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-service 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 this approach strengthens our relationships with our clients and helps us 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 and control all facets of inventory purchasing decisions. Clients also receive detailed, real-time reporting on all their advertising campaigns. By providing transparent information on our platform, we enable our clients to continually compare results and target their budgets toward 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. For example, clients may use our APIs to 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 that allows users to define desirable factors and the value associated with those factors. Based on these factors, our platform can compute the value of impressions in real time 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 powerful and user friendly:

- ***Easy to Use, Open and Customizable.*** Our platform provides multiple easy-to-use automation tools that help our users focus on managing the key elements of 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 and Measurement Tools.*** Our platform enables clients to utilize multiple data sets, including from an extensive selection of third-party vendors, in a seamless and easy manner, allowing

them to further optimize their campaigns with highly relevant data. We also offer a broad selection of third-party measurement partners, which provides our clients with increased optionality to assess campaign performance.

- **Koa Artificial Intelligence.** Koa, our predictive algorithmic tools that help 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.
- **Informed Media Planning.** Our platform enables clients to use audience insights and strategic goals to help optimize campaign planning, with the ability to generate, analyze and launch data-driven, programmatic media plans. Our tools analyze the actions of existing core audiences with the data we see across the open Internet to deliver fully transparent, performance-focused and ready-to-activate campaigns.
- **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 within our platform 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 customize and expand platform functionality.

Our Technology

The core elements of our technology are:

- **Scalable Architecture.** Our platform infrastructure is hosted in data centers 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 campaign 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, data, and incentive plans 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 we 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 to grow 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 highly effective omnichannel campaigns, where data from each channel can inform decisions in other channels. We believe these capabilities will continue to further strengthen our relationships with our clients. We intend to continue investing in innovation across all channels, including the integration of new inventory sources within CTV, other video, audio, mobile, 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 CTV, the streaming of media and video on demand through subscription and ad-supported streaming services and connected devices. We plan to continue investing significant resources in technology, sales and support staff related to our CTV growth initiatives.
- **Continue to Innovate in Technology, Data and Measurement.** We intend to continue innovating and improving the technology underlying our platform and enhance its features and functionalities. We view data as one of our key competitive advantages and we will continue to invest resources in growing our data and measurement offerings, from clients, third-party providers and our proprietary data and product capabilities.
- **Expand our Offerings, Including Unified ID 2.0.** We have developed Unified ID 2.0, a new open-source identity framework, which is currently in use with approved partners. The Unified ID 2.0 aims to preserve the value of relevant advertising on the open internet without reliance upon third-party cookies, while giving consumers transparency and control over their data. Unified ID 2.0 operates by transforming email addresses or phone numbers into an advertising identifier (a "UID2") that is designed not to directly identify the individual. Subject to appropriate guardrails, participants in Unified ID 2.0 can then use this UID2 in connection with our platform and other services, including ad buying and reporting. We have worked to cultivate industry-wide support and collaboration for the Unified ID 2.0 approach, and we intend to continue these efforts. EUID, a European-focused version of Unified ID 2.0, is likely to be released in a limited beta in 2023.
- **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 ("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, India, and Indonesia may represent substantial growth opportunities, and we are investing in developing our business in those and other markets.

Our Clients

Our clients consist of purchasers of programmatic advertising inventory and data. As of December 31, 2022, we had over 1,000 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 that have signed MSAs with us and have spent more than \$20,000 on our platform.

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. Generally, these MSAs have one-year terms that renew automatically for additional one-year periods, unless earlier terminated, and are 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 2022, 2021 and 2020. In addition, our clients typically grow their use of our platform over time.

If all of our individual client contractual relationships were aggregated at the holding company level, one holding company, Publicis Groupe, would have represented more than 10% of our gross billings in 2022. If all of our individual client contractual relationships were aggregated at the holding company level, two holding companies, Publicis Groupe and WPP plc, would each have represented more than 10% of our gross billings in 2021. We generally do not have contractual relationships with holding companies; rather, in most cases we enter into separate contracts and billing relationships with various of their individual agencies and account for those agencies as separate clients.

Our Advertising Inventory and Data Suppliers

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

We obtain digital advertising inventory from over 100 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.

We believe that our data marketplace represents an important distribution channel for third-party data vendors. As of December 31, 2022, we have integrated our platform with more than 200 third-party data vendors whose products we make available for purchase through our platform.

Sales and Marketing

Given our self-service 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-service 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, engaging in public relations activities, expanding our social media presence and launching 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 and related offerings 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 Google and Adobe. We believe that we compete primarily based on the performance, capabilities and transparency of our platform as well as our focus on the buy side. We believe 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 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 our values of vision, agility, grit, openness, generosity and being full hearted are 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 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, 2022, we had 2,770 full-time employees in 19 countries. Regionally, North America, Asia Pacific (“APAC”) and Europe, Middle East and Africa (“EMEA”) make up approximately 63%, 18% and 19% 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 we prioritize diversity and inclusion as part of our investment in our people. Our goal is to create a culture where we value, respect and provide fair treatment and opportunities for all employees. We conduct an annual employee 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, diversification of our talent and the creation of forums for internal dialogue and listening. As of December 31, 2022, our global leadership team is 71% male and 29% 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 with 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 a hybrid work model that includes both in-person work and working from home, which we determined were in the best interests of our employees, as well as the communities in which we operate, and which comply with applicable 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 United States to serve the global needs of our clients. We believe that the global opportunity for programmatic advertising is significant and will continue to expand as publishers and advertisers outside the United States 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 United States 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 our issued patents may not actually provide adequate defensive protection or competitive advantages to us.

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

To power our platform, we and our clients currently use pseudonymous data about Internet and mobile app users 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 contractually prohibit clients, data providers and inventory suppliers from importing data that directly identifies individuals onto our ad buying platform. In connection with some of our newer offerings, including Unified ID 2.0 (and soon, EUID), we do allow users of those services to disclose some directly identifying information, such as phone number and email address, with us for purposes of transforming that information into pseudonymous identifiers to use on 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 are changing frequently, including those relating to the level of consumer notice, consent and/or choice required when a company uses data for certain purposes, including targeted advertising, or employs cookies or other electronic tools to collect data about interactions with users online.

In the United States, both federal and state legislation govern activities such as the collection and use of personal data, and data 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 of digital advertising in the United States currently comes from the FTC. Relying on Section 5 of the Federal Trade Commission Act, which prohibits companies from engaging in “unfair” or “deceptive” trade practices, the FTC pursues alleged violations of representations concerning data privacy protections and acts that allegedly violate individuals’ data privacy interests. However, there is increasing consumer concern over data privacy in recent years, which has led to a myriad of new and proposed legislation and regulation 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.

Although California was the first state to enact an omnibus consumer privacy law in 2018 (known as the California Consumer Privacy Act or CCPA), by the end of 2023, four other states will have similar laws: Virginia, Colorado, Connecticut, and Utah. Further, updates to the CCPA take effect January 1, 2023. These state laws define “personal information” broadly enough to include many online identifiers provided by individuals’ devices, applications, and protocols (such as IP addresses, mobile application identifiers and unique cookie identifiers), individuals’ location data, and hashed versions of email addresses and phone numbers. The CCPA created individual data privacy rights for consumers in the State of California (including rights to deletion of and access to personal information), special rules on the collection of consumer data from minors, new notice obligations and new limits on and rules regarding the “sale” of personal information (interpreted by many observers to include common advertising practices). In addition to extending many of the CCPA compliance obligations (such as data privacy rights and enhanced notices) to the other four states, those laws and the updates to the CCPA focus even more significantly on advertising activities, mandating all businesses that engage in certain advertising uses of consumer personal information to offer and honor an opt-out of such activities, including, in three states, through browser or device-based preference signals. (Terminology varies slightly among some of the state laws, referring to such practices as “processing for targeted advertising” or “sales” or “sharing” of personal information, but the opt-out requirement exists under each state’s law.) Importantly, as a consequence of these obligations, the availability of data within our platform and the advertising ecosystem more broadly may decline, potentially making our platform and services less valuable to our clients.

The requirement in California and eventually in Colorado and Connecticut to honor users’ requests to opt out of certain disclosures and uses of data for advertising purposes through preference signals, such as the Global Privacy Control (“GPC”) or more generally an opt-out preference signal, reflects a broader attention that data privacy advocates, the media and some government regulators, such as the FTC, have devoted to digital advertising in recent years. If the use of the Global Privacy Control or similar technical signals is adopted by many Internet users, is imposed by additional states or by federal or foreign legislation, 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 could be harmed.

As our business is global, our activities are also subject to foreign legislation and regulation. In the United Kingdom and 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") and now the U.K.'s version of the GDPR, which both apply to us, the GDPR define "personal data" broadly, and it enhances data protection obligations for controllers of such data and for service providers processing the data. These laws also provide certain rights, such as access and deletion, to the individuals about whom the personal data relates. IAB Europe previously collaborated with the digital advertising industry to create a user-facing framework (the Transparency and Control Framework, or "TCF") for establishing and managing legal bases under the GDPR and other U.K. and EU privacy laws including the ePrivacy Directive (discussed below). Although the TCF is actively in use, its viability as a compliance mechanism is under review by the Belgian Data Protection Authority and others and we cannot predict its effectiveness over the long term (as further detailed in the Risk Factors section). Continuing to maintain compliance with the requirements of European privacy laws and regulations, 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 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 have continued to agitate for more robust forms of consent, including by bringing enforcement actions against large platforms, including Amazon, Facebook and Google, concerning their cookie consent mechanisms. These developments may result in decreased reliance on implied consent mechanisms that have been used to meet requirements of the ePrivacy Directive in some markets. A replacement for the ePrivacy 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.

To address the transfer of personal data from the EU to the United States, 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 United States is in question. In June 2021, the European Commission published revised standard contractual clauses, and shortly thereafter the European Data Protection Board promulgated guidance on implementation of the new clauses. In October 2022, the White House released an executive order implementing a new EU-U.S. data transfer mechanism, the Trans-Atlantic Data Privacy Framework ("DPF"). The European Commission launched an assessment of the DPF's adequacy, which is expected to be completed in 2023. If granted, an adequacy determination would help quell the legal uncertainty of cross-border transfers of personal data. However, until an adequacy determination is granted, the validity of the standard contractual clauses as a transfer mechanism remains uncertain. If all or some jurisdictions within the EU or the United Kingdom determine that the new standard contractual clauses likewise cannot be used to transfer personal data to the United States and if the DPF is not ultimately adopted, we could be left with no reasonable option for the lawful cross-border transfer of personal data. In such circumstance, if we nonetheless continue to transfer personal data from the EU to the United States, 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 harm 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.

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 data 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 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 on Form 10-K, 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 our offerings, 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 master services agreements (“MSAs”) in place with our clients, such agreements allow our clients to choose the amount they spend through our platform and terminate our services with limited notice. We at times supplement our MSAs with joint business plans and other incentive programs designed to increase spending from existing clients; however, such increased spending may not materialize in the amounts we expect or at all. We do not typically have exclusive relationships with our clients and there is limited cost and difficulty 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 to the extent that we expect or at all, 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 current and future 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 over 1,000 clients, consisting primarily of advertising agencies, as of December 31, 2022. 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 would have represented more than 10% of our gross billings for 2022.

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 and laws governing our activities, 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 and legal 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 and new processing of personal information, including identifiable information, they may raise new, or heighten existing, technological, security, legal and other challenges, may cause unintended consequences and 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, security, legal or other challenges, the reputation of and demand for our platform or related offerings could decrease and our business, financial condition and 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 could 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 curtailed the movement of

people, goods and services worldwide, including in the regions in which we and our clients and partners operate, and significantly impacted 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-19-related impacts, which have negatively impacted, and with respect to the COVID-19 pandemic or other future health epidemics, 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.

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. The duration and extent of the impact from the COVID-19 pandemic depend on future developments that cannot be accurately predicted at this time, including the emergence of new variant strains of COVID-19 and the measures taken by governments, businesses and other organizations in response, 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, rich first-party data sets, 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 superior solutions, 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 or related offerings and could result in increased pricing pressure, increased development, sales and marketing expense, or the loss of market share.

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. In particular, the CTV market is quickly evolving and the demand for CTV inventory on our platform has been a significant driver of growth. 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 especially 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, consumer choices, or other causes, or any inability to further penetrate social, native, audio or 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. If we fail to maintain a diversified channel mix, a decrease in the demand for any channel or channels that we become primarily dependent upon could harm our business, financial condition and results of operations. 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 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 for our platform and newer offerings, 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 and related offerings. 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.

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 in the pricing or availability of data and other third-party services, including pricing structure changes and the alignment of our pricing model with our data partners;
- changes in our client base and platform or related 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' budgets or spending priorities, or could increase the time or costs required to complete advertising inventory sales;
- changes in the pricing and availability of advertising inventory, including through real-time advertising exchanges or in the cost of reaching end consumers through digital advertising;
- disruptions, outages, vulnerabilities or technological issues uncovered on our platform or related offerings;
- 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. In the past, companies that have experienced volatility in the market price of their stock have been subject to securities litigation. We may be the target of this type of litigation in the future, which could result in substantial costs and divert our management's attention from other business concerns.

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, including as publishers and other inventory suppliers respond to changes in the legal and regulatory landscape. 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 or at all. 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. Such processes may not always work in our favor or for the benefit of our clients and may create inefficiencies in the supply chain for advertising inventory. Given the importance of ensuring access to quality inventory for our advertisers, we have initiated our own efforts to procure access through OpenPath, our supply path optimization offering intended to give clients a simplified, direct connection to publishers. However, there can be no guarantee that we will be successful in any such efforts or at all.

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 continue to 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.

Current or future global market uncertainties or downturns and associated macroeconomic 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. Current or future global market uncertainties or downturns and associated macroeconomic conditions, such as growing inflation, rising interest rates, recessionary fears, changes in foreign currency exchange rates, the impact of global instability in many parts of the world and the COVID-19 pandemic or other public health crises, may disrupt the operations of our clients and partners and 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 we explore new countries to expand our business, economic downturns or unstable market conditions in any of those countries could also 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 and related offerings. 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, adding new offerings, growing our number of employees and expanding internationally. Supporting our continued growth may require substantial financial and other resources to, among other things:

- develop our platform and related offerings, including by investing in our engineering team, creating, acquiring or licensing new products or features, and improving the availability and security of our platform and related offerings;
- 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 use and consumer privacy compliance, including additional infrastructure, product features, security, automation and personnel; and
- explore strategic acquisitions.

Investing in the foregoing, however, may not yield anticipated returns. 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 ("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 and the users of 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, disruptions, and malfunctions on our platform and related offerings, if we fail to maintain adequate security and supporting infrastructure and processes, which may harm our reputation and negatively impact our business, financial condition and results of operations.

As we expand our offerings, which in some instances involves ingesting more identifiable and sensitive information, the consequences of potential security vulnerabilities become more significant for our business. We expect to continue to invest in technology and security services, equipment, and expertise, including engineers, 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 security vulnerabilities or misuse, system disruptions, data loss, 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 financial condition, 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, protect, 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 and related offerings as they scale 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, including personal information, from our platform. We are also vulnerable to unintentional errors or malicious or improper 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 and functioning of our platform and related offerings. 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. Misuse, vulnerabilities, outages and disruptions of our platform and related offerings, including due to cyberattacks, may require engagement with regulators or lead to legal actions, harm our reputation and negatively impact our business, financial condition and results of operations.

Operational performance and internal control issues with our platform may adversely affect our business, financial condition and results of operations and subject us to liability.

Our platform and other offerings are complex and proprietary, and we rely on the expertise of members of our engineering, operations and software development teams for its continued performance. Operational, performance and internal control issues may arise due to a variety of factors, including infrastructure changes, introductions of new functionality, human or software errors and other internal and external variables. Such issues have caused errors, failures, design flaws, vulnerabilities and bugs in the past and may again in the future. We also rely 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, performance and internal control issues with our platform and related offerings, which we may experience and have experienced in the past, could include the failure of our user interface, outages, errors, discrepancies in costs billed versus costs paid, unauthorized bidding, cessation of our ability to bid or deliver impressions, deletion of our reporting information, unanticipated volume overwhelming our databases, server failure or catastrophic events affecting one or more server farms.

Operational, performance, design, and internal control issues with our platform and related offerings, whether real or perceived, could also result in negative publicity, damage to our brand and reputation, government investigations, loss of clients, loss of data, loss of or delay in market acceptance or market share of our platform or related offerings, increased costs or loss of revenue, loss of the ability to access our platform or related offerings, 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 the data on our platform and in our systems 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; 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.

Many of our employees now have a hybrid work schedule consisting of both in-person work and working from home. Although we have implemented work-from-home protocols and provide work-issued devices to employees, the actions of our employees while working from home may have a greater effect on the security of our systems, the platform and the data we process, including by increasing the risk of compromise to our systems, confidential information or data arising from employees' combined personal and private use of devices, accessing our systems or data using wireless networks that we do not control or the ability to transmit or store company-controlled data outside of our secured network.

A breach of our security, a flawed design, 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. As we launch new products and services, some of which involve the receipt and processing of identifiable information, the risks associated with data including risks to breach of our systems increases, and we could be subject to contractual breach and indemnification claims from other clients and partners and otherwise suffer damage to our reputation, brand, and business. Our platform may also receive data in aggregated or pseudonymized form, 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. In connection with newer products and services, including Unified ID 2.0 (and soon, EUID), we may also receive information that directly identifies individuals, such as email addresses and phone numbers. We may receive such information both directly from consumers and from our clients, and we deploy technical and contractual measures to limit how such identifying information can be used and shared.

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 and rulemaking related to data 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., in August 2022 the FTC released and accepted comments on an advance notice of proposed rulemaking concerning "commercial surveillance" covering a host of data privacy and security topics. In addition, a potential federal

data privacy law remains the subject of active discussion; in June 2022, a bipartisan group of lawmakers introduced a bill that would substantially impact on the online advertising ecosystem if passed.

State lawmakers are also actively addressing consumer data privacy issues. By the end of 2023, five states will have broad-based consumer privacy laws in effect: California, Virginia, Colorado, Connecticut, and Utah. These state laws define “personal information” broadly enough to include many online identifiers provided by individuals’ devices, applications, and protocols (such as IP addresses, mobile application identifiers and unique cookie identifiers), individuals’ location data, and hashed versions of email addresses and phone numbers. These laws require covered businesses to meet numerous data privacy-related obligations, among other requirements, establishing data privacy rights for consumers in such states (including rights to request deletion of and access to personal information), imposing special rules on the collection of consumer data from minors and other data deemed “sensitive” under the laws, and creating new notice obligations. Most significant for the advertising industry, however, these laws require all businesses that engage in certain advertising uses of consumer personal information to offer and honor an opt-out of such activities, including, in three states, through browser or device-based preference signals. (Terminology varies slightly among some of the state laws, referring to such practices as “processing for targeted advertising” or “sales” or “sharing” of personal information, but the opt-out requirement exists under each state’s law.) Importantly, as a consequence of these data privacy-related obligations, the availability of data within our platform and the advertising ecosystem more broadly may decline, potentially making our platform and services less valuable to our clients.

California first passed an omnibus consumer privacy law in 2018. Though updates to that law recently went into effect on January 1, 2023, enforcement activity under the initial law in 2022 revealed that regulators interpret “sales” broadly to include common advertising technology practices. This enforcement activity, together with the updates to California’s laws and the new state laws that will take effect throughout 2023, will impact our practices and those of our clients and others in the advertising industry. Recent enforcement activity by the California Attorney General also reflects a focus on online advertising activities and signals regulators’ willingness to pursue in-depth investigations and impose substantial penalties on entities allegedly operating in violation of the statute.

The California law (called the California Consumer Privacy Act or CCPA) also creates a potentially severe statutory damages framework for violations of the law 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.

Although the rulemaking process is still underway, the CCPA implementing regulations will likely increase compliance costs and obligations on us, our clients, and other companies in the advertising industry. Thus, we expect that continuing to maintain compliance with California’s legal requirements, including monitoring and adjusting to new regulations and interpretations that affect our approach to compliance, will require 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.

The privacy laws passed in Virginia, Colorado, Connecticut, and Utah, are structured somewhat differently from the CCPA but result in many of the same compliance obligations, and may similarly require significant time, resources, and expense to develop and maintain compliance. Like the amendments to the CPRA, the Virginia Consumer Data Protection Act recently went into effect on January 1, 2023. The Colorado Privacy Act (“CPA”) and the Connecticut Act Concerning Personal Data Privacy and Online Monitoring will both take effect on July 1, 2023. The Utah Consumer Privacy Act takes effect on December 31, 2023. All of these laws protect a broadly-defined concept of “personal data,” and each law grants individuals a range of data privacy rights relating to such data, including the right to opt out of targeted advertising and certain profiling activities. The State of Colorado began the formal rulemaking process and introduced an initial set of draft regulations for implementing the Colorado Privacy Act. Although the rulemaking process is still underway, the CPA regulations, as well as the other state laws, may ultimately increase compliance costs and obligations on us, our clients, and other companies in the advertising industry. Although we have attempted to mitigate certain risks posed by these laws through contractual and platform changes, we cannot predict with certainty the effect of these laws and their implementing regulations on our business.

Laws governing the processing of personal data in Europe (including the U.K., 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 (“GDPR”), which applies to us, came into effect on May 25, 2018. Like the laws passed in California and other states, 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. IAB Europe previously collaborated with the digital advertising industry to create a user-facing framework (the Transparency and Control Framework, or “TCF”) for establishing and managing legal bases under the GDPR and other U.K. and EU privacy laws including the ePrivacy

Directive. Although the TCF is actively in use, its viability as a compliance mechanism is under review by the Belgian Data Protection Authority (“DPA”) and others and we cannot predict its effectiveness over the long term. In February 2022, the Belgian DPA issued an order against IAB Europe that imposes specific remedies on IAB Europe and its operation of TCF. IAB Europe appealed the Belgian DPA’s decision, and recently, the Belgian Market Court issued an interim ruling on the appeal and referred preliminary questions to the Court of Justice of the European Union (“CJEU”) for guidance. This referral to the CJEU suggests that a final judgement by the Market Court is unlikely until at least 2023. It is unclear whether the Belgian DPA will rule on the corrective action plan submitted by the IAB prior to a final judgement on the appeal. Further, other European regulators have questioned TCF’s 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 must 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 United States, like many U.S. and European companies, we have relied upon, and were 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 (a decision referred to as “Schrems II”) as an adequate mechanism by which EU companies may pass personal data to the United States, 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 United States is in question. In June 2021, the European Commission published revised standard contractual clauses, and shortly thereafter the European Data Protection Board promulgated guidance on implementation of the new clauses. In October 2022, the White House released an executive order implementing a new EU-U.S. data transfer mechanism, the Trans-Atlantic Data Privacy Framework (“DPF”). The DPF aims to address the concerns raised by the court in Schrems II relating to perceived risks of transferring personal data to the United States by putting in place a new set of “commercial principles” similar to the old Privacy Shield Framework together with new rules governing U.S. intelligence authorities and redress for EU individuals. The European Commission launched an assessment of the DPF’s adequacy, which is expected to be completed in 2023. If granted, an adequacy determination would reduce the legal uncertainty of cross-border transfers of personal data. However, until an adequacy determination is granted, the validity of the standard contractual clauses as a transfer mechanism remains uncertain. If all or some jurisdictions within the EU or the United Kingdom determine that the new standard contractual clauses also cannot be used to transfer personal data to the United States and if the DPF is not ultimately adopted, we could be left with no reasonable option for the lawful cross-border transfer of personal data. If left 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 United States, 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.

Regulatory investigations and enforcement actions could also impact us. In the U.S., the 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 data privacy laws, such as the CCPA or GDPR, or consumer protection laws such as the FTC Act. 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 data 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, partners and providers that they will comply with all applicable laws, including all relevant data 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 data privacy laws and regulations. If our clients, partners or providers 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 data business to privacy laws enacted at the state level 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 existing and future data privacy laws 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, providers 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 United States, 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 targeted 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 preference signals, 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 laws or 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 state data privacy laws or a potential federal data 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 (and similar technologies), 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 information such 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 web browser, Chrome, has introduced new controls over third-party cookies and announced plans to deprecate support for third-party cookies and user agent strings entirely in the second half of 2024. 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 Interactive Advertising Bureau and Digital Advertising Alliance have also developed frameworks that allow users to opt out of the "sale" or use of their personal information for targeted advertising purposes under state data privacy laws in ways that stop or severely limit the ability to show targeted ads. Because additional state data privacy laws require businesses to permit end users to opt out of processing their personal information for purposes of targeted advertising, we expect that more opt-out solutions will become available that may ultimately be used by end users, which may reduce our clients' use of our platform, and our business, financial condition, and results of operations could be adversely affected.

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 has shifted to require user opt-in before permitting access to Apple's unique identifier, or IDFA, and Google has announced that it will deprecate the mobile

advertising identifier used on Android devices entirely. These changes have had, and will likely continue to have, a substantial impact on the mobile advertising ecosystem and could adversely 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 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 continue to agitate for more robust forms of consent and bringing enforcement actions against major platforms, including Amazon, Facebook, and Google, concerning their cookie consent mechanisms. These developments have resulted in decreased reliance on implied consent mechanisms that have been used to meet requirements of the ePrivacy Directive in some markets. A replacement for the ePrivacy 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 implemented through an opt-out preference tool such as the "Global Privacy Control". In addition to the CCPA, recent state laws, such as those enacted in Colorado and Connecticut and draft regulations issued pursuant to updates to the CCPA also address and expand on requirements for honoring browser-based or similar technical signals for consumers to opt out of the sale of personal information and the use of personal information for targeted advertising purposes. If use of the "Global Privacy Control" or similar signals is adopted by many Internet users or if such a standard is imposed by other states or by federal or foreign legislation 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, state data privacy laws, "Global Privacy Control," and the ePrivacy Directive, 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 actual or 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 or related offerings by current and future clients. For example, perception that our practices involve an invasion of privacy or are designed with insufficient protections, 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.

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 United States and may face additional challenges in attracting and retaining international employees. In addition, many companies now offer a remote or hybrid work environment, which may increase the competition for employees from employers outside of our traditional office locations. 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 their 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 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 United States, 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 (“CPI”) of the Transparency International. Our teams in locations outside the United States are substantially smaller than some of our teams in the United States. 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 United States, 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), and 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, recessions, armed conflicts and wars, 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. We continue to face risks and potential disruptions related to the withdrawal of the U.K. from the EU, commonly referred to as “Brexit.” Although the U.K. and EU have entered into a trade and cooperation agreement, the long-term nature of the U.K.’s relationship with the EU remains unclear. For example, Brexit could affect transborder transactions generally, matters of taxation, transborder data flows, regulators’ jurisdiction over our business, volatility in foreign exchange markets with respect to the British Pound and Euro and other matters related to how we do business in the U.K. and EU. While we continue to monitor these developments, the full effect of Brexit on our operations is uncertain and our business could be harmed by trade disputes or political differences between the U.K. and EU in the future.

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 United States 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 United States are not as developed as those within the United States, 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 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.

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, hiring, training, integrating and retaining sufficient numbers of sales personnel to support our growth in the United States and internationally. 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 and expands globally, 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 United States 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 United States 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 United States, 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 United States, foreign countries, or both;
- general economic conditions and trends;
- terrorist attacks, political upheaval, natural disasters, war, 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 have substantial control of the combined voting power of our common stock. 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, 2022, stockholders who held shares of Class B common stock, including our executive officers, employees, and directors and their affiliates, together held approximately 49.6% 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 substantially 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 to our certificate of incorporation and related matters voted on at the Special Meeting of Stockholders held on December 22, 2020, we have become subject to legal proceedings and could become involved in additional litigation, including securities class action claims and/or derivative litigation. Any such legal proceedings, regardless of outcome or merit, may divert management's time and attention and may result in the incurrence of significant expense, including legal fees. For additional information regarding the pending legal proceeding, refer to Legal Proceedings.

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;
- 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, as amended (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 data 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. In addition, for those clients that pay in non-U.S. currency, we often pay for the advertising inventory and data purchased by such clients in U.S. Dollars. As a result, any increase in the value of the U.S. Dollar against these foreign currencies could cause our revenue to decline relative to our costs. 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.

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, including a number of states in the United States, are considering enacting or have enacted 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. 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 United States, 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

From time to time, we are subject to various legal proceedings, litigation and claims, either asserted or unasserted, that arise in the ordinary course of business. Although the outcome of the various legal proceedings, litigation 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 our business, financial condition, results of operations or cash flows. 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.

On May 27, 2022, a stockholder filed a derivative lawsuit captioned *Huizenga v. Green, et al.*, No. 2022-0461, asserting claims on our behalf against certain members of our board of directors in the Court of Chancery of the State of Delaware. On June 27, 2022, a second derivative lawsuit captioned *Pfeiffer v. Green, et al.*, No. 2022-0560, was filed in the Court of Chancery of the State of Delaware alleging substantially similar claims. Those lawsuits were consolidated on August 18, 2022, and a lead plaintiff was appointed on October 7, 2022. The two complaints allege generally that the defendants breached their fiduciary duties to us and our stockholders in connection with the negotiation and approval of the CEO Performance Option. The plaintiffs seek a court order rescinding the CEO Performance Option and monetary damages. On November 10, 2022, the plaintiffs filed a consolidated complaint, and on January 12, 2023, the defendants moved to dismiss the consolidated complaint.

Litigation is inherently uncertain and there can be no assurance regarding the likelihood that the motions to dismiss or defense of the various actions will be successful.

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.

On June 16, 2021, we effected a ten-for-one stock split (the “Stock Split”) of our common stock in the form of a stock dividend. Each stockholder of record on June 9, 2021 received nine additional shares of common stock for each then-held share. Trading began on a stock split-adjusted basis on June 17, 2021. The number of shares subject to outstanding equity awards and the exercise prices of the outstanding stock option awards were also adjusted to reflect the effect of the Stock Split. All share and per share amounts presented herein have been retroactively adjusted to reflect the impact of the Stock Split.

Refer to *Note 9—Capitalization* to our consolidated financial statements for more information regarding capitalization.

Holders of Record

As of January 31, 2023, there were approximately 20 holders of record of our Class A common stock and 14 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 (as defined below) contains restrictions on our ability to pay dividends.

Securities Authorized for Issuance Under Equity Compensation Plans

The information required by this item will be included in our proxy statement relating to our 2023 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, 2022 (the “Proxy Statement”) and is incorporated herein by reference.

Recent Sales of Unregistered Securities

None.

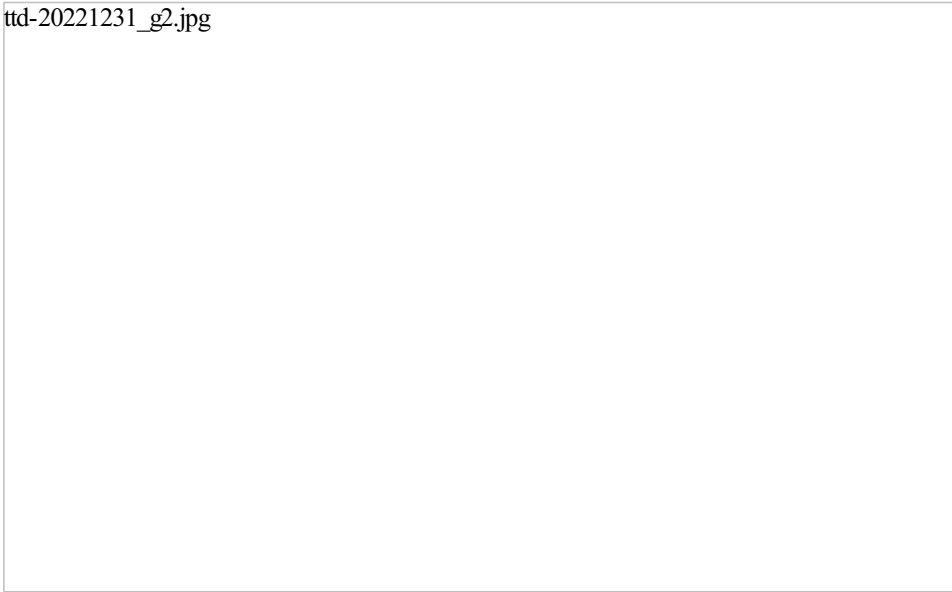
Stock Performance Graph

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, 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 December 31, 2017, and December 31, 2022, 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. We have not paid any cash dividends; therefore, the cumulative total return calculation for us is based solely upon stock price appreciation and not the reinvestment of cash dividends. However, the data for the S&P 500 Index, Nasdaq 100 Index and

Russell 3000 Index assumes reinvestment of dividends. The graph assumes the closing market price on December 31, 2017, of \$4.57 per share as the initial value of our Class A common stock after retroactive adjustment for the Stock Split. The returns shown are based on historical results and are not indicative of, nor intended to forecast, future stock price performance.

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Item 6. Reserved

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the consolidated financial statements and the related notes to those statements included in "Item 8. Financial Statements and Supplementary Data" 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."

Overview

We offer a self-service, cloud-based ad-buying platform that empowers our clients to plan, manage, optimize and measure more expressive data-driven digital advertising campaigns. Our platform allows clients to execute integrated campaigns across ad formats and channels, including video (which includes CTV), display, audio, digital-out-of-home, native and social, on a multitude of devices, such as computers, mobile devices, televisions and streaming devices. Our platform's integrations with major inventory, publisher and data partners provide ad buyers reach and decisioning capabilities, and our enterprise APIs enable our clients to customize and expand platform functionality.

Our clients are advertising agencies, brands 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

	Year Ended December 31,		Change	
	2022	2021	\$	%
(in millions, except percentages)				
Revenue	\$ 1,578	\$ 1,197	\$ 381	32 %
Net Income	\$ 53	\$ 138	\$ (85)	(62)%
Gross Spend ⁽¹⁾	\$ 7,741	\$ 6,172	\$ 1,569	25 %

(1) For internal management purposes, we utilize gross spend as a metric to assess our market share and scale, plan for optimal levels of support for our clients and measure our growth from existing clients. Gross spend measures the amount of a client's purchases through our platform plus the platform fee we charge clients, which is a percentage of a client's purchases through our platform. We expect our take rate (revenue as a percentage of gross spend) 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.

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 expand our advertising inventory and data offerings. We believe that key opportunities include our ongoing global expansion, continuing development of our video (including CTV), audio and native ad inventory and continuing development and adoption of the data usage, measurement and targeting capabilities provided by our platform.

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 we present to our clients. For example, we have expanded our CTV, native and audio advertising offerings through our 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 United States, and in particular across China, India and Indonesia, offer opportunities for growth. However, such markets may also pose challenges related to compliance with local laws and regulations, restrictions on foreign ownership or investment, uncertainty related to trade relations and a variety of additional risks. We intend to make additional investments in sales and marketing and product development to expand in international markets 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 and Other Macroeconomic Factors

The worldwide spread of COVID-19, including the emergence of variants and subvariants, as well as rising interest rates, inflation, changes in foreign currency exchange rates and geopolitical developments have resulted, and may continue to result, in a global slowdown of economic activity, which may decrease demand for a broad variety of goods and services, including those provided by our clients, while also disrupting supply channels, sales channels and advertising and marketing activities for an unknown period of time until economic activity normalizes. As a result of the current uncertainty in economic activity, we are unable to predict the size and duration of the impact on our revenue and our results of operations. The extent of the impact of these macroeconomic factors on our operational and financial performance will depend on a variety of factors, including the duration and spread of COVID-19 and its variants and the duration and the extent of geopolitical disruption and their respective impacts on our clients, partners, industry, and employees, all of which are uncertain at this time and cannot be accurately predicted. See “Item 1A. Risk Factors” in Part I of this Annual Report on Form 10-K for further discussion of the adverse impacts of macroeconomic factors on our business.

During the year ended December 31, 2022, many of our employees adopted a hybrid work schedule consisting of both in-person work and working from home. Additionally, we resumed travel and in-person events in accordance with applicable regional guidance. These changes primarily began during the latter half of 2022. Our costs and expenses may increase as we continue to increase office activity globally, further increase travel, participate in and hold more in-person meetings and events and increase capital expenditures for additional office space. We continue to monitor the effects of the COVID-19 pandemic and take steps deemed appropriate to limit the impact 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

We enable the purchase of advertising inventory in a wide variety of ad formats and channels, including video (which includes CTV), display, audio, digital-out-of-home, native and social, on a multitude of devices, such as computers, mobile devices, televisions and streaming devices. Our future growth will depend on our ability to maintain and grow the inventory and spend across these channels, in addition to continued growth in CTV. 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 may 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 United States to serve the global needs of our clients. As the middle class grows abroad, we believe that the global opportunity for programmatic advertising is significant and should continue to expand as publishers and advertisers outside the United States 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 charge our clients a platform fee, which is generally a percentage of the clients' 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. Generally, 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.

Accounts receivable is 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 due to the types of services and features selected by our clients through our platform and certain volume discounts. We expect that our revenue as a percentage of gross spend will fluctuate in the future, especially as we introduce new platform features that are adopted by our clients, 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"), purchasing data used to inform and improve the platform and providing support to our clients. Platform operations expense includes hosting costs, data-related costs, personnel costs and amortization of acquired technology and capitalized software costs for the development of our platform. Personnel costs include salaries, bonuses, stock-based compensation and employee benefit costs for personnel who support our platform and provide our clients with platform support. We capitalize certain costs associated with the development of our platform, which are amortized 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, marketing events, advertising and 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 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. We record capitalized software development costs related to platform development in other assets, non-current in our consolidated balance sheets, and we amortize those costs in platform operations expense.

We believe that continued investment in our platform is critical to attaining our strategic objectives and long-term growth. Therefore, 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 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. General and administrative expenses also include stock-based compensation expense related to the CEO Performance Option, as defined below.

We expect to continue to invest in corporate infrastructure to support growth. Excluding the impact of the CEO Performance Option, 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 (Gain), Net. Foreign currency exchange loss (gain), 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, Indonesian Rupiah and Singapore Dollar.

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 nondeductible stock-based compensation, tax benefits associated with employee exercises of stock options and vesting of restricted stock units, research and development tax credits, foreign tax rate differences and state taxes.

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 for the Year Ended December 31, 2022 Compared with the Year Ended December 31, 2021

The following discusses the results of our operations for the year ended December 31, 2022 compared with the year ended December 31, 2021. For a discussion of the results of our operations for the year ended December 31, 2021 compared with the year ended December 31, 2020, see “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, 2021, filed with SEC on February 16, 2022. References to “Notes” are notes to our consolidated financial statements in “Item 8. Financial Statements and Supplementary Data.”

The following table sets forth our consolidated results of operations for the periods presented.

	For the Year Ended December 31,			
	2022		2021	
	(in thousands)	(% of Revenue)	(in thousands)	(% of Revenue)
Revenue	\$ 1,577,795	100 %	\$ 1,196,467	100 %
Operating expenses:				
Platform operations	281,123	18 %	221,554	19 %
Sales and marketing	337,975	21 %	249,298	21 %
Technology and development	319,876	20 %	226,137	19 %
General and administrative	525,167	33 %	374,661	31 %
Total operating expenses	1,464,141	93 %	1,071,650	90 %
Income from operations	113,654	7 %	124,817	10 %
Total other expense (income), net	(13,716)	(1) %	2,781	— %
Income before income taxes	127,370	8 %	122,036	10 %
Provision for (benefit from) income taxes	73,985	5 %	(15,726)	(1) %
Net income	\$ 53,385	3 %	\$ 137,762	12 %

Note: Percentages may not sum due to rounding.

Revenue

Revenue increased by \$381 million, or 32%, for the year ended December 31, 2022 as compared to the year ended December 31, 2021. The increase was primarily due to an increase in gross spend on our platform, which was primarily driven by more advertisers and more campaigns executed by existing clients.

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

Platform operations expense increased by \$60 million, or 27%, for the year ended December 31, 2022, as compared to the year ended December 31, 2021. The increase was primarily due to increases of \$21 million in personnel costs, which includes \$2 million in stock-based compensation; \$20 million in hosting costs; and \$13 million in data-related costs. The increase in personnel costs was due to an increase in headcount, as well as employee engagement costs, including in-person events that did not occur in the prior year. The increase in hosting costs was primarily attributable to support related to the increased use of our platform by our clients as well as investment in new data centers to support our platform. The increase in data-related costs was primarily attributable to investments in new data providers.

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

Sales and Marketing

Sales and marketing increased by \$89 million, or 36%, for the year ended December 31, 2022, as compared to the year ended December 31, 2021. The increase was primarily due to increases of \$69 million in personnel costs, which includes \$14 million of stock-based compensation; \$13 million in advertising and marketing costs; and \$7 million in allocated facilities costs. The increase in personnel costs was primarily due to an increase in headcount to support our sales efforts and continue to develop and maintain relationships with our clients; an increase in incentive compensation; and return-to-office, travel and in-person event costs that did not occur in the prior year. The increase in advertising and marketing costs was primarily due to an increase in marketing campaigns, events, sponsorships and client engagement. The increase in allocated facilities costs was primarily driven by new leases for additional office space to support our future growth.

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

Technology and development expense increased by \$94 million, or 41%, for the year ended December 31, 2022, as compared to the year ended December 31, 2021. The increase was primarily due to increases of \$87 million in personnel costs, which includes \$37 million of stock-based compensation and \$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, as well as return-to-office, travel and in-person event costs that did not occur in the prior year. The increase in allocated facilities costs was primarily driven by new leases for additional office space to support our future 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 support the increase in volume of advertising spending by our clients on our platform. We also intend to invest in technology to further automate our business processes.

General and Administrative

General and administrative expense increased by \$151 million, or 40%, for the year ended December 31, 2022, as compared to the year ended December 31, 2021. The increase was primarily due to increases of \$138 million in personnel costs and \$5 million in allocated facilities costs. The increase in personnel costs was primarily driven by a \$104 million increase in stock-based compensation cost related to the CEO Performance Option, which was granted in the fourth quarter of 2021; and payroll related costs of \$28 million due to hiring to support our growth, as well as return-to-office, travel and in-person event costs that did not occur in the prior year. The increase in allocated facilities costs was primarily driven by new leases for additional office space to support our future growth.

Excluding the impact of the CEO Performance Option, we expect general and administrative expenses to increase primarily due to continued investment in corporate infrastructure to support growth. For additional information regarding the CEO Performance Option, refer to *Note 10—Stock-Based Compensation*.

Other Expense (Income), Net

Total other income, net increased by \$16 million for the year ended December 31, 2022, as compared to the year ended December 31, 2021. The increase was primarily due to higher interest income on our short-term investments driven by increased purchases and rising interest rates, partially offset by credit loss expense on available-for-sale securities.

Provision for (Benefit From) Income Taxes

The difference between the effective tax rate in 2022 of 58% and the U.S. federal statutory income tax rate of 21% was primarily due to nondeductible stock-based compensation and the impact of taxes in foreign jurisdictions, partially offset by the impact of tax benefits associated with stock-based awards and research and development tax credits. For 2022,

the provision for income taxes included \$48 million of benefits associated with stock-based awards and \$15 million of research and development tax credits.

The difference between the effective tax rate in 2021 of (13)% 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 and research and development tax credits, partially offset by nondeductible stock-based compensation and the impact of taxes in foreign jurisdictions. For 2021, the benefit from income taxes included \$104 million of benefits associated with stock-based awards and \$19 million of research and development tax credits.

Liquidity and Capital Resources

As of December 31, 2022, we had cash and cash equivalents of \$1,031 million, including \$93 million held by our international subsidiaries, short-term investments in marketable securities of \$416 million, working capital of \$1,816 million and \$445 million of availability under our Credit Facility (refer to the “Credit Facility” section below). For the year ended December 31, 2022, we generated \$549 million of cash flows from operating activities.

We believe our existing cash and cash equivalents, cash flow from operations and our undrawn available balance under our Credit Facility will be sufficient to meet our working capital requirements for at least the next 12 months. Further, we have a shelf registration statement on Form S-3 on file with the SEC (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 in “Item 1A. Risk Factors” in Part I of 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. We are closely monitoring the effect that current macroeconomic factors may have on our working capital requirements.

Credit Facility

On June 15, 2021, we and a syndicate of banks, led by JPMorgan Chase Bank, N.A., as agent, entered into a Loan and Security Agreement (the “Credit Facility”). This Credit Facility replaced our prior credit facility, which was scheduled to terminate in May 2022. The Credit Facility consists of a \$450 million revolving loan facility, with a \$20 million sublimit for swingline borrowings and a \$15 million sublimit for the issuance of letters of credit. Under certain circumstances, we have the right to increase the Credit Facility by an amount not to exceed \$300 million.

On December 17, 2021, we amended the Credit Facility to expand the process for issuing letters of credit and the related invoicing, particularly with respect to letters of credit not denominated in U.S. Dollars.

As of December 31, 2022, we did not have an outstanding debt balance under the Credit Facility. Availability under the Credit Facility was \$445 million as of December 31, 2022, which is net of outstanding letters of credit of \$5 million. The Credit Facility matures, and all outstanding amounts become due and payable, on June 15, 2026. As of December 31, 2022, we were in compliance with all covenants.

Subsequent to December 31, 2022, we amended our Credit Facility to transition from a variable interest rate based on LIBOR to a variable interest rate based on the secured overnight financing rate (“SOFR”).

For additional information regarding the Credit Facility, refer to *Note 7—Debt*.

Cash Flows

The following table summarizes our cash flows for the periods presented (in thousands):

	Year Ended December 31,	
	2022	2021
Net cash provided by operating activities	\$ 548,734	\$ 378,513
Net cash used in investing activities	\$ (304,374)	\$ (93,638)
Net cash provided by financing activities	\$ 31,992	\$ 31,926

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 2022, cash provided by operating activities of \$549 million resulted primarily from net income adjusted for noncash items of \$643 million and a net decrease in our operating assets and liabilities of \$94 million. The net decrease was primarily due to increase in accounts receivable of \$292 million and a \$48 million decrease in operating lease liabilities, partially offset by a \$187 million increase in accounts payable and a \$51 million decrease in prepaid expenses and other assets. The increase in accounts receivable resulted primarily from the growth of our business and the timing of cash receipts from clients. The decrease in operating lease liabilities was due primarily to rent payments. The increase in accounts payable was due to the growth of our business and the timing of payments to suppliers for the cost of advertising inventory, data and add-on features. The decrease in prepaid expenses and other assets was primarily due to a decrease in the income tax receivable, including the receipt of an income tax refund, partially offset by current year estimated income tax payments.

In 2021, cash provided by operating activities of \$379 million resulted primarily from net income adjusted for noncash items of \$548 million and a net decrease in our operating assets and liabilities of \$170 million. The net decrease was primarily due to increase in accounts receivable of \$444 million and a \$44 million decrease in operating lease liabilities, partially offset by a \$309 million increase in accounts payable. The increase in accounts receivable resulted primarily from the growth of our business and the timing of cash receipts from clients. The decrease in operating lease liabilities was due primarily to rent payments. The increase in accounts payable was due to the growth of our business and the timing of payments to suppliers for the cost of advertising inventory, data and add-on features.

Investing Activities

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

In 2022, we used \$304 million of cash in investing activities, consisting of \$212 million of net purchases of short-term investments, \$84 million to purchase property and equipment and \$8 million of investments in capitalized software.

In 2021, we used \$94 million of cash in investing activities, consisting of \$55 million to purchase property and equipment, \$20 million of net purchases of short-term investments, \$13 million for certain assets accounted for as a business acquisition and \$5 million of investments in capitalized software.

Financing Activities

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

In 2022, cash provided by financing activities of \$32 million was primarily due to \$48 million of proceeds from stock option exercises and \$33 million of proceeds from the employee stock purchase plan, partially offset by \$49 million of taxes paid for restricted stock award settlements.

In 2021, cash provided by financing activities of \$32 million was primarily due to \$61 million of proceeds from stock option exercises and \$29 million of proceeds from the employee stock purchase plan, partially offset by \$57 million of taxes paid for restricted stock award settlements and \$2 million paid for debt financing costs.

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-cancelable contractual obligations at December 31, 2022 (in thousands):

	Payments Due by Period		
	One Year or Less	More than One Year	Total
Operating lease commitments	\$ 59,406	\$ 230,842	\$ 290,248
Other contractual commitments	116,964	375,152	492,116
Total	\$ 176,370	\$ 605,994	\$ 782,364

As of December 31, 2022, our total amount of gross unrecognized tax benefits was \$91 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. In the ordinary course of business, demands have been made upon us to provide indemnification under such agreements, but we are not aware of any claims that could have a material effect on our consolidated financial statements. Accordingly, no amounts for any obligation have been recorded at December 31, 2022.

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. 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.

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 generally a percentage of the 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.

Generally, 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"). Judgment is required to determine whether we are the principal and report revenue on a gross basis for Supplier Features or the agent and report revenue on a net basis for the amount of platform fees charged to the client. In this assessment, we consider if we obtain control of the specified service before it is transferred to the client, as well as other indicators such as the party primarily responsible for fulfillment, inventory risk and discretion in establishing price.

From time to time, we may enter into agreements with data suppliers where the purchased data is used to inform and improve our platform, generally at no additional charge to our customers outside of our standard fees. Costs associated with this data ("data-related costs") are recorded in platform operations expense.

For additional information regarding revenue and the assumptions used for determining our revenue recognition refer to *Note 2—Basis of Presentation and Summary of Significant Accounting Policies*.

Stock-Based Compensation

Stock-based compensation expense related to stock options, restricted stock awards and units (collectively, "restricted stock"), and awards granted under our employee stock purchase plan ("ESPP") is measured and recognized in our consolidated financial statements based on the fair value of the awards granted. In October 2021, we granted a market-based performance award to our Chief Executive Officer (the "CEO Performance Option") under the 2016 Incentive Award Plan. The fair values of our ESPP and stock option awards are estimated on the grant date using the Black-Scholes option-pricing model, except for the CEO Performance Option that was estimated using the Monte Carlo valuation 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 restricted stock and stock options is recognized on a straight-line basis over the requisite service periods of the awards, which is generally four years. Stock-based compensation for the CEO Performance Option, which was granted in 2021, is recognized on a graded-vesting basis over a period of approximately five years but may be accelerated if the vesting criteria is met prior to the estimated performance period. 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 and deferred income tax assets and liabilities. We evaluate the judgments surrounding our estimates and make adjustments, as appropriate, each reporting period.

For additional information regarding income taxes and the assumptions used for determining our income tax provision, as well as our related deferred income tax assets and liabilities, refer to *Note 2—Basis of Presentation and Summary of Significant Accounting Policies* and *Note 11—Income Taxes*.

Recently Issued Accounting Pronouncements

None.

Item 7A. Quantitative and Qualitative Disclosure about Market Risk

We have operations within the United States and internationally, and we are exposed to market risks in the ordinary course of our business. These risks include primarily interest rate and foreign 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, and our short-term investments. No amount was owed on our Credit Facility as of December 31, 2022. 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, 2022, 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 \$4 million annually.

Foreign Currency Exchange Rate Risk

We have foreign currency exchange risk related to transactions denominated in currencies other than the U.S. Dollar, principally the Euro, British Pound, Australian Dollar, Canadian Dollar, Japanese Yen, Indonesian Rupiah and Singapore Dollar. The volatility of exchange rates depends on many factors that we cannot forecast with reliable accuracy. As of December 31, 2022, an immediate 10% adverse change in foreign exchange rates on foreign-denominated accounts would result in a foreign currency loss of approximately \$35 million. In the event our non-U.S. Dollar denominated sales and expenses increase, our operating results may be more greatly affected by exchange rate fluctuations.

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, such transactions could generate losses.

Item 8. Financial Statements and Supplementary Data

THE TRADE DESK, INC.
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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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, 2022 and 2021, 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, 2022, 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, 2022, 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, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022 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, 2022, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

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, 2022, the Company's revenue was \$1,578 million.

The principal consideration for our determination that performing procedures relating to revenue recognition – platform fees is a critical audit matter is the high degree of audit effort in performing procedures related 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 the calculation of revenue invoices based on client purchases. These procedures also included, among others (i) evaluating revenue transactions by testing the issuance and settlement of invoices and credit memos; (ii) tracing transactions not settled to a detailed listing of accounts receivable; (iii) confirming a sample of outstanding client invoice balances at year end and, for confirmations not returned, obtaining and inspecting source documents, including invoices, master service agreements, subsequent cash receipts, and recalculating platform fees due, where applicable; and (iv) testing the completeness and accuracy of underlying information provided by management.

/s/ PricewaterhouseCoopers LLP
Los Angeles, California
February 15, 2023

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,	
	2022	2021
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 1,030,506	\$ 754,154
Short-term investments, net	416,080	204,625
Accounts receivable, net of allowance for credit losses of \$10,477 and \$7,374 as of December 31, 2022 and 2021, respectively	2,347,195	2,020,720
Prepaid expenses and other current assets	51,836	112,150
TOTAL CURRENT ASSETS	3,845,617	3,091,649
Property and equipment, net	173,759	135,856
Operating lease assets	220,396	234,091
Deferred income taxes	94,028	68,244
Other assets, non-current	46,879	47,500
TOTAL ASSETS	\$ 4,380,679	\$ 3,577,340
LIABILITIES AND STOCKHOLDERS' EQUITY		
LIABILITIES		
Current liabilities:		
Accounts payable	\$ 1,871,419	\$ 1,655,684
Accrued expenses and other current liabilities	105,474	101,472
Operating lease liabilities	52,430	46,149
TOTAL CURRENT LIABILITIES	2,029,323	1,803,305
Operating lease liabilities, non-current	208,527	238,449
Other liabilities, non-current	27,490	8,280
TOTAL LIABILITIES	2,265,340	2,050,034
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, 2022 and 2021	—	—
Common stock, par value \$0.000001		
Class A, 1,000,000 shares authorized; 446,456 and 439,206 shares issued and outstanding as of December 31, 2022 and 2021, respectively		
Class B, 95,000 shares authorized; 44,012 and 44,235 shares issued and outstanding as of December 31, 2022 and 2021, respectively		
Additional paid-in capital	1,449,825	915,177
Retained earnings	665,514	612,129
TOTAL STOCKHOLDERS' EQUITY	2,115,339	1,527,306
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	\$ 4,380,679	\$ 3,577,340

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,		
	2022	2021	2020
Revenue	\$ 1,577,795	\$ 1,196,467	\$ 836,033
Operating expenses:			
Platform operations	281,123	221,554	178,812
Sales and marketing	337,975	249,298	174,742
Technology and development	319,876	226,137	166,654
General and administrative	525,167	374,661	171,617
Total operating expenses	1,464,141	1,071,650	691,825
Income from operations	113,654	124,817	144,208
Other expense (income):			
Interest expense (income), net	(12,755)	1,030	(656)
Foreign currency exchange loss (gain), net	(961)	1,751	961
Total other expense (income), net	(13,716)	2,781	305
Income before income taxes	127,370	122,036	143,903
Provision for (benefit from) income taxes	73,985	(15,726)	(98,414)
Net income	\$ 53,385	\$ 137,762	\$ 242,317
Earnings per share:			
Basic	\$ 0.11	\$ 0.29	\$ 0.52
Diluted	\$ 0.11	\$ 0.28	\$ 0.49
Weighted-average shares outstanding:			
Basic	486,937	476,851	462,865
Diluted	499,925	498,540	489,881

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, 2019	454,755	\$ —	\$ 380,079	\$ 232,438	\$ 612,517
Impact upon adoption ASC 326	—	—	—	(388)	(388)
Exercise of common stock options	15,448	—	76,146	—	76,146
Issuance of common stock under employee stock purchase plan	2,685	—	21,671	—	21,671
Issuance of restricted stock, net of forfeitures and shares withheld for taxes	513	—	(53,138)	—	(53,138)
Stock-based compensation	—	—	114,020	—	114,020
Net income	—	—	—	242,317	242,317
Balance as of December 31, 2020	473,401	—	538,778	474,367	1,013,145
Exercise of common stock options	7,361	—	61,476	—	61,476
Issuance of common stock under employee stock purchase plan	1,719	—	29,229	—	29,229
Issuance of restricted stock, net of forfeitures and shares withheld for taxes	935	—	(56,855)	—	(56,855)
Issuance of restricted stock related to acquisition	25	—	1,816	—	1,816
Stock-based compensation	—	—	340,733	—	340,733
Net income	—	—	—	137,762	137,762
Balance as of December 31, 2021	483,441	—	915,177	612,129	1,527,306
Exercise of common stock options	4,497	—	47,525	—	47,525
Issuance of common stock under employee stock purchase plan	1,121	—	33,062	—	33,062
Issuance of restricted stock, net of forfeitures and shares withheld for taxes	1,409	—	(48,595)	—	(48,595)
Stock-based compensation	—	—	502,656	—	502,656
Net income	—	—	—	53,385	53,385
Balance as of December 31, 2022	490,468	\$ —	\$ 1,449,825	\$ 665,514	\$ 2,115,339

(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,		
	2022	2021	2020
OPERATING ACTIVITIES:			
Net income	\$ 53,385	\$ 137,762	\$ 242,317
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	54,425	42,219	28,632
Stock-based compensation	498,642	337,413	111,775
Deferred income taxes	(11,507)	(16,777)	(31,218)
Noncash lease expense	44,115	40,315	33,269
Allowance for credit losses on accounts receivable	3,203	1,456	3,149
Other	622	5,803	2,190
Changes in operating assets and liabilities:			
Accounts receivable	(291,747)	(444,342)	(418,054)
Prepaid expenses and other current and non-current assets	50,655	1,648	(66,655)
Accounts payable	187,119	309,410	481,313
Accrued expenses and other current and non-current liabilities	8,168	7,596	35,446
Operating lease liabilities	(48,346)	(43,990)	(17,095)
Net cash provided by operating activities	548,734	378,513	405,069
INVESTING ACTIVITIES:			
Purchases of investments	(553,295)	(278,387)	(230,759)
Sales of investments	1,977	4,539	—
Maturities of investments	338,829	253,444	167,602
Purchases of property and equipment	(84,160)	(54,804)	(74,061)
Capitalized software development costs	(7,725)	(5,169)	(6,053)
Business acquisition	—	(13,261)	—
Net cash used in investing activities	(304,374)	(93,638)	(143,271)
FINANCING ACTIVITIES:			
Proceeds from line of credit	—	—	143,000
Repayment on line of credit	—	—	(143,000)
Payment of debt financing costs	—	(1,924)	—
Proceeds from exercise of stock options	47,525	61,476	76,146
Proceeds from employee stock purchase plan	33,062	29,229	21,671
Taxes paid related to net settlement of restricted stock awards	(48,595)	(56,855)	(53,138)
Net cash provided by financing activities	31,992	31,926	44,679
Increase in cash and cash equivalents	276,352	316,801	306,477
Cash and cash equivalents—Beginning of year	754,154	437,353	130,876
Cash and cash equivalents—End of year	\$ 1,030,506	\$ 754,154	\$ 437,353
SUPPLEMENTAL CASH FLOW INFORMATION:			
Cash paid for income taxes	\$ 4,211	\$ 3,608	\$ 4,983
Cash paid for interest	\$ 995	\$ 518	\$ 1,554
Cash paid for operating lease liabilities	\$ 57,862	\$ 52,974	\$ 27,448
Operating lease assets obtained in exchange for operating lease liabilities	\$ 29,881	\$ 25,356	\$ 106,833
Capitalized assets financed by accounts payable	\$ 2,166	\$ 5,907	\$ 6,766
Tenant improvements paid by lessor	\$ 1,453	\$ —	\$ —
Asset retirement obligation	\$ 438	\$ 1,705	\$ 2,049
Stock-based compensation included in capitalized software development costs	\$ 4,014	\$ 3,320	\$ 2,245

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

THE TRADE DESK, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1—Nature of Operations

The Trade Desk, Inc. (the “Company”) is a global technology company that empowers buyers of advertising. Through the Company’s 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 video (which includes connected TV (“CTV”)), display, audio, digital-out-of-home, native and social, on a multitude of devices, such as computers, mobile devices, televisions and streaming devices. The Company’s platform integrations with major inventory, publisher and data partners provide ad buyers reach and decisioning capabilities, and the Company’s enterprise application programming interfaces (“APIs”) enable its clients to develop on top of the platform.

The Company is a Delaware corporation formed in November 2009 and headquartered in Ventura, California with offices in various cities in North America, Europe, Asia and Australia.

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.

On June 16, 2021, the Company effected a ten-for-one stock split (the “Stock Split”) of the Company’s common stock in the form of a stock dividend. Each stockholder of record on June 9, 2021 received nine additional shares of common stock for each then-held share. Trading began on a stock split-adjusted basis on June 17, 2021. The number of shares subject to outstanding equity awards and the exercise prices of the outstanding stock option awards were also adjusted to reflect the effect of the Stock Split. All share and per share amounts presented herein have been retroactively adjusted to reflect the impact of the Stock Split.

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.

Management regularly 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, (3) operating lease assets and liabilities, including the 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 option pricing models 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, 2022, the impacts to the Company’s business due to the coronavirus (“COVID-19”) pandemic, geopolitical developments and macroeconomic factors, such as rising interest rates, inflation, changes in foreign currency exchange rates and supply chain disruptions, continue to evolve. As a result, many of the Company’s estimates and assumptions, including the allowance for credit losses, consider macroeconomic 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, the Company’s 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 client;
- 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 ("MSAs"), 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 transaction price is determined based on the consideration the Company 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. The associated fees are generally not subject to refund or adjustment after a bid is won. Historically, any refunds and adjustments have not been material.

Generally, 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"). Judgment is required to determine whether the Company is the principal and reports revenue on a gross basis for Supplier Features or the agent and reports revenue on a net basis for the amount of platform fees charged to the client. The Company determined that it is not primarily responsible for the purchase of Supplier Features. Rather, the Company's primary responsibility is to provide the 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 and, therefore, reports revenue on a net basis for the platform fees charged to clients.

From time to time, the Company may enter into agreements with data suppliers where the purchased data is used to inform and improve the platform, generally at no additional charge to customers outside of the standard fees. Costs associated with this data ("data-related costs") are recorded in platform operations expense.

The Company generally bills clients for the gross amount of Supplier Features they purchase through its platform and the platform fees ("Gross Billings"), net of allowances. When clients have direct payment relationships with advertising inventory suppliers, the Company bills these clients only for third-party data, other add-on features and its platform fees. The Company invoices its clients monthly for the purchases occurring during the month. Typically, invoice payment terms are between 30 to 90 days. However, certain agency clients have sequential liability terms where payment is not due to the Company until the agency has received payment from its advertiser clients. Accounts receivable is recorded based on Gross Billings, which are the amounts the Company is responsible to collect. Accounts payable is 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"), purchasing data used to inform and improve the platform and providing support to clients. Platform operations expense includes hosting costs, data-related costs, personnel costs and amortization of acquired technology and capitalized software costs for platform development. Personnel costs include salaries, bonuses, stock-based compensation and employee benefit costs attributable to personnel who support the platform and provide clients with platform support. The Company capitalizes certain costs associated with platform development in other assets, non-current on its consolidated balance sheet and amortizes these costs into platform operations expense over their estimated useful lives.

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 and promotional and other marketing activities. 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 of the Company's platform and integrations with advertising and data inventory suppliers; and the amortization of capitalized third-party software used in platform development. 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 and credit loss expense. Stock-based compensation in general and administrative expenses also includes expense related to the CEO Performance Option, which was granted in 2021.

Stock-Based Compensation

Stock-based compensation expense related to stock options, restricted stock awards and units (collectively, "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 values of the ESPP and stock option awards are estimated on the grant date using the Black-Scholes option-pricing model, except for the CEO Performance Option, granted in 2021, that was estimated using the Monte Carlo valuation 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. Determining the fair value of stock options and ESPP awards requires judgment. The Company's use of the valuation models requires the input of subjective assumptions. The assumptions used in the Company's valuation models represent management's best estimates, which involve inherent uncertainties and the application of management's judgment. The Company will continue to use judgment in evaluating the assumptions related to its stock-based compensation.

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. For stock options, given the insufficient historical data relating to stock option exercises, 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.

Derived Service Period. The stock-compensation expense attribution period for the CEO Performance Option, which was granted in 2021, was developed based on a Monte Carlo simulation of daily stock prices over the performance period.

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 for the CEO Performance Option is recognized on a graded-vesting basis over a derived service period of approximately five years but may be accelerated if the vesting criteria are met prior to the estimated performance period. Stock-based compensation expense for ESPP awards is recognized on a graded-vesting attribution basis over the requisite service period of each award. The Company accounts for forfeitures as they occur.

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.

The Company makes assumptions, judgments and estimates to determine the current income tax provision, tax benefits from uncertain tax positions, deferred tax asset and liabilities and valuation allowance recorded against a deferred tax asset.

The assumptions, judgments and estimates relative to the current income tax provision (benefit) take into account current tax laws, their interpretation and possible results of foreign and domestic tax audits. Changes in tax law, and their interpretation, could significantly impact the income taxes provided in the Company's consolidated financial statements.

The evaluation of the Company's uncertain tax positions involves significant judgment in the interpretation and application of GAAP and complex domestic and international tax laws, and matters related to the allocation of international taxation rights between countries. Although management believes the Company's reserves are reasonable, no assurance can be given that the final tax outcome of these matters will not be different from that which is reflected in the Company's reserves. Reserves are adjusted considering changing facts and circumstances, such as the closing of a tax examination or the refinement of an estimate.

Assumptions, judgments and estimates relative to the amount of deferred income taxes, and any applicable valuation allowances, take into account future taxable income. Any of the assumptions, judgments and estimates mentioned above could cause the actual income tax obligations to differ from estimates.

Earnings Per Share

Basic earnings per share is calculated by dividing net income by the weighted-average number of common stock shares outstanding. Diluted earnings per share is calculated by dividing net income by the weighted-average number of common stock shares outstanding adjusted for the potentially dilutive impact of stock options, restricted stock and ESPP using the two-class method required for participating securities. Restricted stock awards are considered to be participating securities due to their non-forfeitable dividend rights.

Cash, Cash Equivalents and Marketable Securities

The Company classifies all investments that are readily convertible to known amounts of cash and have maturities of three months or less from the date of purchase as cash equivalents, which consist primarily of money market funds and commercial paper and those with stated maturities of greater than three months as marketable securities, which primarily consist of corporate debt securities and U.S. government and agency securities. Investments in marketable securities with maturities beyond one year are also classified as short-term available-for-sale securities based on their highly liquid nature and because they are available for current operations.

Cash equivalents and marketable securities are carried at fair value. Realized gains and losses are recognized in other expense (income), net on the consolidated statement of operations. Unrealized gains and losses, net of taxes, are included in stockholders' equity. 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 has not recorded any impairment charges for unrealized losses in the periods presented. Credit losses recorded in the statements of operations for the years ended 2022, 2021 and 2020 were not material.

Refer to Note 6—*Cash, Cash Equivalents and Short-Term Investments, Net* for additional information regarding the fair value of cash equivalents and marketable securities.

Accounts Receivable and Allowance for Credit Losses

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 such that client payments are not due to the Company until the client has received payment from its clients who are advertisers. The Company maintains 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. 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 years ended December 31, 2022 and 2021, the Company's assessment considered business and market disruptions caused by macroeconomic factors, such as changes in interest rates, inflation, economic growth and the COVID-19 pandemic, and estimates of credit defaults by industry. The Company continues to monitor the financial implications of these macroeconomic factors on expected credit losses by reviewing the allowance for 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,		
	2022	2021	2020
Beginning balance	\$ 7,374	\$ 7,253	\$ 3,920
Add: impact upon adoption of new accounting standard	—	—	553
Add: bad debt expense	3,203	1,456	3,149
Less: write-offs, net of recoveries	(100)	(1,335)	(369)
Ending balance	\$ 10,477	\$ 7,374	\$ 7,253

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 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 benefit-related expenses for employees who are directly associated with and 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 \$2 million of CCA implementation costs in both 2022 and 2021. Amortization expense was \$2 million, \$1 million and \$1 million for 2022, 2021 and 2020, respectively.

Operating Leases

The Company enters into operating leases for its offices, which have lease terms of up to 10 years, some of which include options to extend the leases for up to five years, and some of which include options to terminate the leases within one year with proper notification. Leases with an initial term of 12 months or less are not recorded on the balance sheet. The Company does not have finance leases.

The Company determines if an arrangement is, or contains, a lease at inception. 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.

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. The Company has elected to not separate lease and non-lease components.

Operating lease assets are amortized on a straight-line basis in operating lease expense over the lease term on the consolidated statements of operations. 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. The Company records lease expense for operating leases, some of which have escalating rent payments, on a straight-line basis over the lease term.

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.

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, prepaid expenses and other current assets, 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, short-term investments and accounts receivable. The Company maintains its cash and cash equivalents with financial institutions, and its cash levels exceed the Federal Deposit Insurance Corporation federally

insured limits. Short-term investments consist of investments in U.S. government securities, U.S. government agency securities, and high-credit quality corporate debt securities.

If all of the Company's individual client contractual relationships were aggregated at the holding company level, one holding company would represent more than 10% of Gross Billings in 2022, and two holding companies would each represent more than 10% of Gross Billings in 2021 and 2020. In 2022, one holding company accounted for 11% of Gross Billings. In 2021, two holding companies accounted for 11% and 10% of Gross Billings, respectively. In 2020, two holding companies each accounted for 11% of Gross Billings. The Company generally does not have contractual relationships with holding companies. Rather, in most cases, the Company enters into separate contracts and billing relationships with various of their individual agencies and account for those agencies as separate clients.

As of December 31, 2022, four clients each accounted for at least 10%, and collectively accounted for 49%, of consolidated accounts receivable. As of December 31, 2021, three clients each accounted for at least 10%, and collectively accounted for 41%, of consolidated accounts receivable.

As of December 31, 2022, two suppliers each accounted for at least 10%, and collectively accounted for 25%, of consolidated accounts payable. As of December 31, 2021, one supplier accounted for 17% of consolidated accounts payable.

Foreign Currency Transactions

The Company's reporting currency is the U.S. Dollar, and the functional currency of each of the Company's subsidiaries 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 gains are included in foreign currency exchange loss (gain), 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 (gain), net in the accompanying consolidated statements of operations. The Company's forward contracts generally have terms of 30-60 days. As of December 31, 2022, and 2021, the Company had open forward contracts with aggregate notional amounts of \$142 million and \$126 million, respectively. The 2021 aggregate notional amount has been updated to exclude contracts closed but unsettled at December 31, 2021. The fair value of the open forward contracts was not material.

Business Combinations

The results of a business combination are included in the Company's consolidated financial statements from the date of the acquisition. Purchase accounting results in assets and liabilities of an acquired business are generally recorded at their estimated fair values on the acquisition date, which may require management to use significant judgment and estimates, including the selection of valuation methodologies, estimates of future revenue, costs and cash flows, discount rates and selection of comparable companies. The Company engages valuation specialists to assist in determining the fair values of these acquired assets and liabilities. Any excess consideration over the fair value of these acquired assets and liabilities assumed is recognized as goodwill.

In July 2021, the Company acquired all of the equity interests of a technology company for a GAAP purchase price of \$18 million, subject to purchase price adjustments. The purchase consideration was primarily attributable to non-deductible goodwill of \$11 million, with the remainder allocated to acquired technology and other assets. No other acquisitions occurred in 2022 or 2021.

Note 3—Earnings Per Share

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,		
	2022	2021	2020
Numerator:			
Net income	\$ 53,385	\$ 137,762	\$ 242,317
Denominator:			
Weighted-average shares outstanding—basic	486,937	476,851	462,865
Effect of dilutive securities	12,988	21,689	27,016
Weighted-average shares outstanding—diluted	499,925	498,540	489,881
Basic earnings per share	\$ 0.11	\$ 0.29	\$ 0.52
Diluted earnings per share	\$ 0.11	\$ 0.28	\$ 0.49
Anti-dilutive equity awards under stock-based award plans excluded from the determination of diluted earnings per share	10,707	1,699	316

Note 4—Property and Equipment, Net

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

	As of December 31,	
	2022	2021
Computer equipment	\$ 113,053	\$ 53,587
Purchased software	10,451	10,179
Furniture and fixtures	23,545	22,156
Construction in progress ⁽¹⁾	10,904	6,810
Leasehold improvements	121,700	112,014
	279,653	204,746
Less: Accumulated depreciation	(105,894)	(68,890)
	\$ 173,759	\$ 135,856

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

Depreciation expense for 2022, 2021 and 2020 was \$42 million, \$34 million and \$21 million, respectively. For the years ended December 31, 2022, 2021 and 2020 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,	
	2022	2021
Capitalized software development costs, gross	\$ 24,829	\$ 18,191
Less: Accumulated amortization	(6,285)	(3,857)
Capitalized software development costs, net	\$ 18,544	\$ 14,334

Amortization expense was \$7 million, \$5 million and \$6 million for 2022, 2021 and 2020, respectively. For the years ended December 31, 2022, 2021 and 2020 there were no impairment charges to capitalized software development costs.

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

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

As of December 31, 2022			
	Cash and Cash Equivalents	Short-Term Investments, Net	Total
Cash	\$ 339,717	—	\$ 339,717
Level 1:			
Money market funds	640,233	—	640,233
Level 2:			
Commercial paper	50,556	126,507	177,063
Corporate debt securities	—	180,502	180,502
U.S. government and agency securities	—	109,071	109,071
Total	\$ 1,030,506	\$ 416,080	\$ 1,446,586

As of December 31, 2021			
	Cash and Cash Equivalents	Short-Term Investments, Net	Total
Cash	\$ 272,058	—	\$ 272,058
Level 1:			
Money market funds	431,299	—	431,299
Level 2:			
Commercial paper	47,544	70,804	118,348
Corporate debt securities	3,253	85,425	88,678
U.S. government and agency securities	—	48,396	48,396
Total	\$ 754,154	\$ 204,625	\$ 958,779

The Company's gross unrealized gains or losses from its short-term investments, recorded at fair value, for the years ended December 31, 2022, 2021 and 2020 were immaterial.

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

	December 31, 2022
Due in one year	\$ 365,326
Due in one to two years	50,754
Total	\$ 416,080

Note 7—Debt
Credit Facility

On June 15, 2021, the Company and a syndicate of banks, led by JPMorgan Chase Bank, N.A., as agent, entered into a Loan and Security Agreement (the "Credit Facility"). The Credit Facility replaced the Company's prior credit facility, which was scheduled to terminate in May 2022. The Credit Facility consists of a \$450 million revolving loan facility, with a \$20 million sublimit for swingline borrowings and a \$15 million sublimit for the issuance of letters of credit. Under certain circumstances, the Company has the right to increase the Credit Facility by an amount not to exceed \$300 million. The Credit Facility 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.

As of December 31, 2022, loans under the Credit Facility bore interest through maturity at a variable rate based upon, at the Company's option, an annual rate of either a Base Rate or an adjusted London Interbank Offered Rate

("LIBOR"), plus an applicable margin ("Base Rate Borrowings" and "LIBOR Rate Borrowings"). The Base Rate was defined as a rate per annum for any day equal to the greatest of (1) the rate of interest last quoted by The Wall Street Journal as the "Prime Rate" in the United States, (2) the New York Federal Reserve Bank ("NYFRB") Rate in effect on such day plus half of 1% and (3) the adjusted LIBOR rate for a one-month interest period on such day plus 1%. The applicable margin was 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 Credit Facility ranges, based on the applicable leverage, from 0.200% to 0.350%. The Company is also required to pay customary letter of credit fees, as necessary.

On December 17, 2021, the Company amended the Credit Facility to expand the process for issuing letters of credit and the related invoicing, particularly with respect to letters of credit not denominated in U.S. Dollars.

As of December 31, 2022, the Company did not have an outstanding debt balance under the Credit Facility. Availability under the Credit Facility was \$445 million as of December 31, 2022, which is net of outstanding letters of credit of \$5 million. The Credit Facility matures, and all outstanding amounts become due and payable, on June 15, 2026.

The Credit Facility contains customary conditions to borrowings, events of default and covenants, including covenants that restrict the Company's ability to sell assets, make changes to the nature of the Company's 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 Credit Facility also requires the Company to maintain compliance with a maximum ratio of consolidated funded debt to consolidated EBITDA of 3.50 to 1.00. As of December 31, 2022, the Company was in compliance with all covenants.

Subsequent to December 31, 2022, the Company amended its Credit Facility (the "Amended Credit Facility") to transition from a variable interest rate based on LIBOR to a variable interest rate based on the secured overnight financing rate ("SOFR"). After giving effect to that amendment, loans under the Amended Credit Facility bear interest at a rate equal to, at the Company's option, an annual rate of either an Amended Base Rate or an adjusted term SOFR rate (defined as SOFR for a specified term plus a credit spread adjustment of 10 basis points, subject to a 0% floor), plus an applicable margin ("Amended Base Rate Borrowings" and "Term SOFR Borrowings"). The Amended Base Rate is defined as a rate per annum for any day equal to the greatest of (1) the rate of interest last quoted by The Wall Street Journal as the "Prime Rate" in the United States, (2) the NYFRB Rate in effect on such day plus half of 1% and (3) the adjusted term SOFR rate for a one-month interest period on such day plus 1%. The applicable margin is between 0.25% to 1.25% for Amended Base Rate Borrowings and between 1.25% and 2.25% for Term SOFR Borrowings based on the Company maintaining certain leverage ratios. The Company has had no drawdowns on its Credit Facility since December 31, 2022.

Note 8—Leases

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

	Year Ended December 31,		
	2022	2021	2020
Operating lease cost	\$ 51,918	\$ 50,798	\$ 42,272
Short-term lease cost	1,668	969	908
Variable lease cost	9,140	6,742	5,984
Sublease income	(2,490)	(2,734)	(3,645)
Total lease cost	<u>\$ 60,236</u>	<u>\$ 55,775</u>	<u>\$ 45,519</u>

Supplemental information related to leases were as follows:

	Year Ended December 31,	
	2022	2021
Weighted-average remaining lease term	6.1 years	7.1 years
Weighted-average discount rate	3.1 %	3.0 %

Maturities of lease commitments as of December 31, 2022 were as follows (in thousands):

Year	Amount
2023	\$ 59,406
2024	53,372
2025	44,051
2026	36,415
2027	33,811
Thereafter	63,193
Total undiscounted lease commitments	290,248
Less: commitments for leases not yet commenced	(3,401)
Less: interest	(25,890)
Present value of lease liabilities	260,957
Less: operating lease liabilities, current	(52,430)
Operating lease liabilities, non-current	\$ 208,527

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 into one share of Class A common stock at any time at the option of the holder. 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. The Company's 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.

In February 2023, the Company's board of directors authorized and approved a share repurchase program of up to \$700 million of the Company's outstanding shares of Class A common stock, with no expiration date. Share repurchases under the program may be made from time to time, in the open market, in privately negotiated transactions and otherwise, at the discretion of management of the Company and in accordance with applicable federal securities laws, including Rule 10b-18 of the Exchange Act, and other applicable legal requirements. Such repurchases may also be made in compliance with Rule 10b5-1 trading plans entered into by the Company.

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,		
	2022	2021	2020
Platform operations	\$ 18,285	\$ 15,913	\$ 8,794
Sales and marketing	64,442	50,671	29,726
Technology and development	94,822	57,791	36,672
General and administrative	321,093	213,038	36,583
Total	\$ 498,642	\$ 337,413	\$ 111,775

For the years ended December 31, 2022, 2021 and 2020, the Company recognized tax benefits on total stock-based compensation expense, which are reflected in the provision for income taxes in the consolidated statements of operations, of \$48 million, \$104 million and \$135 million, respectively. For the years ended December 31, 2022, 2021 and 2020, tax benefit realized related to restricted stock vested and stock options exercised during the period was \$72 million, \$121 million and \$151 million, respectively.

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, 2022, 69.0 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, 2023, the number of shares authorized for grant under the Company's 2016 Incentive Award Plan was increased by 19.6 million shares in accordance with plan provisions.

Stock Options

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.

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, 2021	18,984	\$ 15.14		
Granted	1,543	60.78		
Exercised	(4,497)	10.56		
Expired/forfeited	(612)	45.73		
Outstanding as of December 31, 2022	15,418	\$ 19.82	5.7	\$ 438,623
Exercisable as of December 31, 2022	12,308	\$ 12.46	5.1	\$ 414,290

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,		
	2022	2021	2020
Expected term (years)	6.0	6.0	6.0
Expected volatility	66.5 %	64.3 %	60.5 %
Risk-free interest rate	2.91 %	1.04 %	0.57 %
Estimated dividend yield	— %	— %	— %

The weighted-average grant date fair value per share of stock options granted for the years ended December 31, 2022, 2021 and 2020 and were \$37.65, \$43.57 and \$17.25, respectively. The total intrinsic value of options exercised during the years ended December 31, 2022, 2021 and 2020 were \$232 million, \$538 million and \$595 million, respectively.

At December 31, 2022, the Company had unrecognized stock-based compensation relating to stock options of approximately \$87 million, which is expected to be recognized over a weighted-average period of 2.2 years.

CEO Performance Option

In October 2021, the Company granted a market-based performance award to the Company's Chief Executive Officer (the "CEO Performance Option") under the Company's 2016 Incentive Award Plan. If specified target goals for the

per share price of the Company's Class A common stock (ranging from \$90.00 to \$340.00 per share) and certain other vesting conditions are satisfied, including the CEO's continued service, the CEO may purchase up to a target amount of 16 million shares of Class A common stock, subject to adjustment as discussed in the following sentence, to be earned in eight equal tranches over a maximum term of 10 years. These target shares are subject to decrease or increase by up to 20% for each tranche based on the relative total shareholder return ("TSR") of the Company's Class A common stock as compared to the TSR of the Nasdaq-100 Index at each vesting tranche, for a maximum of 19.2 million shares. The CEO Performance Option has an exercise price of \$68.29 per share and a grant-date fair value of approximately \$819 million, which was expected to be expensed on a graded-vesting basis over a derived service period of approximately five years but may be accelerated if the vesting criteria are met prior to the estimated performance period.

The grant-date fair value was estimated based on a Monte Carlo valuation model using the following assumptions:

Expected volatility	63.4 %
Risk-free interest rate	1.55 %
Estimated dividend yield	— %

The CEO Performance Option has a one-year holding period with respect to the sale or transfer of vested shares, with the exception that shares may be transferred during the holding period to cover withholding tax obligations in connection with such exercise and transfers to the CEO's immediate family for estate planning purposes or in connection with charitable or philanthropic activities. Due to the holding period, the Company applies a discount to reflect the non-transferability of the shares.

At December 31, 2021, the CEO Performance Option had outstanding options of 19.2 million. No options were exercised, forfeited or expired during the fiscal year ended December 31, 2022. At December 31, 2022, the CEO Performance Option had outstanding options of 19.2 million with no aggregate intrinsic value and a weighted-average contractual life of 8.8 years. At December 31, 2022, the CEO Performance Option had 2.4 million exercisable options with no aggregate intrinsic value and a weighted-average contractual life of 8.8 years.

On December 10, 2021, the expense related to the first tranche of the award was accelerated due to early stock price achievement. Stock-based compensation expense of \$158 million for the CEO Performance Option, including the accelerated tranche, was recorded as a component of general and administrative expense in the fourth quarter of 2021. No such acceleration occurred during the year ended December 31, 2022. Stock-based compensation expense of \$262 million for the CEO Performance Option was recorded as a component of general and administrative expense during the year ended December 31, 2022. At December 31, 2022, the Company had unrecognized stock-based compensation relating to the CEO Performance Option of \$399 million that is expected to be recognized over a weighted-average period of 2.3 years, assuming no acceleration of vesting.

Restricted Stock

Restricted stock awards generally vest over four years, subject to the holder's continued service through the vesting date. The following summarizes restricted stock activity:

	Shares (in thousands)	Weighted- Average Grant Date Fair Value Per Share
Unvested as of December 31, 2021	5,597	\$ 51.54
Granted	6,746	58.95
Vested	(2,590)	47.78
Forfeited	(1,006)	59.86
Unvested as of December 31, 2022	8,747	\$ 57.41

At December 31, 2022, the Company had unrecognized stock-based compensation relating to restricted stock of approximately \$463 million, which is expected to be recognized over a weighted-average period of 3.0 years.

Employee Stock Purchase Plan

In September 2016, the Company established an ESPP with 8.0 million shares of Class A common stock available for issuance. As of December 31, 2022, 10.8 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) 8.0 million 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, 2023, the number of shares available for issuance under the Company's ESPP increased by 4.5 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,		
	2022	2021	2020
Expected term (years)	1.0	0.6	0.6
Expected volatility	74.1 %	62.3 %	61.9 %
Risk-free interest rate	2.53 %	0.09 %	0.40 %
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 was \$50 million, \$62 million and \$33 million for the years ended December 31, 2022, 2021 and 2020, respectively. At December 31, 2022, the Company had unrecognized stock-based compensation relating to ESPP awards of approximately \$9 million, which is expected to be recognized over a weighted-average period of 0.9 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,		
	2022	2021	2020
Domestic	\$ 169,891	\$ 193,048	\$ 212,531
Foreign	(42,521)	(71,012)	(68,628)
Income before income taxes	\$ 127,370	\$ 122,036	\$ 143,903

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

	Year Ended December 31,		
	2022	2021	2020
Current:			
Federal	\$ 61,904	\$ 10,332	\$ (50,096)
State and local	34,797	(10,417)	(19,650)
Foreign	3,068	2,435	2,550
Total current provision	99,769	2,350	(67,196)
Deferred:			
Federal	(2,380)	(21,287)	(20,900)
State and local	(23,465)	3,193	(9,079)
Foreign	61	18	(1,239)
Total deferred provision	(25,784)	(18,076)	(31,218)
Total provision for (benefit from) income taxes	\$ 73,985	\$ (15,726)	\$ (98,414)

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

	Year Ended December 31,		
	2022	2021	2020
U.S. federal statutory income tax rate	21.0 %	21.0 %	21.0 %
State and local income taxes, net of federal benefit	7.0	(5.3)	(15.7)
Foreign income at other than U.S. rates ⁽¹⁾	9.5	14.2	10.9
Stock-based compensation	31.0	(29.9)	(59.6)
Meals and entertainment	0.4	0.2	0.2
Nondeductible compensation	1.6	1.7	0.6
Research and development credit	(11.8)	(15.3)	(14.1)
Other permanent items	(0.6)	0.5	0.1
Benefit from carryback of NOLs	—	—	(11.8)
Effective income tax rate	58.1 %	(12.9)%	(68.4)%

(1) For the years ended December 31, 2022, 2021, and 2020, 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,	
	2022	2021
Reserves and allowances	\$ 5,428	\$ 6,161
Accrued expenses	7,466	8,103
Net operating losses	182,124	142,708
Research and development tax credit	17,359	53,472
Stock-based compensation	21,207	16,621
Prepaid expenses	(1,122)	(1,674)
Property and equipment	(29,020)	(21,924)
Intangibles ⁽¹⁾	200,113	219,492
Capitalized software development costs	61,670	(3,565)
Operating lease assets	(45,493)	(46,435)
Operating lease liabilities	54,657	56,415
Other	1,258	484
Valuation allowance	(381,619)	(361,614)
Total deferred tax assets, net	\$ 94,028	\$ 68,244

(1) As of December 31, 2022 and 2021, includes intangibles associated with international restructuring, net of amortization, offset by a reserve for uncertain tax position. See discussion below.

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 2022, management recorded an additional valuation allowance of \$20 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, 2022, the Company had federal, state and foreign net operating loss carryforwards of approximately \$4 million, \$39 million and \$774 million, respectively. The federal, state and foreign net operating loss carryforwards are subject to limitations under applicable federal, state and foreign tax law. Federal net operating loss carryforward will carry forward indefinitely. State net operating loss carryforwards will begin to expire in 2040. Foreign net operating losses carry forward indefinitely.

As of December 31, 2022, the Company had state and foreign research and development tax credits of approximately \$27 million and \$1 million, respectively, which can be carried forward as prescribed under applicable state and foreign tax law. State and foreign research and development tax credits carry forward indefinitely.

As of December 31, 2022, unremitted earnings of the subsidiaries outside of the United States were approximately \$5 million, on which no state taxes have been paid. The Company's intention is to indefinitely reinvest these earnings outside the United States 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, 2022, the Company had gross unrecognized tax benefits of approximately \$91 million, \$70 million of which is a reduction to deferred tax assets and the remaining \$21 million which would affect the Company's effective tax rate if recognized. As of December 31, 2021, the Company had gross unrecognized tax benefits of approximately \$86 million, \$85 million of which is a reduction to deferred tax assets and the remaining \$2 million which would affect the Company's effective tax rate if recognized.

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

	Year Ended December 31,		
	2022 ⁽¹⁾	2021 ⁽¹⁾	2020 ⁽¹⁾
Beginning balance	\$ 86,331	\$ 66,875	\$ 53,213
Increases related to prior year tax positions	—	13,075	5,378
Decreases related to prior year tax positions	(84)	—	—
Increases related to current year tax positions	4,685	6,381	9,206
Settlements	—	—	(520)
Expiration of statute of limitations	—	—	(402)
Ending balance	<u>\$ 90,932</u>	<u>\$ 86,331</u>	<u>\$ 66,875</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, 2022 were not material.

The Company files U.S. federal, state and foreign tax returns. The Company is currently under examination by the Internal Revenue Service for the years ended December 31, 2015, 2016, 2017, 2018, 2019 and 2020. The Company is currently under examination by the New York Department of Taxation and Finance for the years ended December 31, 2017, 2018, 2019 and 2020. Additionally, the Company is currently under examination by the Illinois Department of Revenue for the years ended December 31, 2018 and 2019. The Company does not expect to reduce its unrecognized tax benefits during the next twelve months.

The Company remains subject to examination for its federal and state tax returns for the periods 2016 through 2021, and 2018 through 2021, respectively. The majority of the Company's foreign subsidiaries remain subject to examination by local taxing authorities for 2016 and subsequent years.

On August 16, 2022, the Inflation Reduction Act of 2022 ("IRA") was signed into law. The IRA contains a number of revisions to the Internal Revenue Code, including a 15% corporate minimum income tax and a 1% excise tax on corporate stock repurchases in tax years beginning after December 31, 2022. The Company evaluated the provisions of the IRA and identified no impact to the Company's provision for income taxes, effective tax rate, unrecognized tax benefits or deferred income tax positions for the year ended December 31, 2022. The Company does not currently expect that the IRA will have a material impact on its financial results. The Company will continue to monitor the release of additional guidance as well as any changes in operations impacted by the IRA.

Note 12—Segment and Geographic Information

The Company has one primary business activity and operates in one reportable and operating segment.

The Company reports revenue net of amounts it pays suppliers for the cost of Supplier Features. The Company generally bills clients based on Gross Billings, which is the gross amount of Supplier Features they purchase through its platform and the platform fees, net of allowances. 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 address of the clients or client affiliates, were as follows (in thousands):

	Year Ended December 31,		
	2022	2021	2020
United States	\$ 6,696,743	\$ 5,286,191	\$ 3,605,665
International	937,824	843,436	562,595
Total	<u>\$ 7,634,567</u>	<u>\$ 6,129,627</u>	<u>\$ 4,168,260</u>

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

	December 31, 2022	December 31, 2021
United States	\$ 316,000	\$ 282,650
International	78,155	87,297
Total	<u>\$ 394,155</u>	<u>\$ 369,947</u>

Note 13—Commitments and Contingencies

As of December 31, 2022, the Company had non-cancelable operating lease commitments for office space that were recorded as operating lease liabilities on the consolidated balance sheets. Refer to *Note 8—Leases* for additional information regarding lease commitments.

As of December 31, 2022, the Company had non-cancelable commitments to its hosting services providers, marketing contracts and commitments to providers of software as a service. As of December 31, 2022, these purchase obligations were as follows (in thousands):

Year	Amount
2023	\$ 116,964
2024	119,485
2025	118,000
2026	118,000
2027	19,667
	<u>\$ 492,116</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, 2022 and 2021.

Litigation

From time to time, the Company is subject to various legal proceedings, litigation and claims, either asserted or unasserted, that arise in the ordinary course of business. Although the outcome of the various legal proceedings, litigation 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. Regardless of the outcome, litigation can have an adverse impact on the Company because of defense and settlement costs, diversion of management resources and other factors.

On May 27, 2022, a stockholder of the Company filed a derivative lawsuit captioned *Huizenga v. Green, et al.*, No. 2022-0461, asserting claims on behalf of the Company against certain members of the Company's board of directors in the Court of Chancery of the State of Delaware. On June 27, 2022, a second derivative lawsuit captioned *Pfeiffer v. Green, et al.*, No. 2022-0560 was filed in the Court of Chancery of the State of Delaware alleging substantially similar claims. The Company expects these lawsuits eventually will be consolidated. The two complaints allege generally that the Defendants breached their fiduciary duties to the Company and its stockholders in connection with the negotiation and approval of the CEO Performance Option. The plaintiffs seek a court order rescinding the CEO Performance Option and monetary

damages. On November 10, 2022, the plaintiffs filed a consolidated complaint, and on January 12, 2023, the Defendants moved to dismiss the consolidated complaint.

Litigation is inherently uncertain and there can be no assurance regarding the likelihood that the motions to dismiss or defense of the various actions will be successful.

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 Exchange Act, as of December 31, 2022. 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, 2022.

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, 2022 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, 2022.

The effectiveness of our internal control over financial reporting as of December 31, 2022 has been audited by PricewaterhouseCoopers LLP, our independent registered public accounting firm, as stated in their report, which appears in “Item 8. Financial Statements and Supplementary Data” 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, 2022 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.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

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 2023 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, 2022 (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 “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. Financial Statements and Supplementary Data” 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.	10-K	2/19/2021	3.1	
3.2	Amended and Restated Bylaws.	10-K	2/19/2021	3.2	
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	Description of Securities.				X
10.1*	Loan and Security Agreement, dated as of June 15, 2021, among The Trade Desk, Inc., the lenders party thereto, and JPMorgan Chase Bank, N.A., as administrative agent.	8-K	6/16/2021	10.1	
10.2*	Amendment No. 1 to Loan and Security Agreement, dated as of December 17, 2021, among The Trade Desk, Inc., the lenders and credit issuers party thereto, and JPMorgan Chase Bank, N.A., as administrative agent.	10-K	2/16/2022	10.2	
10.3*	Amendment No. 2 to Loan and Security Agreement, dated as of February 9, 2023, among The Trade Desk, Inc., the lenders and credit issuers party thereto, and JPMorgan Chase Bank, N.A., as administrative agent.				X
10.4(a)+	The Trade Desk, Inc. 2010 Stock Plan.	S-1/A	9/6/2016	10.5(a)	
10.4(b)+	Form of Stock Option Agreement under The Trade Desk, Inc. 2010 Stock Plan.	S-1/A	9/6/2016	10.5(b)	
10.4(c)+	Exercise Notice under The Trade Desk, Inc. 2010 Stock Plan.	S-1/A	9/6/2016	10.5(c)	
10.5(a)+	The Trade Desk, Inc. 2015 Equity Incentive Plan.	S-1/A	9/6/2016	10.6(a)	
10.5(b)+	First Amendment to The Trade Desk, Inc. 2015 Equity Incentive Plan.	S-8	9/22/2016	99.2	
10.5(c)+	Form of Stock Option Agreement under The Trade Desk, Inc. 2015 Equity Incentive Plan.	S-1/A	9/6/2016	10.6(b)	
10.5(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)	

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Form	Filing Date	Number	
10.5(e)+	Exercise Notice under The Trade Desk, Inc. 2015 Equity Incentive Plan.	S-1/A	9/6/2016	10.6(d)	
10.6(a)+	The Trade Desk, Inc. 2016 Incentive Award Plan.	S-1	8/22/2016	10.7(a)	
10.6(b)+	Form of Stock Option Agreement under The Trade Desk, Inc. 2016 Incentive Award Plan.	S-1	8/22/2016	10.7(b)	
10.6(c)+	Form of Restricted Stock Award Agreement under The Trade Desk, Inc. 2016 Incentive Award Plan.	8-K	12/30/2016	10.1	
10.6(d)+	Form of Restricted Stock Unit Award Agreement under The Trade Desk, Inc. 2016 Incentive Award Plan.	8-K	12/30/2016	10.2	
10.7+	The Trade Desk, Inc. 2016 Employee Stock Purchase Plan.	S-8	9/22/2016	99.5	
10.8+	Form of Indemnification Agreement.	S-1	8/22/2016	10.8	
10.9+	Employment Agreement, dated as of May 11, 2017, between The Trade Desk, Inc. and Jeff T. Green.	10-Q	5/11/2017	10.2	
10.10+	Employment Agreement, dated as of May 11, 2017, between The Trade Desk, Inc. and David R. Pickles.	10-Q	5/11/2017	10.3	
10.11+	Offer Letter, dated October 29, 2019, by and between the Company and Blake Grayson.	8-K	11/15/2019	10.1	
10.12+	Employment Agreement, dated October 29, 2019 between The Trade Desk, Inc. and Blake Grayson.	8-K	11/15/2019	10.2	
10.13+	Employment Agreement, dated as of August 24, 2020 between The Trade Desk, Inc. and Jay Grant.	10-Q	11/6/2020	10.1	
10.14+	Performance Stock Option Award Agreement under The Trade Desk, Inc. 2016 Incentive Award Plan, dated as of October 6, 2021, between The Trade Desk, Inc. and Jeff Green.	8-K	10/8/2021	10.1	
10.15+	Amendment No. 1 to Employment Agreement, dated as of October 6, 2021, between The Trade Desk, Inc. and Jeff Green.	8-K	10/8/2021	10.2	
10.16+	The Trade Desk, Inc. Non-Employee Director Compensation Policy.	10-K	2/16/2022	10.16	
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

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Form	Filing Date	Number	
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
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.				
*	Portions of this exhibit have been omitted in accordance with Item 601(a)(5) of Regulation S-K. The Trade Desk, Inc. undertakes to furnish a copy of all omitted schedules and exhibits to the SEC upon its request.				
(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 (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, 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 15th day of February, 2023.

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
/s/ JEFF T. GREEN Jeff T. Green	Chief Executive Officer, Director (principal executive officer)	February 15, 2023
/s/ BLAKE J. GRAYSON Blake J. Grayson	Chief Financial Officer (principal financial officer and principal accounting officer)	February 15, 2023
/s/ DAVID R. PICKLES David R. Pickles	Chief Technology Officer, Director	February 15, 2023
/s/ LISE J. BUYER Lise J. Buyer	Director	February 15, 2023
/s/ ANDREA CUNNINGHAM Andrea Cunningham	Director	February 15, 2023
/s/ KATHRYN E. FALBERG Kathryn E. Falberg	Director	February 15, 2023
/s/ ERIC B. PALEY Eric B. Paley	Director	February 15, 2023
/s/ GOKUL RAJARAM Gokul Rajaram	Director	February 15, 2023
/s/ DAVID B. WELLS David B. Wells	Director	February 15, 2023