



appian

2022 Annual Report



Appian Shareholders,

Appian produced steady results in 2022 as we continued to differentiate ourselves in a growing market. Despite a looming recession and exchange-rate difficulties, we doubled the size of our user community, delivered the highest total revenue growth since 2018, and kept our Gross Renewal Rate at 99%. Appian will remain differentiated by the quality of our total customer experience. We believe we are the high-end innovator in Process Automation, a claim substantiated by our recent victory over arch-rival Pegasystems in an important trade-secrets trial.

After years of unification work, Appian's mission is simpler today than it has been in a long time: We provide an end-to-end process platform. We are differentiated by the completeness of our offering, our proven success at mission-critical deployments, and our data fabric technology that connects data across the enterprise.

We benefit from three important synergies:

We're unifying the whole process lifecycle. Everything you might need to do to a process you can do on Appian: discover it, program it, automate it, execute it, measure it for efficiency, and modify it.

We're offering a full suite of automation workers: AI, RPA, business rules, etc.

We're accessing all the data in the enterprise. Our data fabric technology allows us to unify information for purposes of a process – or training an AI bot – far better than our competitors.

Whenever a customer visits our offices, we give them a tour. Not just of the office building, but of the way Appian runs on Appian software. We host dozens of Appian applications, from critical processes to sports pools. It's often a highlight of the visit. Lately we have another tour to show them: the tour of all the ways Appian uses AI in our product. After years of investment we utilize it widely: for accelerating development, generating suggested text, and interpreting data from written documents.

We're at the beginning of an extraordinary journey together, people and AI. We'll learn about AI's capabilities and restrictions, where it can help us and where it cannot. AI is immensely powerful but also plainly unreliable. Almost as much as AI has amazed us this year it has shocked us with errors in judgment, inappropriate assertions, and false conclusions. We're entering a many-year period in which AI will need human partnership and oversight. AI will originate content; humans will edit it. AI will suggest decisions; humans will finalize them. Appian's technology will broker the essential relationship between human and non-human workers.

I expect a productivity surge in '23. Businesses with cost constraints will try to do more with limited budgets. More work can be managed by automated workers than ever before. The key will be using automated workers as a team, each for their own particular strengths. When businesses see how much efficiency can be gained from a combined team of digital workers, it will be a turning point for our industry.

Matt Calkins

A handwritten signature in blue ink, appearing to read "Matt Calkins".

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

WASHINGTON, DC 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: 001-38098

appian

APIIAN CORPORATION

(Exact Name of Registrant as Specified in its Charter)

Delaware

54-1956084

(State or other jurisdiction of incorporation or organization)

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

7950 Jones Branch Drive
McLean, VA

22102

(Address of principal executive offices)

(Zip Code)

Registrant's telephone number, including area code: (703) 442-8844

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

<u>Title of each class</u>	<u>Trading symbol</u>	<u>Name of each exchange on which registered</u>
Class A Common Stock	APPN	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 Section 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 definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and “emerging growth company” in Rule 12b-2 of the Exchange Act.

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

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

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

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

As of June 30, 2022, the aggregate market value of the registrant’s voting Class A common stock and Class B common stock held by non-affiliates of the registrant was \$1,025.3 million and \$95.6 million, respectively, based on a closing price of \$47.36 per share of the registrant’s Class A common stock as reported on The Nasdaq Global Market on June 30, 2022. For purposes of this computation, all officers, directors, and 10% beneficial owners of the registrant are deemed to be affiliates. Such determination should not be deemed to be an admission that such officers, directors, or 10% beneficial owners are, in fact, affiliates of the registrant.

As of February 13, 2023, there were 41,338,629 shares of the registrant’s Class A common stock and 31,497,596 shares of the registrant’s Class B common stock, each with a par value of \$0.0001 per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement for its 2023 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K are incorporated by reference in Part III, Items 10-14 of this Annual Report on Form 10-K.

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PART I

Item 1. Business.

Overview

Appian Corporation (together with its subsidiaries, “Appian,” “the Company,” “we,” or “our”) provides a process automation platform that helps organizations unleash digital innovation and drive efficiency. Appian was founded on the optimistic premise that when given a platform to do so, people will embrace the opportunity to transform the way they work. We combine people, technologies, and data in end-to-end processes that maximize our customers' resources and dramatically improve business results.

Our unified platform for process automation is a key differentiator in the marketplace. Today, we are one of the only enterprise software vendors that offer Workflow, Artificial Intelligence, or AI, Robotic Process Automation, or RPA, Data Fabric, and Process Mining in one fully integrated low-code platform. The result is a platform that makes it easier and faster to address complex use cases, particularly those that involve multiple departments within an organization and their external customers and vendors.

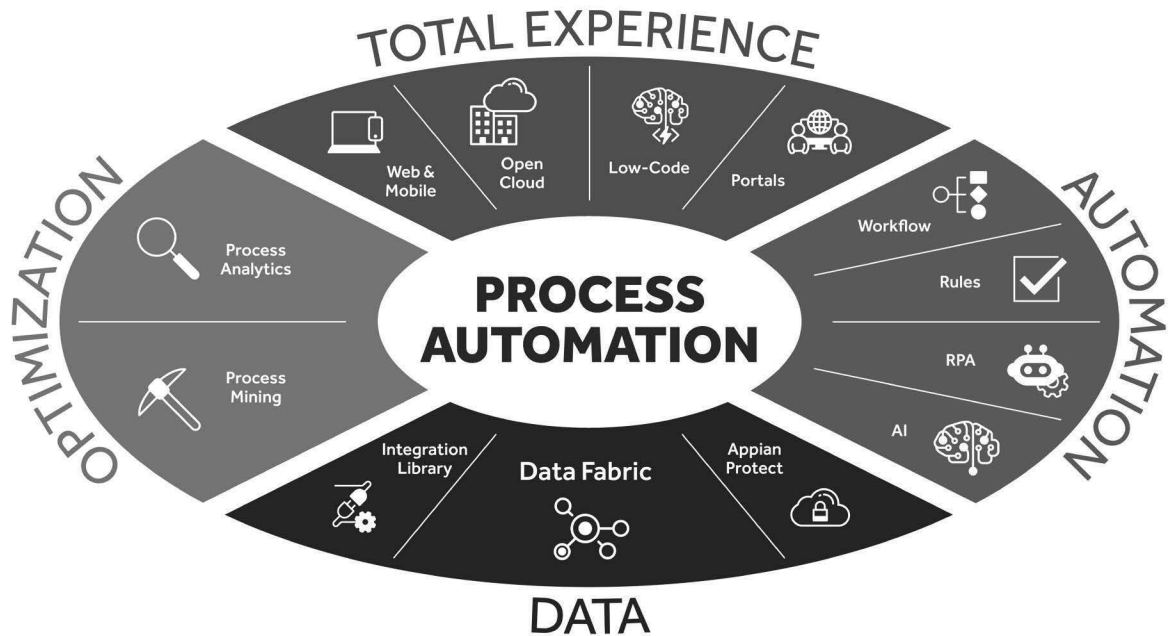
Organizations across all industries are digitally transforming by leveraging software to automate and optimize mission-critical operations, enhance customer experiences, and drive competitive differentiation. Historically, organizations have relied on off-the-shelf packaged software and custom software solutions to operationalize and automate their businesses. Packaged software often fails to address unique use cases or to enable differentiation. It also requires organizations to adapt their business (processes, systems of record, etc.) to the software package, as opposed to adapting the software to their unique business needs. While traditional custom software solutions can be differentiated and tailored to meet strategic objectives, development requires a long, iterative, and cumbersome process, as well as costly integration that relies on scarce developer talent. Our platform greatly reduces the iterative development process, allowing for real-time optimization and ultimately shortening the time it takes to design, build, and deploy applications.

Our go-to-market strategy consists of both direct sales and sales through strategic partners. We sell our software almost exclusively through subscriptions. We intend to grow our revenue both by adding new customers and increasing the number of users or applications built on our platform at existing customers. Our strategic partners include industry-leading global system integrators, software vendors, and cloud and technology providers. We intend to continue to invest in our partner ecosystem, with a particular emphasis on expanding our strategic alliances and cloud-focused partnerships with global system integrators.

The Appian Platform

Our platform is the only fully integrated automation platform that enables organizations to transform the way they work, allowing them to design, automate, and optimize end-to-end processes and complex business operations. Global organizations use the Appian Platform to improve customer and employee experiences, achieve operational excellence, and simplify global risk management and compliance.

We believe effective processes are at the heart of highly successful organizations. Appian helps our customers master and scale up their unique business processes. Our platform allows organizations to deliver excellent customer experiences, maximize operational efficiency, and effortlessly ensure compliance with laws and regulations. We provide a unified platform with the capabilities our customers need to quickly achieve process excellence. These capabilities include a unified toolset for data, process automation, total experience, and process optimization that supports data-driven decision-making, enhanced customer experiences, and optimized processes for maximum efficiency and effectiveness.



Automation

Our platform provides a comprehensive range of native automation capabilities that enable our customers to streamline their operations. The Appian Process Modeler allows organizations to connect customers, employees, systems, AI, and software robots in end-to-end processes for complete control over business operations. Our business rules technology allows organizations to encode and enforce policies and routing decisions that reduce risk, while our native RPA and AI enable organizations to automate process steps to deliver greater efficiency and increase customer and employee satisfaction. We sell our platform as a unified set of automation technologies that accelerates customer implementation times and return on investment.

Data Fabric

Our patented data fabric architecture delivers an innovative solution, enabling organizations to make informed decisions and intelligently route processes from a 360-degree view of business operations. The architecture comprises an extensive library of integration adapters to enterprise systems that integrate previously siloed data into a single, powerful data fabric. In addition, the secure infrastructure of our data fabric architecture provides a safe environment for storing and handling sensitive information, ensuring that confidential data remains protected. The unique and patented design of our data fabric architecture sets it apart from other solutions on the market, providing organizations with a comprehensive platform for making data-driven decisions and optimizing workflows through intelligent process routing and gaining a complete view of their business operations.

Total Experience

Our complete platform further extends our customers' ability to engage external and internal users in a total experience that merges the customer journey with the employee experience. Our patented Self-Assembling Interface Layer, or SAIL, technology and utilization of low-code design allow our customers to quickly create dynamic and intuitive user experiences and deploy them across web and mobile devices. Our customers then use our platform to seamlessly engage users with their business processes across digital touchpoints, such as Internet of things, or IoT, devices, chatbots, or virtual personal assistants, no matter where they are located.

Optimization

Our integrated process analytics and mining capabilities enable customers to measure and track their process performance accurately. With this functionality, our customers gain a deeper understanding of their business operations and pinpoint areas for improvement. Using this data, customers can drive continuous process improvement and optimize their processes for maximum efficiency and effectiveness. These features provide customers with the necessary insights to make informed decisions and optimize their operations to meet the evolving needs of their business.

Go-to-Market Strategy

Our go-to-market strategy consists of both direct sales and sales through strategic partners. We sell our software almost exclusively as subscriptions. We intend to grow our revenue by adding new customers, increasing the product usage of existing customers, and expanding product usage across new business processes and applications. Our strategic partners work with organizations undergoing digital transformation projects, and when they recognize an opportunity for our platform, they often introduce us to potential customers.

Many of our customers begin by building a single application and grow to create dozens of applications on our platform, which implicitly increases their return on investment. Generally, the development of new applications results in the expansion of our product usage within an organization and a corresponding increase in our revenue due to subscription fees. Every additional application an organization creates on our platform increases the value of our platform for that organization because it further integrates people, processes, and data and facilitates knowledge sharing. Applications built on our platform may be used only on our platform and only while customers have active subscriptions, creating a substantial incentive for customers to avoid the difficulties and costs associated with moving to a different software platform. At the same time, our industry-leading Customer Success team helps customers to build and deploy applications on our platform to achieve their digital transformation goals more quickly.

Our Growth Strategy

Key elements of our growth strategy include:

- ***Expand our customer base.*** We continue to grow our customer base in various industries, including financial services, government, life sciences, insurance, manufacturing, energy, healthcare, telecommunications, and transportation. We believe the market for our platform is still in its early stages, and we have a significant opportunity to add additional large enterprise and government customers globally. We offer the Appian Community Edition, a free trial platform with guided learning for our prospects and customers to quickly access the Appian Platform for up to 15 users. Once prospects or customers decide to move forward from trial to transaction, they can transfer from the Appian Community Edition over to a production environment with a seamless export.
- ***Grow revenue from key industry verticals.*** While our platform is industry-agnostic, we continue to make investments to enhance the expertise of our sales and marketing organization within our key industry verticals of financial services, government, insurance, and life sciences. In 2022, we generated over 71% of our subscriptions revenue from customers in these verticals. We believe focusing on the digital transformation needs of organizations within these industry verticals helps drive adoption of our platform.
- ***Continue to innovate and enhance our platform.*** We continue to invest in research and development to strengthen our platform and expand the number of features available to our customers. We offer multiple upgrades each year that allow our customers to benefit from ongoing innovation. As we continue to increase the functionality of our platform and further reduce the amount of developer skill required to quickly deliver value for our customers, we believe we have the potential to expand the use of our platform.
- ***Offer industry solutions to accelerate customer usage.*** Our platform enables our customers to build applications quickly. Appian and our partners offer pre-built solutions in certain of our key industries such as financial services, government acquisition, and insurance to give our customers an even faster start. Every Appian solution is built on our platform and designed to be standardized, upgradeable, and compatible with each other.

- ***Expand our international footprint.*** Our platform is designed to be natively multilingual to facilitate collaboration and address challenges in multinational organizations. Appian Cloud meets the data residency requirements of our global customers by operating in 15 countries across 31 regions and 99 availability zones. In 2022, approximately 34% of our total revenue was generated from customers outside of the United States. As of December 31, 2022, we were operating in 15 countries, and we believe we have a significant opportunity to continue to grow our international footprint. We are investing in new geographies through direct and indirect sales channels, professional services and customer support, and implementation partners.
- ***Grow our partner base.*** We have strategic partnerships including with KPMG, Accenture, PwC, EY, Infosys, Wipro, and Deloitte. These partners work with organizations undergoing digital transformation projects. When they recognize an opportunity for our platform, they introduce us to potential customers. Additionally, they leverage pre-built solutions using our platform, delivering software license revenue to Appian. We intend to further grow our base of partners to provide broader customer coverage and solution delivery capabilities.

Sales and Marketing

Sales

Our sales organization is responsible for account acquisition and overall market development, which includes managing relationships with our customers. We also sell our software through our strategic partners. While our platform is industry-agnostic, we continue to make investments to enhance the expertise of our sales organization within our core industry verticals of financial services, government, insurance, and life sciences. We expect to continue to grow our sales headcount in all of our principal markets and expand into countries where we currently do not have a direct sales presence. We also intend to expand our partner base to provide broader customer coverage and solution delivery capabilities.

Marketing

Our marketing efforts focus on building our brand reputation and increasing market awareness of our platform. Marketing activities include sponsorship of, and attendance at, trade shows and conferences; our annual Appian World, Appian Europe, and Appian Asia, Pacific, and Japan conferences; social media, advertising, and other digital programs; management of our corporate website and partner portal; press outreach; and customer relations. As global concerns about the COVID-19 pandemic decline, we plan to responsibly increase the number of in-person marketing events as compared to 2020 through 2022.

Partner Strategy

We have a strong and growing ecosystem of partners that helps accelerate our customers' digital transformation initiatives and deliver customer value at scale. Our platform's ability to design, automate, and optimize end-to-end processes, and our partners' industry and functional domain experience help organizations digitally transform their businesses. Partners also allow us to offer industry-focused solutions that help our joint customers deliver end-to-end process control for crucial business functions.

We have strategic partnerships around the world including with companies such as KPMG, Accenture, PwC, EY, Infosys, Wipro, and Deloitte. These partners refer software subscription customers to us and generally perform professional services with respect to any new service contracts they originate, increasing our subscription revenue without any change to our professional services revenue. We expect professional services revenue to decline as a percentage of total revenue over time, since our growing strategic partner network may perform more of the professional services associated with our software subscriptions.

We are also growing our network of regional and channel partners further to expand our business into traditional and new markets. These partners provide delivery services, sales and marketing capabilities, and contract fulfillment.

Research and Development

Our ability to compete depends in large part on our continuous commitment to research and development and our ability to introduce new pre-built solutions, technologies, features, and capabilities in a timely manner. Our research and development organization is responsible for the design, development, testing, and release of our solutions and platform's new technologies,

features and integrations. Our efforts are focused on developing new products and core technologies and further enhancing the functionality, reliability, performance, and flexibility of existing capabilities. We focus our efforts on anticipating customer demand in bringing new products and new versions of existing products to market in order to remain competitive in the marketplace. We plan to continue to invest in research and development to broaden and expand our platform capabilities.

Human Capital Resources and Management

Employees, Culture, and Labor Relations

Our distinct culture of innovation is an important contributor to our success as a company. We promote an inclusive environment where our employees can contribute their unique perspectives to help create transformative solutions for our customers. Our culture was purposefully cultivated by our four founders, who are still heavily involved in operating our business, including recruiting, interviewing, and educating new employees at Appian. Led by Matt Calkins, one of our founders and our Chief Executive Officer, we have grown our business organically by employing a unified team to maximize the cohesion and simplicity of our platform and our company.

We respect all people. We believe diversity of ideas and an inclusive environment are paramount to our continued success. We also believe our individual experiences, knowledge, and ways of working enable us to learn from one another and be innovative. We sponsor several affinity groups, initiated by employees, that aim to build stronger internal and external networks and partnerships, create a positive lasting impact through social and educational outreach, and create development opportunities for future leaders.

As of December 31, 2022, we had a total global workforce of 2,307 full-time employees, 1,668 of which were based in the United States. None of our U.S. employees are covered by collective bargaining agreements. We believe our employee relations are good, and we have not experienced any work stoppages. Additionally, we are subject to, and comply with, local labor law requirements in all countries in which we operate.

Talent Acquisition and Development

We have a robust talent acquisition program to attract, recruit, and retain new talent. We utilize an extensive campus recruiting program, provide an employee referral program, and offer opportunities for internal transfers, and competitive compensation and benefits programs. We also provide resources to help our employees grow in their current roles and build new skills, including access to Appian University, a system that houses Appian's in-house learning and development solutions.

Inclusion and Diversity

We respect all people. We believe diversity of ideas and an inclusive environment are paramount to our continued success. We also believe our individual experiences, knowledge, and ways of working enable us to learn from one another and discover creative solutions. We sponsor a number of affinity groups, initiated by employees, that aim to build stronger internal and external networks and partnerships, create a positive lasting impact through social and educational outreach, and create development opportunities for future leaders.

Facilities

As of December 31, 2022, we lease our headquarters office in McLean, Virginia, and we also have four leased offices in cities outside the United States. In addition to our leased offices, we occupied seven flexible workspaces outside of the United States. Our use of flexible workspaces is dependent upon our current business needs. We believe our facilities are adequate to meet our ongoing needs, including substantial rights to expand within certain properties we lease. If we require additional space in the future, we believe we will be able to obtain additional facilities on commercially reasonable terms.

Our Customers

Our customers operate in various industries, including financial services, government, life sciences, insurance, manufacturing, energy, healthcare, telecommunications, and transportation. As of December 31, 2022, we had 925 customers, of which 712 customers were commercial and 213 customers were government or non-commercial entities. Generally, our sales

team targets its efforts to organizations with over 2,000 employees and \$2 billion in annual revenue. The number of customers paying us in excess of \$1 million of annual recurring revenue has grown from 75 at the end of 2021 to 94 at the end of 2022. No single end customer accounted for more than 10% of our total revenue in 2022, 2021, or 2020.

Our Competition

Our main competitors fall into three categories: (1) providers of custom software solutions that address, or are developed to address, some of the use cases that applications developed on our platform target; (2) providers of low-code development platforms such as Microsoft, Salesforce.com, ServiceNow, OutSystems, and Mendix; and (3) providers of one or more automation technologies, including business process management, case management, process mining, and robotic process automation. Such providers include Pegasystems, Celonis, UiPath, SAP, and Oracle.

As our market grows, we expect it will attract more highly specialized vendors as well as larger vendors that may continue to acquire or bundle their products more effectively. The principal competitive factors in our market include:

- Platform features, reliability, performance, and effectiveness;
- Ease of use and speed;
- Platform extensibility and ability to integrate with other technology infrastructures;
- Deployment flexibility;
- Robustness of professional services and customer support;
- Price and total cost of ownership;
- Strength of platform security and adherence to industry standards and certifications;
- Strength of sales and marketing efforts; and
- Brand awareness and reputation.

We believe we generally compete favorably with our peer group with respect to the features, security, and performance of our platform, the ease of integration of our applications, and the relatively low total cost of ownership of our applications. However, many of our competitors have substantially greater financial, technical, and other resources, greater name recognition, larger sales and marketing budgets, broader distribution, more diversified product lines, and larger and more mature intellectual property portfolios.

Intellectual Property

Our success depends in part upon our ability to protect our core technology and intellectual property. We rely on patents, trademarks, copyrights, trade secret laws, confidentiality procedures, and employee disclosure and invention assignment agreements to protect our intellectual property rights.

As of December 31, 2022, we had 11 granted patents and six patents pending related to our platform and its technology. None of our issued patents expire before 2034. We cannot provide complete assurance that any of our patent applications will result in the issuance of a patent or that the examination process will not require us to narrow our claims. Any patents we may be issued may be contested, circumvented, found unenforceable, or invalidated, and we may not be able to prevent third parties from infringing them. We also license software from third parties for integration into our products, including open source software and other software available on commercially reasonable terms. We control access to and use of our proprietary software and other confidential information through the use of internal and external controls, including contractual protections with employees, contractors, end customers, and partners, and our software is protected by U.S. and international copyright and trade secret laws.

Corporate Information

Our Class A common stock is listed on the Nasdaq Global Market under the symbol “APPN”.

Our corporate headquarters is located at 7950 Jones Branch Drive, McLean, Virginia 22102, and our telephone number is (703) 442-8844.

“Appian,” the Appian logo, and other trademarks or service marks of Appian Corporation appearing in this Annual Report on Form 10-K are the property of Appian Corporation. This Annual Report on Form 10-K contains additional trade names, trademarks, and service marks of others, which are the property of their respective owners. Solely for convenience, trademarks and trade names referred to in this Annual Report on Form 10-K exclude the ® or TM symbols.

Available Information

Our website address is www.appian.com. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to reports filed pursuant to Sections 13(a) and 15(d) of the Exchange Act are made available free of charge on or through our website at investors.appian.com as soon as reasonably practicable after such reports are filed with, or furnished to, the United States Securities and Exchange Commission, or SEC. The information contained on, or that can be accessed through, our website is not incorporated by reference into this Annual Report on Form 10-K or in any other report or document we file with the SEC, and any references to our website are intended to be inactive textual references only.

Forward-Looking Statements

This Annual Report on Form 10-K, including the sections entitled “Business,” “Risk Factors,” and “Management's Discussion and Analysis of Financial Condition and Results of Operations,” contains forward-looking statements that involve known and unknown risks, uncertainties, and other factors that may cause our actual results, levels of activity, performance, or achievements to be materially different from the information expressed or implied by these forward-looking statements. Statements that are not purely historical are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. In some cases, forward-looking statements can be identified by the words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “objective,” “ongoing,” “plan,” “predict,” “project,” “potential,” “should,” “will,” or “would,” or the negative of these terms, or other comparable terminology intended to identify statements about the future. These forward-looking statements include, but are not limited to, statements concerning the following:

- Our market opportunity and the expansion of our core software markets in general;
- The effects of increased competition as well as innovations by new and existing competitors in our market;
- Our ability to adapt to technological change and effectively enhance, innovate, and scale our platform and professional services;
- Our ability to effectively manage or sustain our growth and to achieve profitability;
- Potential acquisitions and integration of complementary businesses and technologies;
- Our ability to maintain, or strengthen awareness of, our brand;
- Perceived or actual problems with the integrity, reliability, quality, or compatibility of our platform, including unscheduled downtime or outages;
- The anticipated expansion of the usage of partners to perform professional services;
- General macroeconomic conditions, including rising interest rates and inflation, slower growth or recession, and geopolitical turmoil;
- Future revenue, hiring plans, expenses, capital expenditures, capital requirements, and stock performance;
- Our ability to attract and retain qualified employees and key personnel and manage our overall headcount;
- The expected benefits to our clients and potential clients of our product and service offerings;

- The timing of revenue recognition under license and cloud arrangements;
- Our expectation that subscriptions revenue as a percentage of total revenue will continue to increase;
- Our backlog of license, maintenance, cloud, and services agreements and the timing of future cash receipts from committed license and cloud arrangements;
- Our expectation that cost of revenue, sales and marketing expenses, research and development expenses, and general and administrative expenses will continue to increase in absolute dollar values;
- The fluctuation of subscriptions gross margin and professional services gross margin over time;
- Our expectations regarding the impact of recent accounting pronouncements on our consolidated financial statements;
- Our ability to stay abreast of new or modified laws and regulations that currently apply or become applicable to our business both in the United States and internationally;
- Our ability to maintain, protect, and enhance our intellectual property; and
- Costs associated with defending intellectual property infringement and other claims.

These statements represent the beliefs and assumptions of our management based on information currently available to us. Such forward-looking statements are subject to risks, uncertainties, and other important factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in the section titled “Risk Factors” included under Part I, Item 1A. Furthermore, such forward-looking statements speak only as of the date of this report. Except as required by law, we undertake no obligation to update any forward-looking statements to reflect events or circumstances that occur after the date of this report.

Risk Factors Summary

The risk factors summarized below could materially harm our business, operating results, and/or financial condition, impair our future prospects, and/or cause the price of our common stock to decline. These risks are discussed more fully in the section titled “Risk Factors”. Material risks that may affect our business, financial condition, results of operations, and trading price of our Class A common stock include, but are not necessarily limited to, the following:

- Our recent growth may not be indicative of our future growth and, if we continue to grow, we may not be able to manage our growth effectively.
- If we are unable to sustain our revenue growth rate, we may not achieve or maintain profitability in the future.
- We may not be able to scale our business quickly enough to meet our customers’ growing needs, and if we are not able to grow efficiently, our operating results could be harmed.
- We are dependent on a single product, and the lack of continued market acceptance of our platform could cause our operating results to suffer.
- Market adoption of low-code platforms to drive digital transformation is new and unproven and may not grow as we expect, which may harm our business and prospects.
- We currently face significant competition.
- If our security measures are actually or perceived to have been breached or unauthorized access to our platform or customer data is otherwise obtained, our platform may be perceived as not being secure, customers may reduce the use of or stop using our platform, and we may incur significant liabilities.
- We derive a material portion of our revenue from a limited number of customers, and the loss of one or more of these customers could adversely impact our business, results of operations, and financial condition.
- We rely on the performance of highly skilled personnel, including senior management and our engineering, professional services, sales, and technology professionals.
- If we do not continue to innovate and provide a platform that is useful to our customers, we may not remain competitive, and our revenue and operating results could suffer.

- We are substantially dependent upon customer renewals, the addition of new customers, and the continued growth of our subscriptions revenue.
- Because we generally recognize revenue from cloud subscriptions ratably over the term of the subscription agreement, near term changes in sales may not be reflected immediately in our operating results.
- We rely upon Amazon Web Services, or AWS, to operate our cloud offering; any disruption of or interference with our use of AWS would adversely affect our business, results of operations, and financial condition.
- We employ third-party licensed software for use in or with our software, and the inability to maintain these licenses or errors in the software we license could result in increased costs or reduced service levels, which would adversely affect our business.
- If we do not or cannot maintain the compatibility of our platform with third-party applications that our customers use in their businesses, our revenue will decline.
- Because our software could be used to collect and store personal information, domestic and international privacy concerns could result in additional costs and liabilities to us or inhibit sales of our software.
- If our platform fails to function in a manner that allows our customers to operate in compliance with regulations and/or industry standards, our revenue and operating results could be harmed.
- We are subject to anti-corruption laws with respect to our domestic and international operations.
- We are subject to governmental export and import controls and economic and trade sanctions that could impair our ability to conduct business in international markets and subject us to liability if we are not in compliance with applicable laws and regulations.
- Any failure to protect our proprietary technology and intellectual property rights could substantially harm our business and operating results.
- Portions of our platform utilize open source software, and any failure to comply with the terms of one or more of these open source licenses could negatively affect our business.
- If our estimates or judgments relating to our critical accounting policies prove to be incorrect, our results of operations could be adversely affected.
- Our ability to use net operating losses to offset future taxable income may be subject to certain limitations.
- The dual class structure of our common stock and the existing ownership of capital stock by Matt Calkins, our founder and Chief Executive Officer, has the effect of concentrating voting control with Mr. Calkins for the foreseeable future, which will limit the ability of others to influence corporate matters.
- Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us more difficult, limit attempts by our stockholders to replace or remove our current management, and limit the market price of our Class A common stock.
- Our stock price may be volatile, and investors may lose some or all of their investment.

Item 1A. Risk Factors.

Our operations and financial results are subject to various risks and uncertainties including those described below and other information contained in this Annual Report on Form 10-K. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties we are unaware of, or we currently believe are not material, may also become important factors that adversely affect our business. If any of the following risks or others not specified below materialize, our business, financial condition, and results of operations could be materially and adversely affected, and the trading price of our Class A common stock could decline.

Risks Related to Our Business and Industry

Our recent growth may not be indicative of our future growth and, if we continue to grow, we may not be able to manage our growth effectively.

We have experienced rapid growth in our headcount and operations. We have also significantly increased the size of our customer base over the last several years. While we have expanded our operations and headcount in prior periods, it is not indicative of our future growth and we may modify our pace of hiring to align with our growth plans. Our growth has placed, and any future growth will place, a significant strain on our management, administrative, operational, and financial infrastructure. Our success will depend in part on our ability to manage this growth effectively and we will need to continue to improve our operational, financial, and management controls and our reporting systems and procedures. Failure to effectively manage our growth could result in difficulty or delays in deploying our platform to customers, declines in quality or customer satisfaction, increases in costs, difficulties in introducing new features, or other operational difficulties. Any of these difficulties could adversely impact our business performance and results of operations.

If we are unable to sustain our revenue growth rate, we may not achieve or maintain profitability in the future.

We have experienced revenue growth with revenue of \$468.0 million, \$369.3 million, and \$304.6 million in 2022, 2021, and 2020, respectively. Although we have experienced rapid revenue growth historically, we may not continue to grow as rapidly in the future, and our revenue growth rates may decline. Any success we may experience in the future will depend in large part on our ability to, among other things:

- Maintain and expand our customer base;
- Increase revenue from existing customers through increased or broader use of our platform within their organizations;
- Further penetrate the existing industry verticals we serve and expand into other industry verticals; and
- Continue to successfully expand our business domestically and internationally.

If we are unable to maintain consistent revenue or revenue growth, our stock price could be volatile, and it may be difficult to achieve and maintain profitability. Our revenue for any prior quarterly or annual periods should not be relied upon as any indication of our future revenue or revenue growth.

We may not be able to scale our business quickly enough to meet our customers' growing needs, and if we are not able to grow efficiently, our operating results could be harmed.

As usage of our platform grows and as customers use our platform for more advanced and more frequent projects, we may need to devote additional resources to improving our software architecture, integrating with third-party systems, and maintaining infrastructure performance. In addition, we will need to appropriately scale our internal business operations as well as grow our partner services systems, including our Customer Success organization and operations, to serve our growing customer base, particularly as our customer base expands over time. Any failure of or delay in these efforts could cause impaired system performance and reduced customer satisfaction. These issues could reduce the attractiveness of our platform to customers, resulting in decreased sales to new customers, lower renewal rates by existing customers, the issuance of service credits, or requested refunds, any of which could hurt our revenue growth and our reputation. Even if we are able to upgrade our systems and expand our staff, any such expansion will be expensive and complex, requiring management time and attention. We could also face inefficiencies or operational failures as a result of our efforts to scale our infrastructure. Moreover, there are inherent risks associated with upgrading, improving, and expanding our information technology systems. We cannot

be sure the expansion and improvements to our infrastructure and systems will be fully or effectively implemented on a timely basis, if at all. These efforts may reduce revenue and our margins and adversely impact our financial results.

We are dependent on a single product, and the lack of continued market acceptance of our platform could cause our operating results to suffer.

Sales of our software platform account for substantially all of our subscriptions revenue and are the source of substantially all of our professional services revenue. We expect we will be substantially dependent on our platform to generate revenue for the foreseeable future. As a result, our operating results or revenue growth rates could suffer due to:

- Any decline or lower than expected growth in demand for our platform;
- The failure of our platform to achieve continued market acceptance;
- The market for low-code solutions not continuing to grow or growing more slowly than we expect;
- The introduction of products and technologies that serve as a replacement or substitute for, or represent an improvement over, our platform;
- Technological innovations or new standards that our platform does not address;
- Sensitivity to current or future prices offered by us or competing solutions;
- The inability to further penetrate our existing industry verticals or expand our customer base; and
- Our inability to release enhanced versions of our platform on a timely basis.

Our sales cycle is long and unpredictable, particularly with respect to large customers, and our sales efforts require considerable time and expense, all of which may cause our operating results to fluctuate.

Our operating results may fluctuate, in part, because of the resource-intensive nature of our sales efforts, the length and variability of the sales cycle of our platform, and the difficulty we face in adjusting our short-term operating expenses. Our operating results depend in part on sales to large customers and promotion of increasing usage by those large customers. The length of our sales cycle, from initial evaluation to delivery of and payment for our software, varies substantially from customer to customer, and it is difficult to predict if or when we will make a sale to a potential customer. We may spend substantial time, effort, and money on our sales and marketing efforts without any assurance our efforts will result in revenue. As a result of these factors, we may face greater costs, longer sales cycles, and less predictability in the future. In the past, certain individual sales have occurred in periods later than we expected or have not occurred at all. The loss or delay of one or more large transactions in a quarter could impact our operating results for that quarter and any future quarters in which such revenue otherwise would have been recognized because a substantial portion of our expenses are relatively fixed in the short-term. As a result of these factors, it is difficult for us to forecast our revenue accurately in any quarter, and our quarterly results may fluctuate substantially.

Market adoption of low-code platforms to drive digital transformation is new and unproven and may not grow as we expect, which may harm our business and prospects.

We believe our future success will depend in large part on growth in the demand for low-code platforms to drive software-enabled digital transformation. It is difficult to predict customer demand for our platform, renewal rates, the rate at which existing customers expand their subscriptions, the size and growth rate of the market for our platform, the entry of competitive products, or the success of existing competitive products. The utilization of low-code software to drive digital transformation is still relatively new. Any expansion in our addressable market depends on a number of factors, including businesses continuing to desire to differentiate themselves through software-enabled digital transformation, increasing their reliance on low-code solutions, changes in the competitive landscape, technological changes, budgetary constraints of our customers, and changes in economic conditions. If our platform does not achieve widespread adoption or there is a reduction in demand for low-code solutions caused by these factors, it could result in reduced customer purchases, reduced renewal rates, and decreased revenue, any of which will adversely affect our business, operating results, and financial condition.

We currently face significant competition.

The markets for low-code platforms, business process management, case management software, and custom software are highly competitive, rapidly evolving, and have relatively low barriers to entry. The principal competitive factors in our market include the following: platform features, reliability, performance, and effectiveness; ease of use and speed; platform extensibility and ability to integrate with other technology infrastructures; deployment flexibility; robustness of professional services and customer support; price and total cost of ownership; strength of platform security and adherence to industry standards and certifications; strength of sales and marketing efforts; and brand awareness and reputation. If we fail to compete effectively with respect to any of these competitive factors, we may fail to attract new customers or lose or fail to renew existing customers, which would cause our operating results to suffer.

Our main competitors fall into three categories: (1) providers of custom software and customer software solutions that address, or are developed to address, some of the use cases that can be addressed by applications developed on our platform; (2) providers of low-code development platforms such as Microsoft, Salesforce.com, ServiceNow, OutSystems, and Mendix; and (3) providers of one or more automation technologies, including BPM, case management, process mining, and RPA. Such providers include Pegasystems, Celonis, UiPath, Microsoft, SAP, and Oracle.

Some of our actual and potential competitors have advantages over us such as longer operating histories, more established relationships with current or potential customers and commercial partners, significantly greater financial, technical, marketing, or other resources, stronger brand recognition, larger intellectual property portfolios, and broader global distribution and presence. Such competitors may make their solutions available at a low cost or no cost basis in order to enhance their overall relationships with current or potential customers. Our competitors may also be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards, or customer requirements. With the introduction of new technologies and new market entrants, we expect competition to intensify in the future. In addition, some of our larger competitors have substantially broader offerings and can bundle competing products with other software offerings. As a result, customers may choose a bundled offering from our competitors, even if individual products have more limited functionality than our platform. These larger competitors are also often in a better position to withstand any significant reduction in capital spending and will therefore not be as susceptible to economic downturns.

If our security measures are actually or perceived to have been breached or unauthorized access to our platform or customer data is otherwise obtained, our platform may be perceived as not being secure, customers may reduce the use of or stop using our platform, and we may incur significant liabilities.

Our platform, which can be deployed in the cloud or on-premises, allows for the storage and transmission of our customers' proprietary or confidential information, which may include trade secrets, personally identifiable information, personal health information, and payment card information. Any actual or perceived unauthorized access to, or security incidents affecting, our platform or the information stored on or transmitted by our platform, including through unauthorized and/or malicious activity by one of our employees, could result in the loss of information, litigation, regulatory investigations, penalties, indemnity obligations and other costs, expenses, and liabilities, which could exceed our existing insurance coverage and could result in a substantial financial loss. While we have security measures in place designed to protect customer information and prevent data loss and other security breaches, there can be no assurance these measures will be effective in protecting against malicious unauthorized access to our platform or our customers' information. Similarly, if cyber incidents such as phishing attacks, viruses, denial of service attacks, supply chain attacks, malware installation, ransomware attacks, server malfunction, software or hardware failures, loss of data or other computer assets, adware, or other similar issues impair the integrity or availability of our systems by affecting our data or reducing access to or shutting down one or more of our computing systems or our IT network, we may be subject to negative treatment by our customers, our business partners, the press, and the public at large. Further, while security tested and techniques are in place and tested by third parties, because the techniques used to obtain unauthorized access or sabotage systems change frequently and generally are not identified until they are launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. Additionally, we may be subject to attacks on our networks or systems or attempts to gain unauthorized access to our proprietary or confidential information or other data we or our vendors maintain such as data about our employees. Such attacks and other breaches of security may occur as a result of malicious attacks, human error, social engineering, or other causes. Any actual or perceived breach of our security measures or failure to adequately protect our customers' or our confidential or proprietary information could negatively affect our ability to attract new customers, cause existing customers to elect to not renew their subscriptions to our software, or result in reputational damage, any of which could adversely affect our operating results.

Further, security compromises experienced by our customers with respect to data hosted on our platform, even if caused by the customer's own misuse or negligence, may lead to public disclosures, which could harm our reputation, erode customer confidence in the effectiveness of our security measures, negatively impact our ability to attract new customers, or cause existing customers to elect not to renew their subscriptions with us. We may be subjected to indemnity demands, regulatory proceedings, audits, penalties, or litigation based on our customers' misuse of our platform with respect to such sensitive information and defending against such litigation and otherwise addressing such matters may be expensive, cause distraction, and may result in us incurring liability, all of which may affect our operating results.

While we maintain general liability insurance coverage and coverage for errors or omissions, we cannot provide assurance such coverage will be adequate or otherwise protect us from liabilities or damages with respect to claims alleging compromises of personal data or that such coverage will continue to be available on acceptable terms or at all.

We derive a material portion of our revenue from a limited number of customers, and the loss of one or more of these customers could adversely impact our business, results of operations, and financial condition.

Our customer base is concentrated. For example, during the years ended December 31, 2022, 2021, and 2020, revenue from U.S. federal government agencies represented 19.2%, 19.6%, and 18.1% of our total revenue, respectively, and the top three U.S. federal government customers generated 4.5%, 5.6%, and 6.6% of our total revenue for the years ended December 31, 2022, 2021, and 2020, respectively. Further, nearly 11% of our subscription customers spent more than \$1 million on our software in 2022. If we were to lose one or more of our significant customers, our revenue may significantly decline. In addition, revenue from significant customers may vary from period to period depending on the timing of renewing existing agreements or entering into new agreements. The loss of one or more of our significant customers could adversely affect our business, results of operations, and financial condition.

A portion of our revenue is generated from subscriptions sold to governmental entities and heavily regulated organizations, which are subject to a number of challenges and risks.

A significant portion of our revenue is generated from subscriptions sold to governmental entities, both in the United States and internationally. Additionally, many of our current and prospective customers such as those in the financial services, insurance, life sciences, and healthcare industries are highly regulated and may be required to comply with more stringent regulations in connection with subscribing to and implementing our platform. Selling subscriptions to these entities can be highly competitive, expensive, and time-consuming, often requiring significant upfront time and expense without any assurance we will successfully complete a sale. In addition, if our software does not meet the standards of new or existing regulations, we may be in breach of our contracts with our customers, allowing them to terminate their agreements.

Governmental demand and payment for our platform may also be impacted by public sector budgetary cycles and funding authorizations, with funding reductions or delays adversely affecting public sector demand for our platform. Governmental and highly regulated entities impose compliance requirements that are complicated, make pricing readily available, subject continued business to unpredictable competitive processes, or are otherwise time-consuming and expensive to satisfy. In the United States, applicable federal contracting regulations change frequently, and the President may issue executive orders requiring federal contractors to adhere to new compliance requirements after a contract is signed. If we commit to meet special standards or requirements and do not meet them, we could be subject to significant liability from our customers or regulators. Even if we do meet these special standards or requirements, the additional costs associated with providing our platform to government and highly regulated customers could harm our operating results. Moreover, changes in the underlying statutory and regulatory conditions that affect these types of customers could compromise our ability to efficiently provide them access to our platform and to grow or maintain our customer base. In addition, engaging in sales activities to foreign governments introduces additional compliance risks specific to the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act, and other similar statutory requirements prohibiting bribery and corruption in the jurisdictions in which we operate.

We have experienced losses in the past, and we may not achieve or sustain profitability in the future.

We generated net losses of \$150.9 million, \$88.6 million, and \$33.5 million in 2022, 2021, and 2020, respectively. As of December 31, 2022, we had an accumulated deficit of \$408.5 million. We will need to generate and sustain increased revenue levels in future periods in order to achieve or sustain profitability in the future. We also expect our costs to increase in future periods, which could negatively affect our future operating results if our revenue does not increase commensurately. For

example, we intend to continue to expend significant funds to expand our sales and marketing operations, develop and enhance our platform, meet the increased compliance requirements associated with our operation as a public company, and expand into new markets. Our efforts to grow our business may be more costly than we expect, and we may not be able to increase our revenue enough to offset our higher operating expenses. We may incur significant losses in the future for a number of reasons, including the other risks described in this Annual Report on Form 10-K, and unforeseen expenses, difficulties, complications and delays, and other unknown events. If we are unable to achieve and sustain profitability, our stock price may significantly decrease.

Our future results of operations may fluctuate significantly due to a wide range of factors, which makes our future results difficult to predict.

Our revenue and results of operations have historically varied from period to period, and we expect they will continue to do so as a result of a number of factors, many of which are outside of our control, including:

- The level of demand for our platform and our professional services;
- The rate of renewal of subscriptions with, and extent of sales of additional subscriptions to, existing customers;
- Large customers failing to renew their subscriptions;
- The size, timing, and terms of our subscription agreements with existing and new customers, including revenue recognition issues;
- Variations in the revenue mix of our professional services and growth rates of our cloud subscription and professional services offerings, including the timing of subscriptions and sales offerings that include an on-premises software element for which the revenue allocated to that deliverable is recognized upfront;
- The timing and growth of our business, in particular through our hiring of new employees and international expansion;
- The timing of our adoption of new or revised accounting pronouncements applicable to public companies and the impact on our results of operations;
- The introduction of new products and product enhancements by existing competitors or new entrants into our market and changes in pricing for solutions offered by us or our competitors;
- Network outages, security breaches, technical difficulties, or interruptions with our platform;
- Changes in the growth rate of the markets in which we compete;
- The mix of subscriptions to our platform and professional services sold during a period;
- Customers delaying purchasing decisions in anticipation of new developments or enhancements by us or our competitors or otherwise;
- Changes in customers' budgets;
- Seasonal variations related to sales and marketing and other activities such as expenses related to our customers;
- Our ability to increase, retain, and incentivize the strategic partners that market and sell our platform;
- Our ability to control costs, including our operating expenses;
- Our ability to hire, train, and maintain our direct sales team;
- Unforeseen litigation and intellectual property infringement;
- Any changes in accounting principles generally accepted in the United States, or GAAP;
- Fluctuations in our effective tax rate; and
- General economic and political conditions, both domestically and internationally, as well as economic conditions specifically affecting industries in which our customers operate.

Any one of these or other factors discussed elsewhere in this Annual Report on Form 10-K or the cumulative effect of some of these factors may result in fluctuations in our revenue and operating results, meaning quarter-to-quarter comparisons of

our revenue, results of operations, and cash flows may not necessarily be indicative of our future performance, may cause us to miss our guidance or analyst expectations, and may cause our stock price to decline.

In addition, we have historically experienced seasonality in terms of when we enter into agreements with customers. We typically enter into a significantly higher percentage of agreements with new customers, as well as renewal agreements with existing customers, in the fourth quarter. The increase in customer agreements for the fourth quarter is attributable to large enterprise account buying patterns typical in the software industry. Furthermore, we usually enter into a significant portion of agreements with customers during the last month, and often the last two weeks, of each quarter. This seasonality is reflected to a much lesser extent, and sometimes is not immediately apparent, in revenue due to the fact we recognize cloud subscription revenue over the term of the subscription agreement, which is generally one to three years. We expect seasonality will continue to affect our operating results in the future and may reduce our ability to predict cash flow and optimize the timing of our operating expenses.

We may fail to meet our publicly announced guidance or other expectations about our business and future operating results, which could cause our stock price to decline.

We have provided and may continue to provide guidance about our business, future operating results, and other business metrics. In developing this guidance, our management must make certain assumptions and judgments about our future performance. Furthermore, analysts and investors may develop and publish their own projections of our business, which may form a consensus about our future performance. Our business results may vary significantly from such guidance or that consensus due to a number of factors, many of which are outside of our control, including due to the global economic uncertainty and financial market conditions which could adversely affect our operations and operating results. Furthermore, if our publicly announced guidance of future operating results fails to meet our previously announced guidance or the expectations of securities analysts, investors, or other interested parties, the price of our common stock would decline.

If we are unable to successfully transition to new leadership in key departments, our results could suffer.

Appian has undergone change in departments directly responsible for substantially all of Appian's revenue. While Appian believes its new leaders in these departments are highly qualified and will perform well in their roles, there can be no assurances the transition to new leadership will be executed without any disruption or effect on performance. New leadership requires time to become familiar with Appian's product offerings and its customer base, and such transition could lead to delayed implementation of strategies, revision of key practices and policies, re-training of personnel, and other disruptions.

While we will make efforts to mitigate such risk through extensive collaboration at the executive level, the effects of this transition could have an impact on our ability to sustain our growth in revenue or our ability to retain existing talent within the organization.

We rely on the performance of highly skilled personnel, including senior management and our engineering, professional services, sales, and technology professionals; if we are unable to retain or motivate key personnel or hire, retain, and motivate qualified personnel, our business would be harmed.

We believe our success has depended, and continues to depend, on the efforts and talents of our senior management team, particularly Matt Calkins, our founder and Chief Executive Officer, and our highly skilled team members, including our sales personnel, professional services personnel, cloud engineering and support personnel, and software engineers. We do not maintain key man insurance on any of our executive officers or key employees. From time to time, there have been and may continue to be changes in our senior management team resulting from the termination or departure of our executive officers and key employees. Our senior management and key employees are employed on an at-will basis, which means they could terminate their employment with us at any time.

Many of our executive officers and key employees receive equity compensation as a significant portion of their overall compensation package. A substantial decrease in the market price of our Class A common stock would effectively reduce the compensation of such persons and could increase the risk they depart from our company. The loss of any of our senior management or key employees, particularly Mr. Calkins, could adversely affect our ability to build on the efforts they have undertaken and to execute our business plan, and we may not be able to find adequate replacements. We cannot ensure we will be able to retain the services of any members of our senior management or other key employees.

Our ability to successfully pursue our growth strategy also depends on our ability to attract, motivate, and retain our personnel. Competition for well-qualified employees in all aspects of our business, including sales personnel, professional services personnel, cloud engineering and support personnel, and software engineers, is intense. Our continued ability to compete effectively depends on our ability to attract new employees and to retain and motivate existing employees. Further, a small portion of our employees are immigrants to the United States or foreign nationals holding visas. If immigration to the United States is further restricted by the federal government, we might lose existing employees who are unable to remain in the United States and our pool of qualified applicants might also be diminished, thereby hampering our recruiting efforts. If we do not succeed in attracting well-qualified employees or retaining and motivating existing employees, our business would be adversely affected.

If we do not continue to innovate and provide a platform that is useful to our customers, we may not remain competitive, and our revenue and operating results could suffer.

Our success depends on continued innovation to provide features that make our platform useful for our customers, our ability to persuade existing customers to expand their use of our platform to additional use cases and additional applications, and to purchase additional software licenses to our platform. We must continue to invest significant resources in research and development in order to continually improve the speed and power of our platform. We may introduce significant changes to our platform or develop and introduce new and unproven products, including using technologies with which we have little or no prior development or operating experience. If we are unable to continue offering innovative solutions or if new or enhanced solutions fail to engage our customers, we may be unable to attract additional customers or retain our current customers, which may adversely affect our business, operating results, and financial condition.

We may need to reduce or change our pricing model to remain competitive.

We generally sell our software on a per-user basis or through non-user based single application licenses. We have changed and expect we will continue to need to change our pricing model from time to time. As competitors introduce new products that compete with ours or reduce their prices, we may be unable to attract new customers or retain existing customers based on our historical pricing. We also must determine the appropriate price to enable us to compete effectively internationally. Moreover, mid- to large-size enterprises may demand substantial price discounts as part of the negotiation of sales contracts. As a result, we may be required or choose to reduce our prices or change our pricing model, which could adversely affect our business, operating results, and financial condition.

Our business could be adversely affected if our customers are not satisfied with the deployment services provided by us or our partners.

The success of our business depends on our customers' satisfaction with our platform, the support we provide for our platform, and the professional services we provide to help our customers deploy our platform. Professional services may be performed by our own staff, a third party, or a combination of the two. Our strategy is to work with third parties to increase the breadth, capability, and depth of capacity for delivery of these services to our customers, and third parties provide a significant portion of our deployment services. If a customer is not satisfied with the quality of work performed by us or a third party or with the type of applications delivered, we could incur additional costs to address the deficiency, which would diminish the profitability of the customer relationship. Further, a customer's dissatisfaction with our services could impair our ability to expand the number of licenses to our software purchased by that customer or adversely affect the customer's renewal of existing licenses. In addition, negative publicity related to our customer relationships, regardless of accuracy, may further damage our business by affecting our ability to compete for new business with actual and prospective customers.

We are substantially dependent upon customer renewals, the addition of new customers, and the continued growth of our subscriptions revenue.

We derive, and expect to increasingly derive in the future, a substantial portion of our revenue from the sale of software subscriptions. For 2022, 2021, and 2020, approximately 72.7%, 71.4%, and 65.2%, respectively, of our total revenue was subscriptions revenue. The market for our platform is still evolving, and competitive dynamics may cause pricing levels to change as the market matures and as existing and new market participants introduce new types of solutions and different approaches to enable customers to address their needs. As a result, we may be forced to reduce the prices we charge for software and may be required to offer terms less favorable to us for new and renewing agreements.

In order for us to improve our operating results, it is important our customers renew their subscriptions with us when their initial term expires, as well as purchase additional subscriptions from us. In general, our customers have no renewal obligation after their initial term expires, and we cannot provide assurance we will be able to renew subscriptions with any of our customers at the same or higher contract value.

Further, while we offer access to our platform primarily through multi-year subscription agreements, some agreements may have shorter durations. Additionally, some of our contracts limit the amount we can increase prices from period to period or include pricing guarantees. If our customers do not renew their agreements, terminate their agreements, renew their agreements on terms less favorable to us, or fail to purchase additional software subscriptions, our revenue may decline and our operating results would likely be harmed as a result.

Because we generally recognize revenue from cloud subscriptions ratably over the term of the subscription agreement, near term changes in sales may not be reflected immediately in our operating results.

We offer our solution primarily through multi-year cloud subscription agreements and generally recognize revenue ratably over the related subscription period. As a result, much of the revenue we report in each quarter is derived from the recognition of previously unbilled or deferred contract value relating to agreements entered into during prior periods. Accordingly, a decline in new or renewal subscription agreements in any quarter is not likely to be reflected immediately in our revenue results for that quarter. Such declines, however, would negatively affect our revenue, and to a lesser extent, deferred revenue balance in future periods, and the effect of significant downturns in sales and market acceptance of our platform and potential changes in our rate of renewals may not be fully reflected in our results of operations until future periods.

If we are not able to maintain and enhance our brand, our business and operating results may be adversely affected.

We believe developing and maintaining widespread awareness of our brand in a cost-effective manner is critical to achieving widespread acceptance of our platform and attracting new customers. Brand promotion activities may not generate customer awareness or increase revenue and, even if they do, any increase in revenue may not offset the expenses we incur in building our brand. If we fail to successfully promote and maintain our brand or incur substantial expenses, we may fail to attract or retain customers necessary to realize a sufficient return on our brand-building efforts or to achieve the widespread brand awareness critical for broad customer adoption of our platform.

If our platform fails to perform properly or there are defects or disruptions in the rollout of our platform updates or enhancements, our reputation could be adversely affected, our market share could decline, and we could be subject to liability claims.

Our platform is inherently complex and may contain material defects or errors. Any defects in functionality, security, or other conditions that cause interruptions in the availability of our platform could result in:

- Loss or delayed market acceptance and sales;
- Breach of warranty claims;
- Sales credits or refunds for prepaid amounts related to unused subscription services;
- Loss of customers;
- Diversion of development and support resources; and/or
- Injury to our reputation.

The costs incurred in correcting any material defects or errors might be substantial and could adversely affect our operating results.

Our customer agreements often provide service level commitments on a monthly basis. If we are unable to meet the stated service level commitments or suffer extended periods of unavailability for our platform, we may be contractually obligated to provide these customers with service credits or refunds for prepaid amounts, or we could face contract terminations. Our revenue could be significantly affected if we suffer unscheduled downtime that exceeds the allowed downtimes under our agreements with our customers.

Because of the large amount of data we collect and manage, it is possible hardware failures or errors in our systems could result in data loss or corruption or cause the information we collect to be incomplete or contain inaccuracies our customers regard as significant. Furthermore, the availability or performance of our platform could be adversely affected by a number of factors, including customers' inability to access the internet, our customers' increased usage of our cloud offering, the failure of our network or software systems, security breaches, or variability in user traffic for our services. For example, our cloud offering customers access our platform through their internet service providers. If a customer's service provider fails to provide sufficient capacity to support our platform or otherwise experiences service outages, such failure could interrupt our customers' access to our platform, adversely affect their perception of our platform's reliability, and reduce our revenue. In addition to potential liability, if we experience interruptions in the availability of our cloud offering, our reputation could be adversely affected, and we could lose customers.

We also provide frequent incremental releases of software updates and functional enhancements to our platform. Despite extensive pre-release testing, such new versions occasionally contain undetected errors when first introduced or released. We have, from time to time, found errors in our software, and new errors in our existing software may be detected in the future. Since our customers use our software for important aspects of their business, any errors, defects, disruptions in our platform, or other performance problems with our solution could hurt our reputation and may damage our customers' businesses. If that occurs, our customers may delay or withhold payment to us, elect not to renew, or make service credit claims, warranty claims, or other claims against us, and we could lose future sales. The occurrence of any of these events could result in an increase in our bad debt expense, an increase in collection cycles for accounts receivable, decreased future revenue and earnings, require us to increase our warranty provisions, or incur the risk or expense of litigation.

We rely upon AWS to operate our cloud offering; any disruption of or interference with our use of AWS would adversely affect our business, results of operations, and financial condition.

We outsource substantially all of the infrastructure relating to our cloud offering to AWS, which hosts our platform on our customers' behalf. Customers of our cloud offering need to be able to access our platform at any time, without interruption or degradation of performance, and we provide them with service level commitments with respect to uptime. AWS runs its own platform we access, and we are, therefore, vulnerable to service interruptions at AWS. We may experience interruptions, delays, and outages in service and availability from time to time as a result of problems with our AWS provided infrastructure, which could render our cloud offering inaccessible to customers. Additionally, AWS has suffered outages at specific customer locations in the past, rendering the customer unable to access our offering for periods of time. Lack of availability of our AWS infrastructure could be due to a number of potential causes including technical failures, natural disasters, fraud, or security attacks we cannot predict or prevent. Such outages could lead to the triggering of our service level agreements and the issuance of credits to our cloud offering customers, which may impact our operating results.

In addition, if the security of the AWS infrastructure is compromised or believed to have been compromised, our business, results of operations, and financial condition could be adversely affected. It is possible our customers and potential customers would hold us accountable for any breach of security affecting the AWS infrastructure, and we may incur significant liability from those customers and from third parties with respect to any breach affecting AWS systems. Because our agreement with AWS limits AWS's liability for damages, we may not be able to recover a material portion of our liabilities to our customers and third parties from AWS. Customers and potential customers may refuse to do business with us because of the perceived or actual failure of our cloud offering as hosted by AWS, and our operating results could be harmed.

Our agreement with AWS allows AWS to terminate the agreement by providing two years' prior written notice and may allow AWS to terminate in case of a breach of contract if such breach is uncured for 30 days or to terminate upon 30 days' advance written notice if AWS's further provision of services to us becomes impractical for legal or regulatory reasons.

Although we expect we could receive similar services from other third parties if any of our arrangements with AWS are terminated, we could experience interruptions on our platform and in our ability to make our platform available to customers, as well as delays and additional expenses in arranging alternative cloud infrastructure services.

Our growth depends in part on the success of our strategic relationships with third parties.

In order to grow our business, we anticipate we will continue to depend on relationships with strategic partners to provide broader customer coverage and solution delivery capabilities. Identifying partners, and negotiating and documenting relationships with them, requires significant time and resources. Our agreements with our strategic partners are non-exclusive and do not prohibit them from working with our competitors or offering competing solutions. Our competitors may be effective in providing incentives to third parties to favor their products or services or to prevent or reduce subscriptions to our services. If our partners choose to place greater emphasis on products of their own or those offered by our competitors or do not effectively market and sell our platform, our ability to grow our business and sell software and professional services may be adversely affected. In addition, acquisitions of our partners by our competitors could result in a decrease in the number of our current and potential customers, as our partners may no longer facilitate the adoption of our platform by potential customers.

If we are unsuccessful in establishing or maintaining our relationships with third parties, our ability to compete in the marketplace or to grow our revenue could be impaired and our operating results may suffer. Even if we are successful, we cannot be sure these relationships will result in increased customer usage of our platform or increased revenue.

Because our long-term growth strategy involves further expansion of our sales to customers outside the United States, our business will be susceptible to risks associated with international operations.

A component of our growth strategy involves the further expansion of our operations and customer base internationally. In 2022, 2021, and 2020, revenue generated from customers outside the United States was 33.5%, 34.0%, and 33.8%, respectively, of our total revenue. We currently operate in Canada, Switzerland, the United Kingdom, France, Germany, the Netherlands, Italy, Australia, Spain, Singapore, Sweden, Japan, Mexico, and India. In the future, we may expand to other international locations. Our current international operations and future initiatives will involve a variety of risks, including:

- Changes in a specific country's or region's political or economic conditions;
- Unexpected changes in regulatory requirements, taxes, or trade laws;
- More stringent regulations relating to data security and the unauthorized use of, or access to, commercial and personal information, particularly in the European Union;
- Differing labor regulations, especially in the European Union, where labor laws are generally more advantageous to employees as compared to the United States, including deemed hourly wage and overtime regulations in these locations;
- Challenges inherent in efficiently managing an increased number of employees over large geographic distances, including the need to implement appropriate systems, policies, benefits, and compliance programs;
- Difficulties in managing a business in new markets with diverse cultures, languages, customs, legal systems, alternative dispute systems, and regulatory systems;
- Increased travel, real estate, infrastructure, and legal compliance costs associated with international operations;
- Currency exchange rate fluctuations and the resulting effect on our revenue and expenses, and the cost and risk of entering into hedging transactions if we choose to do so in the future;
- Limitations on our ability to reinvest earnings from operations in one country to fund the capital needs of our operations in other countries;
- Laws and business practices favoring local competitors or general preferences for local vendors;
- Limited or insufficient levels of protection of our corporate proprietary information and assets, including intellectual property and customer information and records;
- Political instability or terrorist activities;

- Exposure to liabilities under anti-corruption and anti-money laundering laws, including the U.S. Foreign Corrupt Practices Act and similar laws and regulations in other jurisdictions; and
- Adverse tax burdens and foreign exchange controls that could make it difficult to repatriate earnings and cash.

Our limited experience in operating our business internationally increases the risk any potential future expansion efforts we may undertake will not be successful. If we invest substantial time and resources to expand our international operations and are unable to do so successfully and in a timely manner, our business and operating results will suffer.

We may require additional capital to support business growth, and this capital might not be available on acceptable terms, if at all.

We intend to continue to make investments to support our business growth and may require additional funds to respond to business challenges, including the need to develop new features or enhance our platform, improve our operating infrastructure, or acquire complementary businesses and technologies. Accordingly, we may need to engage in equity or debt financings to secure additional funds. 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 Class A common stock. We may not be able to obtain additional financing on terms favorable to us, if at all. If we are unable to obtain adequate financing or financing on terms satisfactory to us when we require it, our ability to continue to support our business growth and to respond to business challenges could be significantly impaired, and our business may be adversely affected.

Pursuant to the terms of our outstanding indebtedness, we may be limited in our ability to incur future debt.

In November 2022, we entered into a Senior Secured Credit Facilities Credit Agreement (as amended from time to time, the “Credit Facility”) with the several banks and other financial institutions or entities from time to time parties to the Credit Facility, as lenders, and Silicon Valley Bank, as administrative agent and collateral agent for the lenders, which provides for a five-year term loan facility in an aggregate principal amount of \$120.0 million and up to \$60.0 million for a revolving credit facility, including a letter of credit sub-facility in the aggregate availability amount of \$15.0 million and a swingline sub-facility in the aggregate availability amount of \$10.0 million (as a sublimit of the revolving loan facility). Our obligations under the Credit Facility are secured by substantially all of our assets.

Pursuant to the terms of the Credit Facility, we are limited in our ability to incur additional indebtedness other than on the terms and conditions thereof. In addition, a failure to comply with the covenants under the Credit Facility could result in an event of default by us and an acceleration of amounts due. If an event of default occurs that is not waived by the lenders, and the lenders accelerate any amounts due, we may not be able to make accelerated payments, and the lender could seek to enforce their security interests in the collateral securing such indebtedness, which could have a material adverse effect on our business and results of operations.

We may not achieve market acceptance of our pre-built solutions, which may adversely impact our financial results.

We have been developing and releasing pre-built solutions on our software platform in order to maximize the value of our platform to our customers and to reduce the sales cycles associated with software sales to new and existing customers. Each solution requires an investment in development, marketing, sales, support, finance, and legal resources to bring the solution to market. Although we make efforts to identify the solutions that will receive favorable market acceptance, there can be no guarantee any solution will become the source of material revenue, and the investment in the solution may not produce a positive return. If unsuccessful, such solutions may adversely impact our financial results to the extent our expenses increase without any increase in sales or to the extent attempted sales of such solutions reduce sales of our existing platform.

If currency exchange rates fluctuate substantially in the future, our financial results, which are reported in U.S. dollars, could be adversely affected.

Generally, contracts executed by our foreign operations are denominated in the currency of that country or region and a portion of our revenue is therefore subject to foreign currency risks. As we continue to expand our international operations, we become more exposed to the effects of fluctuations in currency exchange rates. A strengthening of the U.S. dollar could reduce the dollar value of revenue generated by our customers outside of the United States, adversely affecting our business operations

and financial results. We incur expenses for employee compensation and other operating expenses at our non-U.S. locations in the local currency, and fluctuations in the exchange rates between the U.S. dollar and other currencies could result in the dollar equivalent of such expenses being higher. This could have a negative impact on our reported operating results. To date, we have not engaged in any hedging strategies, and any such strategies such as forward contracts, options, and foreign exchange swaps related to transaction exposures we may implement to mitigate this risk may not eliminate our exposure to foreign exchange fluctuations.

We employ third-party licensed software for use in or with our software, and the inability to maintain these licenses or errors in the software we license could result in increased costs or reduced service levels, which would adversely affect our business.

Our software incorporates certain third-party software obtained under licenses from other companies, including database software from Kx Systems. We anticipate we will continue to rely on such third-party software and development tools from third parties in the future. Although we believe there are commercially reasonable alternatives to the third-party software we currently license, including open source software, this may not always be the case, or it may be difficult or costly to migrate to other third-party software. Our use of additional or alternative third-party software would require us to enter into license agreements with third parties. In addition, integration of the third-party software used in our software with new third-party software may require significant work and require substantial investment of our time and resources. Also, any undetected errors or defects in third-party software could prevent the deployment or impair the functionality of our software, delay new updates or enhancements to our platform, or result in a failure of our platform, injuring our reputation.

If we do not or cannot maintain the compatibility of our platform with third-party applications that our customers use in their businesses, our revenue will decline.

The functionality and attractiveness of our platform depends, in part, on our ability to integrate our platform with third-party applications and platforms, including customer relationship management, human resources information, accounting, and enterprise resource planning systems our customers use and from which they obtain data. Third-party providers of applications and APIs may change the features of their applications and platforms, restrict our access to their applications and platforms, or alter the terms governing use of their applications and APIs and access to those applications and platforms in an adverse manner. Such changes could functionally limit or terminate our ability to use these third-party applications and platforms in conjunction with our platform, which could negatively impact our offerings and harm our business. If we fail to integrate our software with new third-party applications and platforms our customers use, we may not be able to offer the functionality our customers need, which would negatively impact our ability to generate revenue and adversely impact our business.

Catastrophic events may disrupt our business.

Our corporate headquarters are located in northern Virginia. The area around Washington, D.C. could be subjected to domestic or foreign terrorist attacks. Additionally, we rely on our network and third-party infrastructure and enterprise applications, internal technology systems, and our website for our development, marketing, operational support, hosted services, and sales activities. In the event of a major hurricane, earthquake, or catastrophic event such as fire, power loss, telecommunications failure, cyberattack, outbreak of regional or global pandemic diseases, war, or terrorist attack, we may be unable to continue our operations and may endure system interruptions, reputational harm, delays in our software development, lengthy interruptions in our services, breaches of data security, and loss of critical data, all of which could have an adverse effect on our future operating results.

Adverse economic conditions may negatively impact our business.

Our business depends on the overall demand for enterprise software and on the economic health of our current and prospective customers. The economies of countries in Europe have been experiencing weakness associated with high sovereign debt levels, weakness in the banking sector, and uncertainties surrounding the future of the Euro zone. We have operations in the United Kingdom and in Europe and current and potential new customers in Europe. If economic conditions in Europe and other key markets for our platform continue to remain uncertain or deteriorate further, many customers may delay or reduce their information technology spending. This could result in reductions in sales of our platform, a decrease in our renewal rate, longer sales cycles, reductions in subscription duration and value, slower adoption of new technologies, and increased price competition. Any of these events would likely have an adverse effect on our business, operating results, and financial position.

Future acquisitions could disrupt our business and adversely affect our business operations and financial results.

In the past we have chosen and may continue to choose, to expand by acquiring businesses or technologies. Our ability as an organization to successfully acquire and integrate technologies or businesses is unproven. Acquisitions involve many risks, including the following:

- An acquisition may negatively affect our financial results because it may require us to incur charges or assume substantial debt or other liabilities, may cause adverse tax consequences or unfavorable accounting treatment, may expose us to claims and disputes by third parties, including intellectual property claims and disputes, or may not generate sufficient financial return to offset additional costs and expenses related to the acquisition;
- We may encounter difficulties or unforeseen expenditures in integrating the business, technologies, products, personnel, or operations of any company we acquire, particularly if key personnel of the acquired company decide not to work for us;
- An acquisition may disrupt our ongoing business, divert resources, increase our expenses, and distract our management;
- An acquisition may result in a delay or reduction of customer purchases for both us and the company acquired due to customer uncertainty about continuity and effectiveness of service from either company;
- We may encounter difficulties in successfully selling, or may be unable to successfully sell, any acquired solutions;
- An acquisition may involve the entry into geographic or business markets in which we have little or no prior experience or where competitors have stronger market positions;
- Our use of cash to pay for an acquisition would limit other potential uses for our cash; and
- If we incur debt to fund such acquisition, such debt may subject us to material restrictions on our ability to conduct our business as well as financial maintenance covenants.

The occurrence of any of these risks could have a material adverse effect on our business operations and financial results. In addition, we may only be able to conduct limited due diligence on an acquired company's operations. Following an acquisition, we may be subject to unforeseen liabilities arising from an acquired company's past or present operations, and these liabilities may be greater than the warranty and indemnity limitations we negotiate. Any unforeseen liability greater than these warranty and indemnity limitations could have a negative impact on our financial condition.

Risks Related to Regulatory Compliance and Governmental Matters

Failure to comply with governmental laws and regulations could harm our business.

Our business is subject to regulation by various federal, state, local, and foreign governments. In certain jurisdictions, these regulatory requirements may be more stringent than those in the United States. Noncompliance with applicable regulations or requirements could subject us to investigations, sanctions, mandatory product recalls, enforcement actions, disgorgement of profits, fines, damages, civil and criminal penalties, injunctions, or other collateral consequences. If any governmental sanctions are imposed or if we do not prevail in any possible civil or criminal litigation, our business, results of operations, and financial condition could be materially adversely affected. In addition, responding to any action will likely result in a significant diversion of management's attention and resources and an increase in professional fees. Enforcement actions and sanctions could harm our business, reputation, results of operations, and financial condition.

Because our software could be used to collect and store personal information, domestic and international privacy and security concerns could result in additional costs and liabilities to us or inhibit sales of our software and subject us to complex and evolving federal, state, and foreign laws and regulations regarding privacy, data protection, and other related matters.

Personal privacy has become a significant issue in the United States and in many other countries where we offer our software for sale. The regulatory framework for privacy issues worldwide is rapidly evolving and is likely to remain uncertain for the foreseeable future. Many federal, state, and foreign government bodies and agencies have adopted or are considering

adopting laws and regulations regarding the collection, use, storage, and disclosure of personal information and breach notification procedures. Interpretation of these laws, rules, and regulations and their application to our software and professional services in the United States and foreign jurisdictions is ongoing and cannot be fully determined at this time.

In the United States, these include rules and regulations promulgated under the authority of the Federal Trade Commission, the Electronic Communications Privacy Act, the Computer Fraud and Abuse Act, the Health Insurance Portability and Accountability Act of 1996, the Gramm Leach Bliley Act, the California Consumer Privacy Act, or the CCPA, and other state laws relating to privacy and data security. The CCPA, which became effective on January 1, 2020, drastically changes the ability for individuals to control the use of their personal data. It contains detailed requirements regarding collecting and processing personal information, imposes certain limitations on how such information may be used, and provides rights to consumers that have never before been available, all of which may be imposed on us by our customers. This could increase our costs of doing business. Further, the California Privacy Rights Act, or CPRA, which became effective on January 1, 2023, has significantly modified the CCPA, including by expanding consumers' rights with respect to certain sensitive personal information. The CPRA also created a new state agency, the California Privacy Protection Agency, or CPPA, that is vested with authority to implement and enforce the CCPA and the CPRA. New legislation proposed or enacted in various other states will continue to shape the data privacy environment nationally. For example, Virginia passed the Consumer Data Protection Act, which became effective on January 1, 2023 and Colorado passed the Colorado Privacy Act, which becomes effective July 1, 2023, both of which differ from the CPRA. Some of these state laws may be more stringent or broader in scope, or offer greater individual rights, with respect to confidential, sensitive, and personal information than federal, international, or other state laws, and such laws may differ from each other, which may complicate compliance efforts.

Internationally, the European Union has adopted a comprehensive and evolving general data protection regulation, or the GDPR, which contains numerous requirements related to rights of data subjects in their personal data, including more robust obligations on data processors and heavier documentation requirements for data protection compliance programs by companies in general. In addition, absent appropriate safeguards or other circumstances, the EU GDPR generally restricts the transfer of personal data to non-adequate countries outside of the European Economic Area, or EEA, such as the United States, which the European Commission does not consider to provide an adequate level of data privacy and security. The European Commission released a revised set of "Standard Contractual Clauses" in June 2021 that are designed to be a valid mechanism by which entities can transfer personal data out of the EEA to jurisdictions that the European Commission has not found to provide an adequate level of protection. Currently, these new Standard Contractual Clauses are a valid mechanism to transfer personal data outside of the EEA. The revised Standard Contractual Clauses, however, require parties relying upon that legal mechanism to comply with additional obligations, such as conducting transfer impact assessments to determine whether additional security measures are necessary to protect the at-issue personal data. Moreover, due to potential legal challenges, there exists some uncertainty regarding whether the new Standard Contractual Clauses will remain a valid mechanism for transfers of personal data out of the EEA.

Similarly, following Brexit, we are subject to the U.K. General Data Protection Regulation, or U.K. GDPR, a version of the GDPR as implemented into U.K. law that combines the GDPR and the U.K. Data Protection Act of 2018. U.K.-based data exporters are required to use the International Data Transfer Agreement, or IDTA, and the International Data Transfer Addendum to the European Commission's Standard Contractual Clauses, or the U.K. Addendum, as mechanisms to comply with the U.K. GDPR when making restricted international transfers of personal data.

Virtually every jurisdiction in which we operate has established its own data security and privacy legal framework with which we or our customers must comply. Since we are agnostic as to the data uploaded into our cloud offering by our cloud offering customers or processed by our platform in on-premises deployments, we may be hosting or otherwise processing substantial amounts of individually identifiable health information and other types of personally identifiable information. The effects of any of this legislation, and future changes to interpretations of this legislation, could be potentially far-reaching and may require us to modify our data management practices and to incur substantial expense in an effort to comply.

In addition to government regulation, privacy advocates and industry groups may propose new and different self-regulatory standards that may apply to us. Because the interpretation and application of privacy and data protection laws are still uncertain, it is possible these laws and other actual or alleged legal obligations such as contractual or self-regulatory obligations may be interpreted and applied in a manner 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 software, which could have an adverse effect on our business. Any inability to adequately

address privacy or cybersecurity concerns, even if unfounded, or comply with applicable privacy or data protection laws, regulations, and policies, could result in additional cost and liability to us, damage our reputation, inhibit sales, and adversely affect our business.

Furthermore, the costs of compliance with, and other burdens imposed by, the laws, regulations, and policies applicable to the businesses of our customers may limit the use and adoption of, and reduce the overall demand for, our platform. Privacy concerns, whether valid or not valid, may inhibit market adoption of our platform, particularly in certain industries and foreign countries.

If our platform fails to function in a manner allowing our customers to operate in compliance with regulations and/or industry standards, our revenue and operating results could be harmed.

Certain of our customers use our platform to create applications that ensure secure communications given the nature of the content being distributed and associated applicable regulatory requirements. As attitudes towards privacy and data security evolve governmental and other customers may also require our platform to comply with certain privacy, security, and other certifications and standards that are specialized or industry-specific. Our cloud platform holds various security certifications from government agencies and industry organizations, including the Federal Risk and Authorization Management Program, or FedRAMP, compliance and HITRUST certification. It also meets the ISO 27001, Payment Card Industry Data Security Standard, or PCI DSS, and the various United States Health Insurance Portability and Accountability Act, or HIPAA, standards. Governments and industry organizations may also adopt new laws, regulations, or requirements or make changes to existing laws or regulations that could impact the demand for, or value of, our applications such as the European Banking Authority's regulations updated in September 2019 and the CCPA that took effect January 1, 2020. If we fail to maintain our current security certifications and/or to continue to meet security standards, or if we are unable to adapt our platform to changing legal and regulatory standards or other requirements in a timely manner, our customers may lose confidence in our platform, and our business could be negatively impacted.

Changes in laws and regulations related to the internet or changes in the internet infrastructure itself may diminish the demand for our platform and could have a negative impact on our business.

The future success of our business, and particularly our cloud offering, depends upon the continued use of the internet as a primary medium for commerce, communication, and business applications. Federal, state, or foreign government bodies or agencies have in the past adopted, and may in the future adopt, laws or regulations affecting the use of the internet as a commercial medium. Changes in these laws or regulations could require us to modify our platform in order to comply with these changes. In addition, government agencies or private organizations may begin to impose taxes, fees, or other charges for accessing the internet or commerce conducted via the internet. These laws or charges could limit the growth of internet-related commerce or communications generally, resulting in reductions in the demand for internet-based solutions such as ours.

In addition, the use of the internet as a business tool could be adversely affected due to delays in the development or adoption of new standards and protocols to handle increased demands of internet activity, security, reliability, cost, ease of use, accessibility, and quality of service. The performance of the internet and its acceptance as a business tool have been adversely affected by viruses, worms, and similar malicious programs, along with distributed denial of service, or DDoS, and similar attacks. As a result, the internet has experienced a variety of outages and other delays as a result of such damage to or attacks on portions of its infrastructure. If the use of the internet is adversely affected by these issues, demand for our platform could suffer.

We are subject to anti-corruption laws with respect to our domestic and international operations, and non-compliance with such laws can subject us to criminal and/or civil liability and materially harm our business.

We are subject to the U.S. Foreign Corrupt Practices Act of 1977, as amended, or the FCPA, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the United Kingdom Bribery Act 2010, and other anti-corruption laws in countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit our company from authorizing, offering, or providing, directly or indirectly, improper payments or benefits to recipients in the public or private sector. We use third-party law firms, accountants, and other representatives for regulatory compliance, sales, and other purposes in several countries. We can be held liable for the corrupt or other illegal activities of these third-party representatives, our employees, contractors, and other agents, even if we do not explicitly authorize such activities. In addition, although we have

implemented policies and procedures to ensure compliance with anti-corruption laws, there can be no assurance all of our employees, representatives, contractors, or agents will comply with these laws at all times.

Non-compliance with these laws could subject us to whistleblower complaints, 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 certain persons, the loss of export privileges, reputational harm, adverse media coverage, and other collateral consequences. If any subpoenas or investigations are launched, or governmental or other sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation, our business, results of operations, and financial condition could be materially harmed. In addition, responding to any action will likely result in a materially significant diversion of management's attention and resources and significant defense costs and other professional fees. Enforcement actions and sanctions could further harm our business, results of operations, and financial condition. Moreover, as an issuer of securities, we also are subject to the accounting and internal controls provisions of the FCPA. These provisions require us to maintain accurate books and records and a system of internal controls sufficient to detect and prevent corrupt conduct. Failure to abide by these provisions may have an adverse effect on our business, operations, or financial condition.

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

The United States and other countries maintain and administer export and import laws and regulations, including various economic and trade sanctions such as those administered by the Office of Foreign Assets Control, or OFAC, which apply to our business. We are required to comply with these laws and regulations. If we fail to comply with such laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including the possible loss of export or import privileges, fines which may be imposed on us and responsible employees or managers, and, in extreme cases, the incarceration of responsible employees or managers.

Changes in our platform, or changes in applicable export or import laws and regulations, may create delays in the introduction and sale of our platform in international markets or, in some cases, prevent the export or import of our platform to certain countries, governments, or persons altogether. Any change in export or import laws and regulations or economic or trade sanctions, shift in the enforcement or scope of existing laws and regulations, or change in the countries, governments, persons, or technologies targeted by such laws and regulations could also result in decreased use of our platform or in our decreased ability to export or sell our platform to existing or potential customers. Any decreased use of our services or limitation on our ability to export or sell our services would likely adversely affect our business, financial condition, and results of operations.

We incorporate encryption technology into certain of our products. Encryption products may be exported outside of the United States only with the required export authorization, including by license, license exception, or other appropriate government authorization. Obtaining the necessary export license or other authorization for a particular sale may be time-consuming and may result in the delay or loss of sales opportunities. In addition, various countries regulate the import of certain encryption technology, including import permitting and licensing requirements, and have enacted laws that could limit our ability to distribute our products or could limit our customers' ability to implement our products in those countries. Although we take precautions to prevent our products from being provided in violation of such laws, our products may have been in the past, and could in the future, be provided inadvertently in violation of such laws, despite the precautions we take. Governmental regulation of encryption technology and regulation of imports or exports, or our failure to obtain required import or export approval for our products, could harm our international sales and adversely affect our revenue.

Moreover, U.S. export control laws and economic sanctions programs prohibit the provision of services to countries, governments, and persons subject to U.S. economic embargoes and trade sanctions. Even though we take precautions to prevent our platform from being used by U.S. sanctions targets, our platform could be used by a sanctioned person or in an embargoed country despite such precautions. Any such shipment could have negative consequences, including government investigations, penalties, and reputational harm.

Risks Related to Our Intellectual Property

Any failure to protect our proprietary technology and intellectual property rights could substantially harm our business and operating results.

Our success and ability to compete depend in part on our ability to protect our proprietary technology and intellectual property. To safeguard these rights, we rely on a combination of patent, trademark, copyright, and trade secret laws and contractual protections in the United States and other jurisdictions, all of which provide only limited protection and may not now or in the future provide us with a competitive advantage.

As of December 31, 2022, we had 11 issued patents and six pending patent applications related to our platform and its technology. We have registered the “Appian” name and logo in the United States and certain other countries. We have registrations and/or pending applications for additional marks in the United States. We cannot provide assurance that any current or future applications for registrations for patent or trademark applications will result in the grant of any valid, enforceable intellectual property rights. Further, we cannot provide assurance that any granted patent or trademark will provide the protection we seek, will be valid if challenged, or will be sufficiently broad in actions against alleged infringers. Moreover, any of our granted intellectual property rights may be rendered invalid by future changes in the law, defects in our prosecution processes, or preexisting technology, rights, or marks.

In order to protect our unpatented proprietary technologies and processes, we rely on trade secret laws and confidentiality and invention assignment agreements with our employees, consultants, strategic partners, vendors, and others. Despite our efforts to protect our proprietary technology and trade secrets, unauthorized parties may attempt to misappropriate, copy, reverse engineer, or otherwise obtain and use them. In addition, others may independently discover our trade secrets, in which case we would not be able to assert trade secret rights or develop similar technologies and processes. Further, the contractual provisions we enter into may not prevent unauthorized use or disclosure of our proprietary technology or intellectual property rights and may not provide an adequate remedy in the event of any such unauthorized use or disclosure.

Policing unauthorized use of our technologies, trade secrets, and intellectual property is difficult, expensive, and time-consuming, particularly in foreign countries where the laws may not be as protective of intellectual property rights as those in the United States and where mechanisms for enforcement of intellectual property rights may be weak. To the extent we expand our activities outside of the United States, our exposure to unauthorized copying and use of our platform and proprietary information may increase. We may be unable to determine the extent of any unauthorized use or infringement of our platform, technologies, or intellectual property rights.

There can be no assurance the steps we take will be adequate to protect our proprietary technology and intellectual property, that others will not develop or patent similar or superior technologies, products or services, or that our trademarks, patents, and other intellectual property will not be challenged, invalidated, or circumvented by others. Furthermore, effective trademark, patent, copyright, and trade secret protection may not be available in every country in which our software is available or where we have employees or independent contractors.

In order to protect our intellectual property rights, we may be required to spend significant resources to monitor and protect these rights. Litigation brought to protect and enforce our intellectual property rights has been and could be costly, time-consuming, and distracting to management and could result in the impairment or loss of portions of our intellectual property. Furthermore, our efforts to enforce our intellectual property rights may be met with defenses, counterclaims, and countersuits attacking the validity and enforceability of our intellectual property rights. Our failure to secure, protect, and enforce our intellectual property rights could seriously adversely affect our brand and impact our business.

We may be subject to intellectual property rights claims by third parties, which are extremely costly to defend, could require us to pay significant damages, and could limit our ability to use certain technologies.

Companies in the software and technology industries, including some of our current and potential competitors, own significant numbers of patents, copyrights, trademarks, and trade secrets and frequently enter into litigation based on allegations of infringement or other violations of intellectual property rights. In addition, many of these companies have the capability to dedicate substantially greater resources to enforce their intellectual property rights and to defend claims that may be brought against them. The litigation may involve patent holding companies or other adverse patent owners that have no relevant product revenue and against which our patents may therefore provide little or no deterrence. In the past, we have been subject to allegations of patent infringement that were unsuccessful, and we may in the future be subject to claims we have

misappropriated, misused, or infringed other parties' intellectual property rights, and, to the extent we gain greater market visibility or face increasing competition, we face a higher risk of being the subject of intellectual property infringement claims, which is not uncommon with respect to enterprise software companies. We also generally grant our customers ownership of any custom applications we develop for them, subject to our continued ownership of our pre-existing intellectual property rights and, in the past, a customer for whom we have developed custom applications has incorrectly alleged applications we have independently developed infringed the customer's intellectual property rights. In addition, we have in the past, and may in the future, be subject to claims that our employees, contractors, or we ourselves have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of our competitors or other parties. To the extent intellectual property claims are made against our customers based on their usage of our technology, we have certain obligations to indemnify and defend such customers from those claims. The term of our contractual indemnity provisions often survives termination or expiration of the applicable agreement. Large indemnity payments, defense costs, or damage claims from contractual breach could harm our business, results of operations, and financial condition.

There may be third-party intellectual property rights, including issued or pending patents that cover significant aspects of our technologies or business methods. Any intellectual property claims, with or without merit, could be very time-consuming, expensive to settle or litigate, divert our management's attention and other resources, and result in adverse publicity. These claims could also subject us to making substantial payments for legal fees, settlement payments, and other costs or damages, potentially including treble damages if we are found to have willfully infringed patents or copyrights. These claims could also result in our having to stop making, selling, offering for sale, or using technology found to be in violation of a third party's rights. We might be required to seek a license for the third-party intellectual property rights, which may not be available on reasonable terms or at all. Moreover, to the extent we only have a license to any intellectual property used in our platform, there may be no guarantee of continued access to such intellectual property, including on reasonable terms. As a result, we may be required to develop alternative non-infringing technology, which could require significant effort and expense. If a third party is able to obtain an injunction preventing us from accessing such third-party intellectual property rights, or if we cannot license or develop technology for any infringing aspect of our business, we would be forced to limit or stop sales of our software or cease business activities covered by such intellectual property and may be unable to compete effectively. Any of these results would adversely affect our business, results of operations, financial condition, and cash flows.

Portions of our platform utilize open source software, and any failure to comply with the terms of one or more of these open source licenses could negatively affect our business.

Our software contains software licensed to us by third parties under so-called "open source" licenses, including the GNU Lesser General Public License, the BSD License, and others. From time to time, there have been claims against companies that distribute or use open source software in their products and services, asserting such open source software infringes the claimants' intellectual property rights. We could be subject to suits by parties claiming what we believe to be licensed open source software infringes their intellectual property rights. Use and distribution of open source software may entail greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the code. In addition, certain open source licenses require source code for software programs subject to the license be made available to the public and that any modifications or derivative works to such open source software continue to be licensed under the same terms.

Although we monitor our use of open source software in an effort both to comply with the terms of the applicable open source licenses and to avoid subjecting our software to conditions we do not intend, the terms of many open source licenses have not been interpreted by U.S. courts, and there is a risk these licenses could be construed in a way that could impose unanticipated conditions or restrictions on our ability to commercialize our platform. By the terms of certain open source licenses, we could be required to release the source code of our software and to make our software available under open source licenses, if we combine or distribute our software with open source software in a certain manner. In the event portions of our software are determined to be subject to an open source license, we could be required to publicly release the affected portions of our source code, re-engineer all, or a portion of, that software or otherwise be limited in the licensing of our software, each of which could reduce or eliminate the value of our platform. Many of the risks associated with usage of open source software cannot be eliminated and could negatively affect our business, results of operations, and financial condition.

Risks Related to Tax and Accounting Matters

If our estimates or judgments relating to our critical accounting policies prove to be incorrect, our results of operations could be adversely affected.

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions we believe to be reasonable under the circumstances, as provided in Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” of this Annual Report on Form 10-K. The results of these estimates form the basis for making judgments about the carrying values of assets, liabilities, and equity as well as the amount of revenue and expenses. Significant assumptions and estimates used in preparing our consolidated financial statements include those related to revenue recognition, income taxes and the related valuation allowance, stock-based compensation, impairment of goodwill and long-lived assets, and business combinations. Our results of operations may be adversely affected if our assumptions change or if actual circumstances differ from those in our assumptions, which could cause our results of operations to fall below the expectations of securities analysts and investors, resulting in a decline in the trading price of our Class A common stock.

Our operating results may be negatively affected by additional tax liabilities.

We currently collect and remit sales and use, value added, and other transaction taxes in certain of the jurisdictions where we do business based on our assessment of whether tax is owed by us in such jurisdictions. However, in some jurisdictions in which we do business, we do not believe we owe such taxes, and therefore we currently do not collect and remit such taxes or record contingent tax liabilities in those jurisdictions. Further, due to uncertainty in the application and interpretation of applicable tax laws in various jurisdictions, we may be exposed to sales and use, value added, or other transaction tax liability. A successful assertion that we are required to pay additional taxes in connection with sales of our platform, or the imposition of new laws or regulations requiring the payment of additional taxes, would create increased costs and administrative burdens for us. If we are subject to additional taxes and determined to offset such increased costs by collecting and remitting sales taxes from our customers, or otherwise passing those costs through to our customers, companies may be discouraged from using our platform. Any increased tax burden may decrease our ability or willingness to compete in relatively burdensome tax jurisdictions, result in substantial tax liabilities related to past sales, or otherwise harm our business and operating results.

In addition, as a multinational organization, we may be subject to taxation in several jurisdictions around the world with increasingly complex tax laws and the amount of taxes we pay in these jurisdictions could increase substantially as a result of changes in the applicable tax principles, including increased tax rates, new tax laws, or revised interpretations of existing tax laws and precedents. Furthermore, the authorities in these jurisdictions could review our tax returns and impose additional tax, interest, and penalties, and the authorities could claim various withholding requirements apply to us or our subsidiaries or assert benefits of tax treaties are not available to us or our subsidiaries, any of which could have a material impact on us and the results of our operations.

Our ability to use net operating losses to offset future taxable income may be subject to certain limitations.

As of December 31, 2022, we had gross U.S. federal and state net operating loss carryforwards, or NOLs, of \$237.7 million and \$256.3 million, respectively, available to offset future taxable income. NOLs generated in tax years ended on or prior to December 31, 2017 will substantially expire by 2037 if unused. As a result of certain provisions in the Tax Cuts and Jobs Act of 2017, or the TCJA, as modified by the Coronavirus Aid, Relief, and Economic Security Act, or CARES Act, federal NOLs generated in tax years beginning after December 31, 2017 may be carried forward indefinitely but, in the case of tax years beginning after 2020, may only be used to offset 80% of our taxable income annually. Under the provisions of the Internal Revenue Code of 1986, as amended, or the Internal Revenue Code, substantial changes in our ownership may limit the amount of pre-change NOLs that can be utilized annually in the future to offset taxable income. Section 382 of the Internal Revenue Code imposes limitations on a company’s ability to use NOLs if a company experiences a more-than-50-percent ownership change over a three-year testing period. Based upon our analysis as of December 31, 2022, we have determined we do not expect these limitations to impair our ability to use our NOLs prior to expiration. However, if changes in our ownership occur in the future, our ability to use our NOLs may be further limited. For these reasons, we may not be able to utilize a material portion of the NOLs, even if we achieve profitability.

As of December 31, 2022, we also had gross foreign NOLs of \$163.4 million, primarily at our Swiss subsidiary, Appian Software International. We had gross foreign NOL expirations of \$8.1 million in 2022, and a piece of our foreign NOLs will

continue to expire each year if unutilized. If we are limited in our ability to use our NOLs in future years in which we have taxable income, we will pay more taxes than if we were able to fully utilize our NOLs. This could adversely affect our operating results and the market price of our Class A common stock.

Forecasting our estimated annual effective tax rate for financial accounting purposes is complex and subject to uncertainty, and there may be material differences between our forecasted and actual tax rates.

Forecasts of our income tax position and effective tax rate for financial accounting purposes are complex and subject to uncertainty because our income tax position for each year combines the effects of a mix of profits earned and losses incurred by us in various tax jurisdictions with a broad range of income tax rates, as well as changes in the valuation of deferred tax assets and liabilities, the impact of various accounting rules and changes to these rules and tax laws, the results of examinations by various tax authorities, and the impact of any acquisition, business combination, or other reorganization or financing transaction. To forecast our global tax rate, we estimate our pre-tax profits and losses by jurisdiction and forecast our tax expense by jurisdiction. If the mix of profits and losses, our ability to use tax credits, or effective tax rates by jurisdiction is different than those estimated, our actual tax rate could be materially different than forecasted, which could have a material impact on our results of business, financial condition, and results of operations.

We are obligated to develop and maintain proper and effective internal controls over financial reporting, and any failure to maintain the adequacy of these internal controls may adversely affect investor confidence in our company and, as a result, the value of our Class A common stock.

We are required, pursuant to Section 404 of the Sarbanes-Oxley Act, or Section 404, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting on an annual basis. This assessment includes disclosure of any material weaknesses identified by our management in our internal control over financial reporting.

During the evaluation and testing process of our internal controls, if we identify one or more material weaknesses in our internal control over financial reporting, we will be unable to assert our internal control over financial reporting is effective. While we have established certain procedures and controls over our financial reporting processes, we cannot provide assurance these efforts will prevent restatements of our financial statements in the future. Our independent registered public accounting firm is also required, pursuant to Section 404, to attest to and report on management's assessment of our internal control over financial reporting, which report is included elsewhere in this Annual Report on Form 10-K. This assessment is required to include disclosure of any material weaknesses identified by our management in our internal control over financial reporting. For future reporting periods, our independent registered public accounting firm may issue a report that is adverse in the event it is not satisfied with the level at which our controls are documented, designed, or operating. We may not be able to remediate any future material weaknesses or to complete our evaluation, testing, and any required remediation in a timely fashion.

Any failure to maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition or results of operations. If we are unable to conclude our internal control over financial reporting is effective, or if our independent registered public accounting firm determines we have a material weakness in our internal control over financial reporting, we could lose investor confidence in the accuracy and completeness of our financial reports, the market price of our Class A common stock could decline, and we could be subject to sanctions or investigations by the Nasdaq Stock Market, the SEC, or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting or to implement or maintain other effective control systems required of public companies could also restrict our future access to the capital markets.

Risks Related to Our Class A Common Stock

The dual class structure of our common stock and the existing ownership of capital stock by Matt Calkins, our founder and Chief Executive Officer, has the effect of concentrating voting control with Mr. Calkins for the foreseeable future, which will limit the ability of others to influence corporate matters.

Our Class B common stock has ten votes per share, and our Class A common stock has one vote per share. Given the greater number of votes per share attributed to our Class B common stock, our Class B stockholders collectively beneficially owned shares representing approximately 88% of the voting power of our outstanding capital stock as of December 31, 2022. Further, Mr. Calkins, our founder and Chief Executive Officer, together with his affiliates, collectively beneficially owned

shares representing approximately 81% of the voting power of our outstanding capital stock as of December 31, 2022. Consequently, Mr. Calkins, together with his affiliates, is able to control a majority of the voting power even if their stock holdings represent as few as approximately 24% of the outstanding number of shares of our common stock. This concentrated control will limit the ability of others to influence corporate matters for the foreseeable future. For example, Mr. Calkins will be able to control elections of directors, amendments of our certificate of incorporation or bylaws, increases to the number of shares available for issuance under our equity incentive plans or adoption of new equity incentive plans, and approval of any merger or sale of assets for the foreseeable future. This concentrated control could also discourage a potential investor from acquiring our Class A common stock due to the limited voting power of such stock relative to the Class B common stock and might harm the market price of our Class A common stock. In addition, Mr. Calkins has the ability to control the management and major strategic investments of our company as a result of his position as our Chief Executive Officer and his ability to control the election or replacement of our directors. As a board member and officer, Mr. Calkins owes a fiduciary duty to our stockholders and must act in good faith in a manner he reasonably believes to be in the best interests of our stockholders. However, as a stockholder, even a controlling stockholder, Mr. Calkins is entitled to vote his shares, and shares over which he has voting control, in his own interests, which may not always be in the interests of our stockholders generally.

Future transfers by Mr. Calkins and other holders of Class B common stock will generally result in those shares converting on a 1:1 basis to Class A common stock, which will have the effect, over time, of increasing the relative voting power of those holders of Class B common stock who retain their shares in the long-term.

We do not intend to pay dividends on our common stock for the foreseeable future so any returns will depend on appreciation in the price of our Class A common stock.

We have never declared or paid any cash dividends on our common stock, and we do not intend to pay any cash dividends in the foreseeable future. Although we paid a cash dividend in connection with the conversion of our Series A preferred stock to Class B common stock immediately prior to the closing of the IPO, which was agreed to at the time of the original issuance of the Series A preferred stock, we anticipate we will retain all of our future earnings for use in the development of our business and for general corporate purposes. Additionally, our ability to pay dividends on our common stock is limited by restrictions under the terms of our credit agreement with Silicon Valley Bank. Any determination to pay dividends in the future will be at the discretion of our Board of Directors. Accordingly, investors must rely on sales of their Class A common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us more difficult, limit attempts by our stockholders to replace or remove our current management, and limit the market price of our Class A common stock.

In addition to the effects of our dual class structure, provisions in our amended and restated certificate of incorporation and amended and restated bylaws may have the effect of delaying or preventing a change in control or changes in our management. Our amended and restated certificate of incorporation and amended and restated bylaws include provisions that may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our Board of Directors, which is responsible for appointing the members of our management. In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which generally prohibit a Delaware corporation from engaging in any of a broad range of business combinations with any “interested” stockholder for a period of three years following the date on which the stockholder became an “interested” stockholder. Any of the foregoing provisions could limit the price investors might be willing to pay in the future for shares of our Class A common stock, and they could deter potential acquirers of our company, thereby reducing the likelihood a stockholder would receive a premium for its shares of our Class A common stock in an acquisition.

Our amended and restated certificate of incorporation designates the Court of Chancery of the State of Delaware as the exclusive forum for certain litigation that may be initiated by our stockholders, which could limit our stockholders’ ability to obtain a favorable judicial forum for disputes with us and limit the market price of our Class A common stock.

Pursuant to our amended and restated certificate of incorporation, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be 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 owed by any of our directors, officers, or other employees to us or our stockholders, (3) any action asserting a claim arising pursuant to any

provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation, or our amended and restated bylaws, or (4) any action asserting a claim governed by the internal affairs doctrine. Our amended and restated certificate of incorporation also provides the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. Our amended and restated certificate of incorporation further provides any person or entity purchasing or otherwise acquiring any interest in shares of our Class A common stock is deemed to have notice of and consented to the foregoing provisions. The forum selection clause in our amended and restated certificate of incorporation may limit our stockholders' ability to obtain a favorable judicial forum for disputes with us and limit the market price of our Class A common stock.

General risk factors

Unfavorable conditions in the global economy or the vertical markets we serve could limit our ability to grow our business and negatively affect our operating results.

General worldwide economic conditions have experienced significant instability due to the global economic uncertainty and financial market conditions caused by the COVID-19 pandemic and the ongoing Russia-Ukraine war. In addition, inflation rates have recently risen to historically high levels. The existence of inflation in the U.S. and global economy has, and may continue to result in, higher interest rates and capital costs, increased costs of labor, fluctuating exchange rates, and other similar effects.

These conditions make it extremely difficult for customers and us to accurately forecast and plan future business activities and could cause customers to reduce or delay their software spending. At this time, the potential impact on customer spend from an economic slowdown is difficult to predict and, therefore, it is not possible to fully determine the impact on our future results. Historically, economic downturns have resulted in overall reductions in software spending. If macroeconomic conditions deteriorate or are characterized by uncertainty or volatility, customers may curtail or freeze spending on software in general and for software such as ours specifically, which could have an adverse impact on our business, financial condition, and operating results.

We have historically generated a majority of our revenue from customers in the financial services, government, and life sciences verticals. While these verticals have not been affected as severely by weak economic conditions as the retail, hospitality, and entertainment industries, we cannot provide assurance these verticals will not suffer more severe losses in the future. Furthermore, we cannot predict the timing, strength, or duration of any economic slowdown or recovery. In addition, even if the overall economy is robust, we cannot provide assurance the market for services such as ours will experience growth or that we will experience growth.

Our stock price has been volatile and may be volatile in the future.

The market price of our Class A common stock has been volatile and may continue to fluctuate substantially as a result of a variety of factors. Since shares of our Class A common stock were sold in our initial public offering, or IPO, in May 2017 at a price of \$12.00 per share, our stock price has ranged from an intraday low of \$14.60 to an intraday high of \$260.00 through February 13, 2023. Factors that may affect the market price of our Class A common stock and our ability to raise capital through the sale of additional equity securities include:

- Actual or anticipated fluctuations in our financial condition and operating results;
- Variance in our financial performance from expectations of securities analysts;
- Changes in the prices of subscriptions to our platform;
- Changes in our projected operating and financial results;
- Changes in laws or regulations applicable to our platform;
- Announcements by us or our competitors of significant business developments, acquisitions, or new offerings;
- Our involvement in any litigation;
- Our sale of our Class A common stock or other securities in the future;

- Changes in senior management or key personnel;
- The trading volume of our Class A common stock;
- Trading activity by any of our four large stockholders who collectively owned approximately 42% of our publicly traded Class A common stock as of December 31, 2022;
- Changes in the anticipated future size and growth rate of our market; and
- General economic, regulatory, and market conditions.

The stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies, particularly during this time of uncertainty with increasing interest rates, inflation, and the prospects of a recession. These fluctuations have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry fluctuations, as well as general economic, political, regulatory, and market conditions, may negatively impact the market price of our Class A common stock. In the past, companies that have experienced volatility in the market price of their securities have been subject to securities class action 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.

If securities or industry analysts do not publish research or reports about our business, or publish negative reports about our business, our stock price and trading volume could decline.

The trading market for our Class A common stock depends, in part, on the research and reports securities or industry analysts publish about us or our business. We do not have any control over these analysts. If our financial performance fails to meet analyst estimates or one or more of the analysts who cover us downgrade our shares or change their opinion of our shares, our share price would likely decline. If one or more of these analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

As of December 31, 2022, our corporate headquarters occupies approximately 272,000 square feet in McLean, Virginia under an operating lease that expires in October 2031. Approximately 32,000 square feet of headquarters space is subleased. We also lease space in the United Kingdom, Italy, Australia, and Spain under operating lease agreements with various expiration dates through 2028. In addition, we utilize flexible workspaces depending on the occupancy needs in each of the countries we operate in. We believe our facilities are suitable and adequate to meet our needs.

Item 3. Legal Proceedings.

Pegasystems Litigation

On May 29, 2020, we filed a civil complaint against Pegasystems, Inc. (“Pegasystems”) and Youyong Zou, a Virginia resident, in the Circuit Court for Fairfax County, Virginia. *Appian Corp v. Pegasystems Inc. & Youyong Zou*, No. 2020-07216 (Fairfax Cty. Ct.). On May 10, 2022, we announced the jury awarded us \$2.036 billion in damages for misappropriation of our trade secrets and \$1 in damages for violating the Virginia Computer Crimes Act. Pegasystems filed several post-trial motions seeking relief in the form of reducing the damages award or setting aside the jury’s verdict and either granting a new trial or entering judgment in Pegasystems’ favor. All of these motions were denied, and final judgment was entered by the Court on September 15, 2022. The final judgment reaffirmed the \$2.036 billion in damages and also ordered Pegasystems to pay Appian \$23.6 million in attorney’s fees associated with the case as well as statutory post-judgment interest on the judgment at an annual rate of 6%, or approximately \$122.0 million per year.

Defendant Youyong Zou has satisfied the judgment of \$5,000 (plus interest) against him in lieu of appealing that judgment. On September 15, 2022, Pegasystems filed a notice of appeal, and on February 6, 2023, Pegasystems filed its opening brief with the Court of Appeals of Virginia. Appian expects to file its responsive brief in March 2023, to which Pegasystems will file a reply brief. After submission of the reply brief, the timeline of the case is solely within the control of the Court of Appeals until it rules. Pegasystems is not required to pay us the judgment, attorney’s fees, or post-judgment interest until all appeals are exhausted. We cannot predict the outcome of any appeals or the time it will take to resolve them. Consistent with other judgments, there is no guarantee we will be able to collect all or any portion of the judgment.

Other Matters

From time to time, we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. Other than as disclosed elsewhere in this Annual Report, we are not presently a party to any legal proceedings that, if determined adversely to us, would individually or taken together have a material adverse effect on our business, operating results, financial condition, or cash flows. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management time and resources, and other factors.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

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

Market Information

Our Class A common stock is listed on the Nasdaq Global Market under the symbol "APPN". Our Class B common stock is not listed or traded on any stock exchange.

As of February 13, 2023, there were 19 holders of record of our Class A common stock and 34 holders of record of our Class B common stock. Because many of our shares of Class A common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividends

We have never declared or paid, and do not anticipate declaring or paying in the foreseeable future, any cash dividends on our common stock. Any future determination as to the declaration and payment of dividends, if any, will be at the discretion of our Board of Directors, subject to applicable laws, and will depend on then existing conditions, including our financial condition, operating results, contractual restrictions, capital requirements, business prospects, and other factors our Board of Directors may deem relevant.

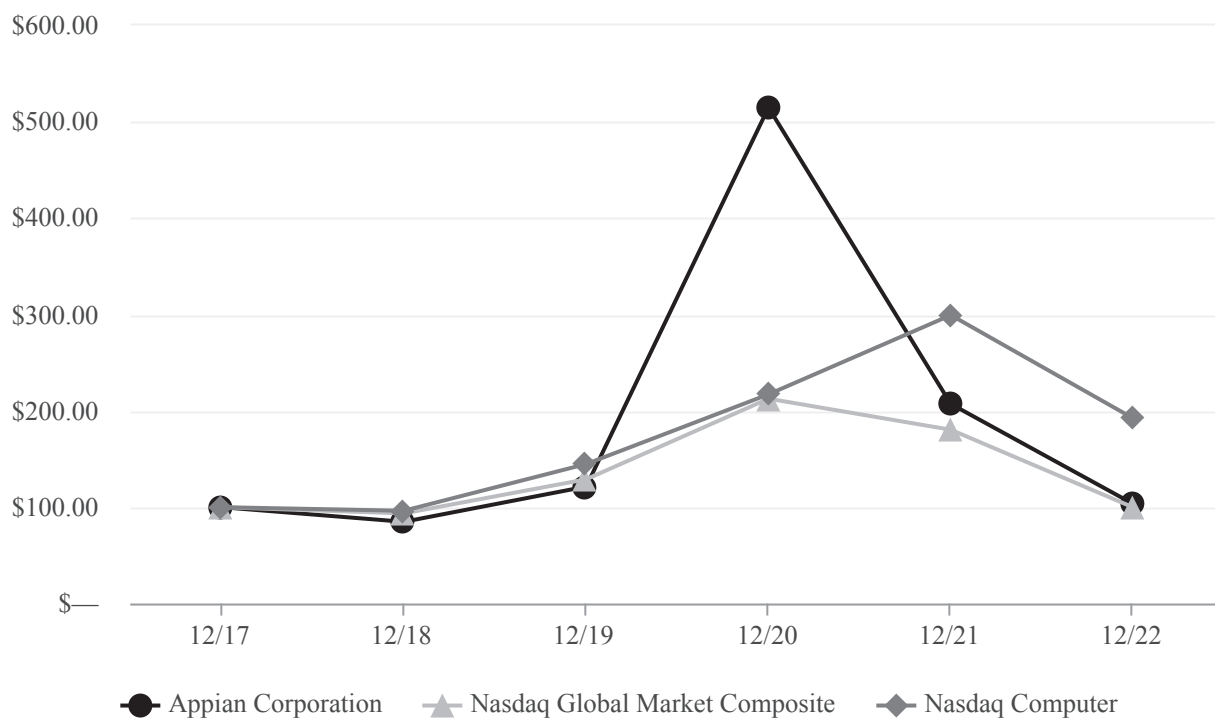
Stock Performance Graph

This section is not deemed “filed” with the SEC and shall not be deemed incorporated by reference into any of our other filings under the Exchange Act or the Securities Act, irrespective of any general incorporation language in any such filing.

The following graph shows a comparison from December 31, 2017 through December 31, 2022, of the cumulative five year total return for an investment of \$100 in our Class A common stock, the Nasdaq Global Market Composite Index, and the Nasdaq Computer Index. Data for the Nasdaq Global Market Composite Index and the Nasdaq Computer Index assume reinvestment of any dividends. The comparisons in the graph below are based upon historical data and are not indicative of, nor intended to forecast, future performance of our common stock.

Comparison of Cumulative Five Year Total Return

Among Appian Corporation, the Nasdaq Global Market Composite Index, and the Nasdaq Computer Index



	As of December 31,					
	2017	2018	2019	2020	2021	2022
Appian Corporation	\$ 100.00	\$ 84.85	\$ 121.38	\$ 514.90	\$ 207.15	\$ 103.43
Nasdaq Global Market Composite	\$ 100.00	\$ 93.55	\$ 128.97	\$ 212.65	\$ 180.40	\$ 99.84
Nasdaq Computer	\$ 100.00	\$ 96.32	\$ 144.80	\$ 217.17	\$ 299.39	\$ 192.28

Purchase of Equity Securities by the Issuer and Affiliated Purchases

Period	Total number of shares purchased ⁽¹⁾	Average price paid per share	Total number of shares purchased as part of publicly announced plan	Maximum number of shares that may yet be purchased under the plan ⁽²⁾
October 1 to October 31, 2022	5,220	\$ 44.09	5,220	941,935
November 1 to November 30, 2022	4,517	\$ 49.22	4,517	937,418
December 1 to December 31, 2022	5,413	\$ 38.03	5,413	932,005
Total	<u>15,150</u>	<u>\$ 43.45</u>	<u>15,150</u>	<u>932,005</u>

⁽¹⁾ Shares purchased represent shares purchased on the open market pursuant to the Appian Corporation Employee Stock Purchase Plan ("ESPP"), which was approved by the Company's stockholders on June 11, 2021. The ESPP provides employees an opportunity to purchase the Company's common stock through payroll deductions at 85% of the stock's fair market value. The Company satisfies its ESPP obligation by purchasing the additional 15% of the stock's fair value on the open market. Shares purchased under the ESPP are deposited into the participants' accounts.

⁽²⁾ Because the number of shares that may be purchased under the ESPP depends on each employee's voluntary election to participate and contribution elections and on the fair market value of our Class A Common Stock at various future dates, the actual number of shares that may be purchased under the plan cannot be determined in advance. We have filed a registration statement on S-8 that covers 1,000,000 shares.

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 our consolidated financial statements and related notes included elsewhere in 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, and beliefs. Our actual results could differ materially from those contained in or implied by any forward-looking statements. Factors that could cause or contribute to these differences include those under "Risk Factors" included in Part I, Item 1A or in other parts of this Annual Report on Form 10-K.

Overview

Appian is a software company that automates business processes. The Appian Platform includes everything you need to design, automate, and optimize even the most complex processes, from start to finish. The world's most innovative organizations trust Appian to improve their workflows, unify data, and optimize operations—resulting in better growth and superior customer experiences.

We have generated the majority of our revenue from sales of subscriptions, which include (1) cloud subscriptions bundled with maintenance and support and hosting services and (2) term license subscriptions bundled with maintenance and support. Our subscription contracts are priced based primarily on the number of users who access and utilize the applications built on our platform or, alternatively, non-user based single application licenses. Our subscription contract terms generally vary from one to three years with most providing for payment in advance on an annual, quarterly, or monthly basis. Due to the variability of our billing terms and the episodic nature of our customers purchasing additional subscriptions, we do not believe changes in our deferred revenue in a given period are directly correlated with our revenue growth.

We have invested in our Customer Success organization to help ensure customers are able to build and deploy applications on our platform. We have several strategic partnerships, including with KPMG, Accenture, PwC, EY, Infosys, Wipro, and Deloitte, which allow them to refer customers to us in order to purchase subscriptions and then our partners provide professional services directly to the customers using our platform. We intend to further grow our base of strategic partners to provide broader customer coverage and solution delivery capabilities. In addition, over time we expect our professional services revenue as a percentage of total revenue to decline as we increasingly rely on strategic partners to help our customers deploy our software. We believe our investment in professional services, including strategic partners building their practices around Appian, will drive increased adoption of our platform.

As of December 31, 2022, we had 925 customers in a variety of industries, of which 712 customers were commercial and 213 customers were government or non-commercial entities. Our customers include financial services, government, life sciences, insurance, manufacturing, energy, healthcare, telecommunications, and transportation organizations. Generally, our sales team targets its efforts to organizations with over 2,000 employees and \$2 billion in annual revenue. Revenue from government agencies represented 19.2%, 19.6%, and 18.1% of our total revenue in 2022, 2021, and 2020, respectively. No single end-customer accounted for more than 10% of our total revenue in 2022, 2021, and 2020.

We offer our platform globally. Our platform supports multiple languages to facilitate collaboration and address challenges in multinational organizations. In 2022, 2021, and 2020, 33.5%, 34.0%, and 33.8%, respectively, of our total revenue was generated from customers outside of the United States. As of December 31, 2022, we operated in 15 countries. We believe we have a significant opportunity to continue to grow our international footprint. We are investing in new geographies, including through investment in direct and indirect sales channels, professional services, and customer support and implementation partners.

We have experienced strong revenue growth, with revenue of \$468.0 million, \$369.3 million, and \$304.6 million in 2022, 2021, and 2020, respectively. Our subscriptions revenue was \$340.2 million, \$263.7 million, and \$198.7 million in 2022, 2021, and 2020, respectively, and includes sales of our cloud subscriptions, on-premises term license subscriptions, and maintenance and support. Our cloud subscription revenue was \$236.9 million, \$179.4 million, and \$129.2 million in 2022, 2021, and 2020, respectively.

We have invested in developing our platform, expanding our sales and marketing and research and development capabilities, and providing general and administrative resources to support our growth. We intend to continue to invest in our

business to take advantage of our market opportunity. As a result, we incurred net losses of \$150.9 million, \$88.6 million, and \$33.5 million in 2022, 2021, and 2020, respectively. We also used cash in operations of \$106.6 million, \$53.9 million, and \$7.6 million in 2022, 2021, and 2020, respectively.

Our Business Model

Our business model focuses on maximizing the lifetime value of customer relationships, which is a function of the duration of a customer's deployment of our platform as well as the price and number of subscriptions of our platform a customer purchases. We incur significant customer acquisition costs, including expenses associated with hiring new sales representatives, who can take anywhere from six months to a year to become productive given the length of our sales cycle, and marketing costs, with the exception of sales commissions, are expensed as incurred.

At the same time, we believe the costs we incur to retain customers and drive additional purchases of software are lower than our customer acquisition costs on a relative basis. Over time, we expect a large portion of our customers to renew their subscriptions and purchase additional subscriptions as they continue to build more applications and add more users to our platform. Over the last three completed fiscal years, we had an average cloud subscription gross revenue renewal rate of 99%, which is calculated by dividing (i) the cloud subscription revenue from renewing cloud customers in the current 12-month period that were cloud customers during the entirety of the prior 12-month period, giving effect to price increases but excluding additional cloud subscription for additional users, or upsells, by (ii) our cloud subscription revenue from all cloud customers in the corresponding prior 12-month period that were cloud customers during the entirety of such prior 12-month period.

We measure the effectiveness of our business model by comparing the lifetime value of our customer relationships to our customer acquisition costs. On a rolling 12-month basis, we estimate that for each of the past five fiscal years, the average lifetime value of a customer has exceeded 7x the associated average cost of acquiring them, including the year ended December 31, 2022.

Key Factors Affecting Our Performance

The following are several key factors that affect our performance:

- **Market Adoption of Our Platform.** Our ability to grow our customer base and drive market adoption of our platform is affected by the pace at which organizations digitally transform. We expect our revenue growth will be primarily driven by the pace of adoption and penetration of our platform. We offer a leading custom software platform and intend to continue to invest to expand our customer base. The degree to which prospective customers recognize the need for our software platform that enables organizations to digitally transform, and subsequently allocate budget dollars to purchase our software, will drive our ability to acquire new customers and increase sales to existing customers, which, in turn, will affect our future financial performance.
- **Growth of Our Customer Base.** We believe we have a substantial opportunity to grow our customer base. We define a customer as an entity with an active subscription or maintenance and support contract or a legacy perpetual license as of the specified measurement date. Furthermore, we define a new customer as an entity that has entered into its first active subscription or maintenance and support contract within one calendar year of the specified measurement date while existing customers are defined as entities that have maintained an active subscription or maintenance and support contract for at least one calendar year from the specified measurement date. Legacy customers from entities acquired in business combinations are not counted as new customers until they enter into a new active subscription or maintenance and support contract with us subsequent to the completion of the business combination. Additionally, to the extent we contract with one or more entities under common control, we count those entities as separate customers.

We have aggressively invested, and intend to continue to invest, in our sales team in order to drive sales to new customers. We continue to make investments to enhance the expertise of our sales and marketing organization within our key industry verticals of financial services, government, and life sciences. In addition, we have established relationships with strategic partners who work with organizations undergoing digital transformations. We had a total customer count of 925, 816, and 693 as of December 31, 2022, 2021, and 2020, respectively. Our number of customers with active software subscription agreements was 896, 783, and 654 as of December 31, 2022, 2021, and 2020,

respectively. Our ability to continue to grow our customer base is dependent, in part, upon our ability to differentiate ourselves within the increasingly competitive markets in which we participate.

- **Further Penetration of Existing Customers.** Our sales team seeks to generate additional revenue from existing customers by adding new users to our platform. Many of our customers begin by building a single application and then grow to build dozens of applications on our platform. Generally, the development of new applications on our platform results in the expansion of our user base within an organization and a corresponding increase in revenue. As a result of this “land and expand” strategy, we have generated significant additional revenue from our customer base. Our ability to increase sales to existing customers will depend on a number of factors, including the size of our sales and professional services teams, customers’ level of satisfaction with our platform and professional services, pricing, economic conditions, and our customers’ overall spending levels. We have also re-focused some of our professional services personnel to become customer success managers. Their role is to ensure customers realize value from our platform and support strategic partners and the “land and expand” strategy versus delivering billable hours.
- **Mix of Subscriptions and Professional Services Revenue.** We believe our professional services have driven customer success and facilitated the adoption of our platform by customers. During the initial period of deployment by a customer, we generally provide a greater amount of support in building applications and training than later in the deployment, with a typical engagement lasting from two to six months. At the same time, many of our customers have historically purchased subscriptions only for a limited set of their total potential end users. As a result of these factors, the proportion of total revenue for a customer associated with professional services is relatively high during the initial deployment period. Over time, as the need for professional services associated with user deployments decreases and the number of end users increases, we expect subscriptions revenue as a percentage of total revenue to increase. In addition, we continue to grow our base of strategic partners to provide broader customer coverage and solution delivery capabilities. These partners perform professional services with respect to any new service contracts they originate. As the usage of partners expands, we expect the proportion of our total revenue from subscriptions to increase over time relative to professional services. In 2022, 2021, and 2020, 72.7%, 71.4%, and 65.2% of our revenue, respectively, was derived from sales of subscriptions, while the remaining 27.3%, 28.6%, and 34.8%, respectively, was derived from the sale of professional services.
- **Investments in Growth.** We have made, and plan to continue to make, investments for long-term growth, including investing in our platform and infrastructure to continuously maximize their power and speed, meet the evolving needs of our customers, and take advantage of our market opportunity. In addition, we continue to pursue strategic acquisitions that enhance our product offerings. We also intend to continue to invest in sales and marketing as we further expand our sales teams, increase our marketing activities, and grow our international operations.

Seasonality

We have historically experienced seasonality in terms of when we enter into agreements with customers. We typically enter into a significantly higher percentage of agreements with new customers, as well as renewal agreements with existing customers, in the fourth quarter. The increase in customer agreements for the fourth quarter is attributable to large enterprise account buying patterns typical in the software industry. Furthermore, we usually enter into a significant portion of agreements with customers during the last month of each quarter, and often the last two weeks of each quarter. However, we recognize the majority of our subscriptions revenue ratably over the terms of our subscription agreements, which are generally one to three years in length. As a result, a substantial portion of the subscriptions revenue we report in each period will be derived from the recognition of deferred revenue relating to agreements entered into during previous periods. Consequently, a decline in new sales or renewals in any one period may not be immediately reflected in our revenue results for that period. Such a decline, however, will negatively affect our revenue in future periods. Accordingly, the effect of significant downturns in sales and market acceptance of our platform and potential changes in our rate of renewals may not be fully reflected in our results of operations until future periods.

While we will continue to recognize the majority of our subscriptions revenue ratably over the terms of our subscription agreements, we may experience greater variability and reduced comparability of our quarterly revenue and results with respect to the timing and nature of our term license subscription agreements due to the upfront revenue recognition. See Note 3 to the consolidated financial statements for further details on our revenue recognition policies.

Key Metrics

We monitor the following metrics to help us measure and evaluate the effectiveness of our operations. All dollar amounts are presented in thousands.

Cloud Subscription Revenue

	Year Ended December 31,		
	2022	2021	2020
Cloud subscription revenue	\$ 236,922	\$ 179,415	\$ 129,219

Cloud subscription revenue includes cloud subscriptions bundled with maintenance and support and hosting services. In 2022, 2021, and 2020, 69.7%, 68.0%, and 65.0%, respectively, of subscriptions revenue was cloud subscription revenue. Our cloud subscription revenue for any customer is primarily determined by the number of users who access and utilize the applications built on our platform or by the number of application licenses purchased, as well as the price paid. We believe increasing cloud subscription revenue is an indicator of the demand for our platform, the pace at which the market for our solutions is growing, the productivity of our sales team and strategic relationships in growing our customer base, and our ability to further penetrate our existing customer base.

Cloud Subscription Revenue Retention Rate

	As of December 31,		
	2022	2021	2020
Cloud subscription revenue retention rate	115 %	116 %	119 %

A key factor to our success is the renewal and expansion of subscription agreements with our existing customers. We calculate this metric over a set of customers who have been with us for at least one full year. To calculate our cloud subscription revenue retention rate for a particular trailing 12-month period, we first establish the recurring cloud subscription revenue for the previous trailing 12-month period. This effectively represents recurring dollars we should expect in the current trailing 12-month period from the cohort of customers from the previous trailing 12-month period without any expansion or contraction. We subsequently measure the recurring cloud subscription revenue in the current trailing 12-month period from the cohort of customers from the previous trailing 12-month period. Cloud subscription revenue retention rate is then calculated by dividing the aggregate recurring cloud subscription revenue in the current trailing 12-month period by the previous trailing 12-month period. This calculation includes the combined impact on our revenue from customer non-renewals, pricing changes, and growth in the number of users on our platform. Our cloud subscription revenue retention rate can fluctuate from period to period due to large customer contracts in any given period.

Key Components of Results of Operations

We generate revenue primarily through sales of subscriptions to our platform as well as professional services. We generally sell our software on a per-user basis or through non-user based single application licenses. We generally bill customers and collect payment for subscriptions to our platform in advance on an annual, quarterly, or monthly basis. In certain instances, we have had customers pay their entire contract value up front.

Revenue

Our revenue is comprised of the following:

Subscriptions

Subscriptions revenue is primarily derived from cloud subscriptions bundled with maintenance and support and hosting services and on-premises term license subscriptions bundled with maintenance and support. Our maintenance and support agreements provide customers with the right to unspecified software upgrades, maintenance releases and patches released

during the term of the maintenance and support agreement on a when-and-if-available basis, and rights to technical support. On-premises term license subscriptions are offered when the customer prefers to self-manage the deployment of our platform within their own infrastructure. When our platform is delivered as a cloud subscription, we manage operational needs in third-party hosted data centers.

Professional Services

Our professional services revenue is comprised of fees for consulting services, including application development, deployment assistance, and training related to our platform. Over time, we expect professional services revenue as a percentage of total revenue to decrease as the usage of our partner network expands.

Cost of Revenue

Subscriptions

Cost of subscriptions revenue consists primarily of fees paid to our third-party managed hosting providers and other third-party service providers, personnel costs, including payroll and benefits for our technology operations and customer support teams, amortization of developed technology, and allocated overhead costs. We expect cost of revenue to continue to increase in absolute dollars for the foreseeable future as our customer base grows.

Professional Services

Cost of professional services revenue includes all direct and indirect costs to deliver our professional services and training, including employee compensation for our global professional services and training personnel, third-party contractor costs, allocated overhead costs, and the costs of billable expenses such as travel and lodging. The unpredictability of the timing of providing services related to significant professional services agreements sold on a standalone basis may cause significant fluctuations in our cost of professional services which, in turn, may impact our financial results.

Gross Profit and Gross Margin

Gross profit and gross margin (defined as gross profit as a percentage of total revenue), have been, and will continue to be, affected by various factors, including the mix of cloud subscriptions and on-premises term license subscriptions, the mix of total subscriptions revenue and professional services revenue, subscription pricing, the costs associated with third-party hosting providers, and the extent to which we expand our professional services to support future growth. Our gross margin may fluctuate from period to period based on the above factors.

Subscriptions Gross Margin

Subscriptions gross margin is primarily affected by the growth in our subscriptions revenue as compared to the growth in, and timing of, costs to support such revenue. We expect to continue to invest in customer support and cloud operations to support growth in our business, and the timing of those investments is expected to cause subscriptions gross margin to fluctuate on a quarterly basis.

Professional Services Gross Margin

Professional services gross margin is affected by the growth in our professional services revenue as compared to the growth in, and timing of, the cost of our Customer Success organization as we continue to invest in the growth of our business. Professional services gross margin is also impacted by the amount of services performed by subcontractors and partners as opposed to internal resources. In 2021, we had a lower usage of subcontractors and performed fewer in-person professional services engagements and deployments, both of which reduced certain classes of expenses and improved professional services margins. In 2022, these margins began to decline. In 2023, we expect professional services gross margin to be consistent with 2022; however, the margin remains subject to fluctuation based on the factors discussed above.

Operating Expenses

Operating expenses consist of sales and marketing, research and development, and general and administrative expenses. Personnel-related costs such as salaries, bonuses, commissions, payroll tax payments, and stock-based compensation expense are the most significant components of each of these expense categories. Other components of each category include professional fees for third-party services such as contract labor, legal, software development resources, and consulting as well as allocated overhead costs, which can include, among other types of costs, facility costs, travel and entertainment expenditures, human resources costs such as placement fees, referral bonuses, training costs, and employee relations spending, office-related expenditures, and information technology costs for such items as infrastructure, software, and cloud computing services.

In general, our operating expenses are expected to continue to increase in absolute dollars as we invest resources in growing our various teams. Our total employee headcount grew from 1,798 employees at December 31, 2021 to 2,307 employees at December 31, 2022. We expect to continue to hire new employees in order to support our anticipated revenue growth, although at a more measured rate than prior years.

Sales and Marketing Expense

Sales and marketing expense primarily includes personnel costs, including salaries, bonuses, commissions, stock-based compensation, and other personnel costs related to sales teams. Additional major expenses in this category include travel and entertainment, marketing activities and promotional events, subcontracting fees, and allocated overhead costs.

The number of employees in sales and marketing functions grew from 552 at December 31, 2021 to 730 at December 31, 2022. In order to continue to grow our business, geographical footprint, and brand awareness, we expect to continue investing resources in sales and marketing by increasing the number of sales and account management teams. As a result, we expect sales and marketing expense to increase in absolute dollars as we continue to invest to acquire new customers and further expand usage of our platform within our existing customer base.

Research and Development Expense

Research and development expense consists primarily of personnel costs for our employees who develop and enhance our platform, including salaries, bonuses, stock-based compensation, and other personnel costs. Also included are non-personnel costs such as subcontracting, consulting, and professional fees to third party development resources, and allocated overhead costs.

Our research and development efforts are focused on enhancing the capabilities, speed, and power of our software platform. The number of employees in research and development functions grew from 488 at December 31, 2021 to 652 at December 31, 2022. A portion of our headcount growth in 2022 was attributable to a new product development center opened in India. Although we expect research and development expense to continue to increase in absolute dollars as such costs are critical to maintain and improve the quality of applications and our competitive position, we believe our new product development center will result in cost savings over time.

General and Administrative Expense

General and administrative expense consists primarily of personnel costs, including salaries, bonuses, stock-based compensation, and other personnel costs for our administrative, legal, information technology, human resources, finance and accounting, as well as our senior executives. Additional expenses included in this category are non-personnel costs such as travel-related expenses, contracting and professional fees for such services as audits, taxation, and legal, insurance and other corporate expenses, including allocated overhead costs, and bad debt expenses.

The number of employees in general and administrative functions grew from 224 at December 31, 2021 to 316 at December 31, 2022. Additionally, we incurred significant legal costs in 2021 and 2022 in connection with two separate lawsuits involving an effort to enforce our intellectual property and to defend against reciprocal false advertising and related claims with a competitor. In 2023, we expect general and administrative expense to decrease in absolute dollars largely due to an anticipated decline in legal costs.

Other Non-Operating Expense (Income)

Other Expense (Income), Net

Other expense (income), net, consists primarily of unrealized and realized gains and losses related to changes in foreign currency exchange rates, interest income on our cash and cash equivalents and investments, gains or losses on the disposal of property and equipment, and other sources of income or expense not related to our core business operations.

Interest Expense

Interest expense consists primarily of interest on our debt, amortization of deferred financing fees, unused credit facility fees, and commitment fees on our letters of credit.

Results of Operations

The following table sets forth our consolidated statements of operations data (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Revenue			
Subscriptions	\$ 340,152	\$ 263,738	\$ 198,710
Professional services	127,839	105,521	105,863
Total revenue	467,991	369,259	304,573
Cost of revenue			
Subscriptions ⁽¹⁾	36,005	27,330	20,826
Professional services ⁽¹⁾	97,301	76,763	67,940
Total cost of revenue	133,306	104,093	88,766
Gross profit	334,685	265,166	215,807
Operating expenses			
Sales and marketing ⁽¹⁾	220,374	167,852	130,316
Research and development ⁽¹⁾	139,210	97,517	70,241
General and administrative ⁽¹⁾	120,111	83,704	53,152
Total operating expenses	479,695	349,073	253,709
Operating loss	(145,010)	(83,907)	(37,902)
Other non-operating expense (income)			
Other expense (income), net	3,545	3,584	(5,786)
Interest expense	1,673	372	478
Total other non-operating expense (income)	5,218	3,956	(5,308)
Loss before income taxes	(150,228)	(87,863)	(32,594)
Income tax expense	692	778	883
Net loss	\$ (150,920)	\$ (88,641)	\$ (33,477)

⁽¹⁾ Stock-based compensation as a component of these line items is as follows:

	Year Ended December 31,		
	2022	2021	2020
	(in thousands)		
Cost of revenue			
Subscriptions	\$ 996	\$ 1,199	\$ 943
Professional services	5,309	3,131	1,477
Operating expenses			
Sales and marketing	9,152	5,426	2,821
Research and development	12,523	5,224	2,718
General and administrative	10,850	8,864	7,320
Total stock-based compensation expense	\$ 38,830	\$ 23,844	\$ 15,279

The following table sets forth our consolidated statements of operations data expressed as a percentage of total revenue:

	Year Ended December 31,		
	2022	2021	2020
Revenue			
Subscriptions	72.7 %	71.4 %	65.2 %
Professional services	27.3	28.6	34.8
Total revenue	100.0	100.0	100.0
Cost of revenue			
Subscriptions	7.7	7.4	6.8
Professional services	20.8	20.8	22.3
Total cost of revenue	28.5	28.2	29.1
Gross profit	71.5	71.8	70.9
Operating expenses			
Sales and marketing	47.1	45.5	42.8
Research and development	29.7	26.4	23.1
General and administrative	25.7	22.7	17.5
Total operating expenses	102.5	94.6	83.4
Operating loss	(31.0)	(22.8)	(12.5)
Other non-operating expense (income)			
Other expense (income), net	0.8	1.0	(1.9)
Interest expense	0.4	0.1	0.2
Total other non-operating expense (income)	1.2	1.1	(1.7)
Loss before income taxes	(32.2)	(23.9)	(10.8)
Income tax expense	0.1	0.2	0.3
Net loss	(32.3)%	(24.1)%	(11.1)%

Year Ended December 31, 2022 Compared to the Year Ended December 31, 2021

Revenue

	<u>Year Ended December 31,</u>		<u>\$ Change</u>	<u>% Change</u>
	<u>2022</u>	<u>2021</u>		
	(dollars in thousands)			
Revenue:				
Subscriptions	\$ 340,152	\$ 263,738	\$ 76,414	29.0%
Professional services	127,839	105,521	22,318	21.2%
Total revenue	\$ 467,991	\$ 369,259	\$ 98,732	26.7%

Total revenue increased \$98.7 million, or 26.7%, in 2022 compared to 2021 due to an increase in our subscriptions revenue of \$76.4 million and an increase in our professional services revenue of \$22.3 million. The increase in subscriptions revenue was driven by a \$57.5 million increase in cloud subscription revenue, a \$16.6 million increase in on-premises software revenue, and a \$2.4 million increase in maintenance and support revenue. With respect to new versus existing customers, \$63.2 million of the increase in subscriptions revenue was derived from expanded deployments and corresponding sales of additional subscriptions to existing customers while \$13.2 million was driven from sales of subscriptions to new customers. The increase in professional services revenue was due to a \$9.2 million increase in revenue from existing customers coupled with a \$13.1 million increase in sales to new customers.

Cost of Revenue

	<u>Year Ended December 31,</u>		<u>\$ Change</u>	<u>% Change</u>
	<u>2022</u>	<u>2021</u>		
	(dollars in thousands)			
Cost of revenue:				
Subscriptions	\$ 36,005	\$ 27,330	\$ 8,675	31.7%
Professional services	97,301	76,763	20,538	26.8%
Total cost of revenue	\$ 133,306	\$ 104,093	\$ 29,213	28.1%
Subscriptions gross margin	89.4 %	89.6 %		
Professional services gross margin	23.9 %	27.3 %		
Total gross margin	71.5 %	71.8 %		

Cost of revenue increased \$29.2 million, or 28.1%, in 2022 compared to 2021, primarily due to a \$17.2 million increase in professional services and product support personnel costs, a \$5.9 million increase in other cost of revenue, a \$2.9 million increase in contractor costs, a \$1.8 million increase in travel and entertainment expenses, and a \$1.4 million increase in overhead costs. Personnel costs increased due to an increase in professional services and product support personnel headcount of 14.0% from December 31, 2021 to December 31, 2022 in addition to increased wages and fringe benefits, coupled with a \$2.0 million increase in stock-based compensation. The increase in other cost of revenue was driven by increased hosting costs as sales of our cloud offering grew in 2022, while the increase in overhead costs was due largely to an increase in certain allocated costs tied to our growth such as spending for offices, human resources costs, and information technology expenses as well as allocated depreciation and amortization. Contractor costs increased in 2022 compared to 2021 due to an increase in the usage of subcontractors for professional service engagements. Travel and entertainment expenses increased primarily as a result of an increasing shift towards in-person engagements and activities as COVID restrictions eased in 2022.

Subscriptions gross margin was 89.4% in 2022 as compared to 89.6% in 2021. Professional services gross margin decreased to 23.9% in 2022 compared to 27.3% in 2021 due to higher personnel and allocated resources costs in 2022. These cost increases were partially offset by higher professional services revenue. Additionally, fewer in-person professional services engagements and deployments and a lower usage of subcontractors in 2021 led to temporarily improved margins in the prior year driven by impacts from the COVID-19 pandemic. Total gross margin fell slightly to 71.5% in 2022 as compared to 71.8% in 2021 driven largely by the higher cost of professional services revenue.

Sales and Marketing Expense

	Year Ended December 31,			
	2022	2021	\$ Change	% Change
	(dollars in thousands)			
Sales and marketing	\$ 220,374	\$ 167,852	\$ 52,522	31.3%
% of revenue	47.1 %	45.5 %		

Sales and marketing expense increased \$52.5 million, or 31.3%, in 2022 compared to 2021, primarily due to a \$33.3 million increase in sales and marketing personnel costs, a \$13.7 million increase in overhead costs, and a \$7.2 million increase in marketing costs. These increases were partially offset by a \$1.7 million decrease in professional fees. Personnel costs increased due to an increase in sales and marketing personnel headcount of 32.2% from December 31, 2021 to December 31, 2022 in addition to increased wages and fringe benefits, increased sales commissions driven by both contracts with new customers and renewals with existing customers, and a \$3.7 million increase in stock-based compensation expense. Overhead costs increased due to larger travel and entertainment expenses as return to office initiatives increased and more in-person sales and marketing events were held during 2022 as compared to 2021. Additionally, allocated costs tied to our growth increased in such areas as facilities, information technology, and human resources. Marketing costs increased due to an increase in the number of marketing events held year over year as well as increased spending on advertising and lead generation. These increases were slightly offset by lesser spending on marketing materials. Professional fees decreased due to lower engagement of and fees paid to third-party marketing consultants.

Research and Development Expense

	Year Ended December 31,			
	2022	2021	\$ Change	% Change
	(dollars in thousands)			
Research and development	\$ 139,210	\$ 97,517	\$ 41,693	42.8%
% of revenue	29.7 %	26.4 %		

Research and development expense increased \$41.7 million, or 42.8%, in 2022 compared to 2021, primarily due to a \$34.6 million increase in research and development personnel costs, a \$5.4 million increase in overhead costs, and a \$1.6 million increase in professional fees. Personnel costs increased due to an increase in research and development personnel headcount of 33.6% from December 31, 2021 to December 31, 2022 in addition to increased wages and fringe benefits, coupled with a \$7.3 million increase in stock-based compensation expense. Overhead costs increased due largely to higher allocated costs tied to our growth, such as information technology spending related to cloud computing, human resources costs, and office spending. Professional fees increased due to an increase in consulting services fees driven by higher usage of external resources to assist in our platform development efforts.

General and Administrative Expense

	Year Ended December 31,			
	2022	2021	\$ Change	% Change
	(dollars in thousands)			
General and administrative expense	\$ 120,111	\$ 83,704	\$ 36,407	43.5%
% of revenue	25.7 %	22.7 %		

General and administrative expense increased \$36.4 million, or 43.5%, in 2022 compared to 2021, primarily due to a \$15.4 million increase in general and administrative personnel costs, a \$10.9 million increase in professional fees, and a \$10.1 million increase in overhead costs. Personnel costs increased due to an increase in general and administrative personnel headcount of 41.1% from December 31, 2021 to December 31, 2022 in addition to increased wages and fringe benefits, coupled with a \$2.0 million increase in stock compensation expense. Professional fees increased due largely to higher legal and consulting fees. Overhead costs increased primarily due to higher allocated costs tied to our growth in areas such as information technology

spending, human resources costs, and office spending as well as an increase in certain general corporate costs such as rent expense, depreciation, and bad debt expense.

Other Expense, Net

	<u>Year Ended December 31,</u>		<u>\$ Change</u>	<u>% Change</u>
	<u>2022</u>	<u>2021</u>		
	(dollars in thousands)			
Other expense, net	\$ 3,545	\$ 3,584	\$ (39)	(1.1)%
% of revenue	0.8 %	1.0 %		

Other expense, net was \$3.5 million in 2022 compared to other expense, net of \$3.6 million in 2021. There were \$6.1 million in foreign exchange losses in 2022 compared to \$3.7 million in foreign exchange losses in 2021. However, the increase in foreign exchange losses was offset by a \$1.2 million increase in other income attributable to a payment received in 2022 from a local government as a result of the Company achieving certain economic development criteria and a \$1.1 million increase in interest income.

Interest Expense

	<u>Year Ended December 31,</u>		<u>\$ Change</u>	<u>% Change</u>
	<u>2022</u>	<u>2021</u>		
	(dollars in thousands)			
Interest expense	\$ 1,673	\$ 372	\$ 1,301	***
% of revenue	0.4 %	0.1 %		

*** - Indicates a percentage change that is not meaningful

Interest expense increased \$1.3 million in 2022 compared to the same period in 2021, primarily due to interest expense on the new term loan facility we entered into during the fourth quarter of 2022.

Year Ended December 31, 2021 Compared to the Year Ended December 31, 2020

For a discussion and analysis of changes in financial condition and results of operations for the year ended December 31, 2021 as compared to the year ended December 31, 2020, refer to our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, filed with the SEC on February 17, 2022.

Backlog

Backlog represents non-cancellable future amounts to be recognized under cloud and on-premises term license subscription agreements and is representative of our remaining performance obligations. As of December 31, 2022 and 2021, we had backlog of \$376.5 million and \$285.5 million, respectively. Approximately 35% of our backlog as of December 31, 2022 is not expected to be recognized in 2023. Additionally, we expect backlog to continue to increase in absolute dollars as we continue to increase the number of cloud agreements we enter into. However, the amount of backlog relative to the total value of our contracts can change from quarter to quarter and year to year for several reasons, including the specific timing and duration of cloud and term license subscription agreements with large customers, the specific timing of customer renewals, changes in customer financial circumstances, and foreign currency fluctuations. We often sign multiple-year cloud subscription agreements. Backlog may vary based on changes in the average non-cancellable term of a cloud and on-premises term license subscription agreements.

Non-GAAP Financial Measures

To supplement its consolidated financial statements, which are prepared and presented in accordance with GAAP, we provide investors with certain non-GAAP financial performance measures. We use these non-GAAP financial performance

measures for financial and operational decision-making and as a means to evaluate period-to-period comparisons. Management believes these non-GAAP financial measures provide meaningful supplemental information regarding our performance by excluding certain expenses that may not be indicative of its recurring core business operating results. We believe both management and investors benefit from referring to these non-GAAP financial measures in assessing our performance and when planning, forecasting, and analyzing future periods. These non-GAAP financial measures also facilitate management's internal comparisons to historical performance as well as comparisons to competitors' operating results. We believe these non-GAAP financial measures are useful to investors both because (1) they allow for greater transparency with respect to measures used by management in its financial and operational decision-making and (2) they are used by institutional investors and the analyst community to help them analyze the health of our business.

The non-GAAP financial performance measures include non-GAAP net loss, non-GAAP net loss per share, and non-GAAP operating loss. These non-GAAP financial performance measures exclude the effect of stock-based compensation expense and certain litigation-related expenses consisting of legal and other professional fees which are not indicative of our core operating performance and are not part of our normal course of business. While these items may be recurring in nature and should not be disregarded in the evaluation of our earnings performance, it is useful to exclude such items when analyzing current results and trends compared to other periods as these items can vary significantly from period to period depending on specific underlying transactions or events that may occur. Therefore, while we may incur or recognize these types of expenses in the future, the Company believes removing these items for purposes of calculating the non-GAAP financial measures provides investors with a more focused presentation of our ongoing operating performance.

We also discuss adjusted EBITDA, a non-GAAP financial performance measure we believe offers a useful view of the overall operation of its businesses. We define adjusted EBITDA as net loss before (1) other expenses, net, (2) interest expense, (3) income tax expense, (4) depreciation and amortization, (5) stock-based compensation expense, and (6) litigation expenses directly associated with the Pegasystems cases. The most directly comparable GAAP financial measure to adjusted EBITDA is net loss. Users should consider the limitations of using adjusted EBITDA, including the fact this measure does not provide a complete measure of our operating performance. Adjusted EBITDA is not intended to purport to be an alternate to net loss as a measure of operating performance or to cash flows from operating activities as a measure of liquidity.

The presentation of these non-GAAP financial measures is not intended to be considered in isolation from, as a substitute for, or superior to the financial information prepared and presented in accordance with GAAP, and our non-GAAP measures may be different from non-GAAP measures used by other companies.

The following tables reconcile our non-GAAP measures to their nearest comparable GAAP measures. The reconciliation of GAAP operating loss to non-GAAP operating loss for the years ended December 31, 2022, 2021, and 2020 is as follows (in thousands):

	Year Ended December 31,		
	2022	2021	2020
GAAP operating loss	\$ (145,010)	\$ (83,907)	\$ (37,902)
Add back:			
Stock-based compensation expense	38,830	23,844	15,279
Litigation expenses	22,886	16,400	—
Non-GAAP operating loss	<u>\$ (83,294)</u>	<u>\$ (43,663)</u>	<u>\$ (22,623)</u>

The following table reconciles GAAP net loss to non-GAAP net loss for the years ended December 31, 2022, 2021, and 2020 (in thousands):

	Year Ended December 31,		
	2022	2021	2020
GAAP net loss	\$ (150,920)	\$ (88,641)	\$ (33,477)
Add back:			
Stock-based compensation expense	38,830	23,844	15,279
Litigation expenses	22,886	16,400	—
Loss on disposal of property and equipment	3	79	22
Non-GAAP net loss	<u>\$ (89,201)</u>	<u>\$ (48,318)</u>	<u>\$ (18,176)</u>

The following table sets forth non-GAAP net loss per share for the years ended December 31, 2022, 2021, and 2020 (in thousands except share and per share data):

	Year Ended December 31,		
	2022	2021	2020
Non-GAAP net loss	\$ (89,201)	\$ (48,318)	\$ (18,176)
Non-GAAP weighted average shares used to compute net loss per share, basic and diluted	72,455,175	71,036,490	69,050,565
Non-GAAP net loss per share, basic and diluted	<u>\$ (1.23)</u>	<u>\$ (0.68)</u>	<u>\$ (0.26)</u>

GAAP basic and diluted weighted average shares outstanding were equal to non-GAAP basic and diluted weighted average shares outstanding for each of the years ended December 31, 2022, 2021, and 2020.

The following table reconciles GAAP net loss per share to non-GAAP net loss per share for the years ended December 31, 2022, 2021, and 2020:

	Year Ended December 31,		
	2022	2021	2020
GAAP net loss per share, basic and diluted	\$ (2.08)	\$ (1.25)	\$ (0.48)
Add back:			
Non-GAAP adjustments to net loss per share	0.85	0.57	0.22
Non-GAAP net loss per share, basic and diluted	<u>\$ (1.23)</u>	<u>\$ (0.68)</u>	<u>\$ (0.26)</u>

The following table reconciles GAAP net loss to adjusted EBITDA for the years ended December 31, 2022, 2021, and 2020 (in thousands):

	Year Ended December 31,		
	2022	2021	2020
GAAP net loss	\$ (150,920)	\$ (88,641)	\$ (33,477)
Other expense (income), net	3,545	3,584	(5,786)
Interest expense	1,673	372	478
Income tax expense	692	778	883
Depreciation and amortization of intangible assets	7,297	5,743	5,851
Stock-based compensation expense	38,830	23,844	15,279
Litigation expenses	22,886	16,400	—
Adjusted EBITDA	<u>\$ (75,997)</u>	<u>\$ (37,920)</u>	<u>\$ (16,772)</u>

Liquidity and Capital Resources

The following table presents selected financial information and statistics pertaining to liquidity and capital resources as of and for the years ended December 31, 2022 and 2021 (in thousands):

	As of December 31,	
	2022	2021
Cash and cash equivalents	\$ 148,132	\$ 100,796
Short-term investments and marketable securities	47,863	55,179
Property and equipment, net	41,855	36,913
Long-term investments	—	12,044
Working capital*	149,996	121,752

* Defined as current assets net of current liabilities, excluding the current portion of restricted cash

As of December 31, 2022, we had \$148.1 million of cash and cash equivalents and \$47.9 million of short-term investments and marketable securities. We believe our existing cash and cash equivalents and short-term investments and marketable securities, together with any positive cash flows from operations and available borrowings under our line of credit, will be sufficient to support working capital and capital expenditure requirements for at least the next 12 months.

We recently have, and in the future may enter into, investments in or acquisitions of complementary businesses, products, or technologies, which could also require us to seek additional equity financing, incur indebtedness, or use cash resources. We have no present binding agreements or commitments to enter into any such acquisitions. If we are unable to raise additional capital when desired, our business, operating results, and financial condition could be adversely affected.

Sources of Funds

We have historically financed our operations in large part with equity financing arrangements. Through 2022, we have completed four public offerings and received net proceeds of \$344.8 million. Outside of equity offerings, we have financed our operations through sales of subscriptions and professional services.

To further help strengthen our financial position and support our growth initiatives, on November 3, 2022 we entered into a new Senior Secured Credit Facilities Credit Agreement (the “Credit Agreement”) which provides for a five-year term loan facility in an aggregate principal amount of \$100.0 million and, in addition, up to \$50.0 million for a revolving credit facility, including a letter of credit sub-facility in the aggregate availability amount of \$15.0 million and a swingline sub-facility in the aggregate availability amount of \$10.0 million (as a sublimit of the revolving loan facility). On December 13, 2022, we executed the first amendment to the credit agreement which increased the aggregate principal amount of the term loan facility by \$20.0 million and increased the limit of the revolving facility by \$10.0 million.

The new Credit Agreement matures on November 3, 2027. We will use the proceeds from the \$120.0 million term loan to fund the continued growth of our business and support our working capital requirements. We were in compliance with all covenants as of December 31, 2022. As of December 31, 2022, we had no outstanding borrowings under the revolving credit facility. The new Credit Agreement replaced our existing line of credit that was in place as of September 30, 2022.

We expect future sources of funds to consist primarily of cash generated from sales of subscriptions and the related professional services. We may also elect to raise additional sources of funding through draws on our new revolving credit facility, entering into new debt financing arrangements, or conducting additional public offerings. Our future capital requirements will depend on many factors, including our growth rate, the timing and extent of spending to support research and development efforts, the expansion of sales and marketing activities, particularly internationally, the introduction of new and enhanced products and functions as well as platform enhancements and professional services offerings, and the level of market acceptance of our product.

Uses of Funds

Our current principal uses of cash are funding operations and other working capital requirements. Historically, we have also utilized cash to acquire complementary businesses, and we may pursue similar opportunities in the future. Over the past several years, revenue has increased significantly from year to year and, as a result, cash flows from customer collections have also grown. However, as we continue to invest in growing our business, operating expenses have also increased. Outside of cash used to fund operations, other uses of cash in 2022 included capital expenditures related to the expansion of our headquarters and purchases of short-term investments. Cash uses in 2021 included the acquisition of Lana Labs, purchases of investments, and capital expenditures.

Furthermore, in July 2021, we executed a non-cancellable cloud hosting arrangement with Amazon Web Services (“AWS”) that contains provisions for minimum purchase commitments. Specifically, purchase commitments under the agreement total \$131.0 million over five years, including \$22.0 million in the first year, \$25.0 million in the second year, and \$28.0 million in each of the third, fourth, and fifth years. The timing of payments under the agreement may vary, and the total amount of payments may exceed the minimum depending on the volume of services utilized. Spending under this agreement for the year ended December 31, 2022 totaled \$33.1 million. In 2021, AWS spend totaled \$22.0 million, \$11.8 million of which was incurred under the new agreement.

Historical Cash Flows

	<u>Year Ended December 31,</u>		<u>\$ Change</u>	<u>% Change</u>
	<u>2022</u>	<u>2021</u>		
	<u>(dollars in thousands)</u>			
Beginning cash, cash equivalents, and restricted cash	\$ 103,960	\$ 112,462	\$ (8,502)	(7.6)%
Operating activities:				
Net loss	(150,920)	(88,641)	(62,279)	70.3
Stock-based compensation and other non-cash adjustments	46,382	29,578	16,804	56.8
Changes in working capital	(2,013)	5,145	(7,158)	***
Net cash used by operating activities	(106,551)	(53,918)	(52,633)	97.6
Investing activities:				
Net cash provided by investing activities	10,264	41,936	(31,672)	(75.5)
Financing activities:				
Net cash provided by financing activities	142,867	2,786	140,081	***
Effect of exchange rates	(159)	694	(853)	***
Net increase (decrease) in cash, cash equivalents, and restricted cash	46,421	(8,502)	54,923	***
Ending cash, cash equivalents, and restricted cash	\$ 150,381	\$ 103,960	\$ 46,421	44.7 %

*** Indicates a percentage that is not meaningful.

Operating Activities

Net cash used by operating activities was \$106.6 million for 2022 as compared to \$53.9 million used by operating activities for 2021. The increase in net cash used by operating activities was primarily due to a \$62.3 million increase in net losses, most notably driven by the increase in operating expenses as discussed above. In addition, the increase in cash used by operating activities for 2022 was attributed to an increase in the use of working capital of \$7.2 million. The change in working capital was primarily comprised of declines in accounts payable, prepaid assets, and accrued expenses, all due to timing of payments, partially offset by an increase in deferred revenue driven by higher cash payments from increases from subscription contracts.

Investing Activities

Net cash provided by investing activities was \$10.3 million for 2022 as compared to \$41.9 million provided by investing activities for 2021. The change in net cash provided by investing activities was primarily impacted by a \$23.4 million increase in purchases of investments, a \$3.0 million increase in capital expenditures stemming from spending on the expansion of our headquarters, and a \$36.0 million decrease in proceeds from the sale of investments. Partially offsetting these changes was a \$30.7 million decrease related to the 2021 acquisition of Lana Labs.

Financing Activities

Net cash provided by financing activities was \$142.9 million for 2022 as compared to \$2.8 million in net cash provided by financing activities for 2021. The increase in net cash provided by financing activities was primarily due to \$120.0 million in proceeds received from the new term loan facility and a \$22.6 million increase in proceeds received from the exercise of stock options primarily resulting from the vesting of the 2019 CEO stock options during 2022. These increases were partially offset by \$1.9 million in payments for debt issuance costs and a \$0.6 million principal payment on the term loan.

For a discussion and analysis of net cash used in or provided by operating, investing, and financing activities for the year ended December 31, 2020, refer to our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, filed with the SEC on February 17, 2022.

Critical Accounting Estimates

The preparation of our consolidated financial statements in conformity with accounting principles generally accepted in the U.S. requires us to make estimates and judgments that affect the amounts reported in those financial statements and accompanying notes. Although we believe the estimates we use are reasonable, due to the inherent uncertainty involved in making those estimates, actual results reported in future periods could differ from those estimates.

We believe the following accounting estimates involve a high degree of judgment and complexity. Accordingly, these are the estimates we believe are the most critical to aid in fully understanding and evaluating our consolidated financial condition and results of our operations. This commentary should be read in conjunction with our consolidated financial statements and the remainder of this Form 10-K.

Revenue Recognition

We generate subscriptions revenue primarily through the sale of cloud subscriptions bundled with maintenance and support and hosting services and term license subscriptions bundled with maintenance and support. We generate professional services revenue from fees for our consulting services, including application development and deployment assistance and training related to our platform. Significant judgments and estimates inherent in our revenue recognition are as follows:

Determining the Transaction Price

The transaction price, or the amount of consideration we expect to be entitled to receive in exchange for transferring services to our customers, includes both fixed and variable components. The variable components of our contracts, which have been nominal to date, include performance penalties, extended payment terms or implied price concessions, and warranty refunds. If necessary, we estimate these components using the expected value method, which estimates variable consideration as the sum of probability-weighted amounts in a range of possible consideration amounts. We believe this method is the most appropriate to utilize because our variable components could vary by contract, leading to multiple potential outcomes.

Our variable consideration estimates are subject to subsequent true-up adjustments which may result in changes to transaction prices, but such true-up adjustments are not expected to be material. Variable consideration is also included in the transaction price only to the extent it is probable a significant reversal will not occur. Factors considered when determining to incorporate variable consideration in the transaction price include, but are not limited to, whether the variable consideration is highly susceptible to factors outside of the Company's influence, the length of time the uncertainty surrounding reversal is expected to last, our experience levels with similar types of contracts, our historical practices for similar contracts in similar

circumstances, and the number and range of possible consideration amounts. The amount of variable consideration excluded from the transaction price for the years ended December 31, 2022, 2021, and 2020 was insignificant.

Allocating the Transaction Price Based on Standalone Selling Prices

We allocate the transaction price to each performance obligation in a contract based on its relative standalone selling price, or SSP. The SSP is the observable price at which we sell the product or service separately. In the absence of observable pricing, we estimate SSP using the residual approach. We establish SSP as follows:

1. Cloud subscriptions - Given the highly variable selling price of our cloud subscriptions, we establish the SSP of our cloud subscriptions using a residual approach after first determining the SSP of consulting and training services.
2. On-premises term license subscriptions - Given the highly variable selling price of our term license subscriptions, we have established the SSP of term license subscriptions using a residual approach after first determining the SSP of maintenance and support. Maintenance and support is sold on a standalone basis with renewals of our legacy perpetual software licenses and within a narrow range of the net license fee, resulting in a defined economic relationship existing between the license and maintenance and support.
3. Maintenance and support - We establish the SSP of maintenance and support as a percentage of the stated net subscription fee based on observable pricing of maintenance and support renewals from our legacy perpetual software licenses.
4. Consulting services and training services - The SSP of consulting services and training services is established based on the observable pricing of standalone sales within each geographic region where the services are sold.

Stock-Based Compensation

We measure and recognize compensation expense for all instrument types, including stock options, awards with market conditions, and restricted stock units, or RSUs, based on the estimated fair value of the award on the grant date. The valuation of stock options requires management to make certain estimates and judgments as discussed below.

Stock options

In June 2022, our Board of Directors granted a stock option to purchase 700,000 shares of our Class A common stock granted to our Chief Executive Officer. This was the only stock option awarded during 2022, 2021, and 2020. See Note 11 to the consolidated financial statements for further discussion of the award. The valuation method requires the use of subjective assumptions, including but not limited to, the following:

1. The expected term of the option - The expected term represents the period of time the stock options are expected to be outstanding. Due to the lack of sufficient historical exercise data to provide a reasonable basis upon which to otherwise estimate the expected term of the stock options, we use the simplified method to estimate the expected term. Under the simplified method, the expected term of an option is presumed to be the mid-point between the vesting date and the end of the contractual term.
2. Current trading price - The current price of our stock is based on the closing market price of our Class A common stock as quoted on the Nasdaq Global Market on the date of grant.
3. The expected stock price volatility - Expected volatility is based on the historical volatilities of our publicly traded stock. Expected volatility is sensitive to market- and company-specific conditions which may cause our stock price or the stock prices of our peers to fluctuate. Furthermore, expected volatility can be impacted by the companies we select as peers for inclusion in the analysis.
4. Expected dividend yield - We assume no dividend yield because dividends on our common stock are not expected to be paid in the near future, which is consistent with our history of not paying dividends on our common stock.
5. The risk-free interest rate - We utilize the yields of U.S. government securities, typically U.S. Treasury bonds, that have maturities commensurate with the expected term of the options.

Income Taxes

Significant judgment is required in determining our annual tax expense and in evaluating our tax positions. Tax law requires certain items to be included in our tax returns at different times than when the items are reflected in the financial statements. The annual tax expense reflected in the consolidated income statement is different than that reported in our tax returns. Some of these differences are permanent (for example, expenses recorded for accounting purposes that are not deductible in the returns such as certain entertainment expenses) and some differences are temporary and reverse over time, such as depreciation expense. Temporary differences create deferred tax assets and liabilities. Deferred tax liabilities generally represent income recognized in the financial statements for which payment has been deferred, or expense for which a deduction has been taken already in the tax return but the expense has not yet been recognized in the financial statements. Deferred tax assets generally represent items that can be used as a tax deduction or credit in tax returns in future years for which a benefit has already been recorded in the financial statements, as well as tax attributes, such as loss or credits, that can be carried over and used in future years.

Valuation allowances are established when necessary to reduce deferred income tax assets to the amounts we believe are more likely than not to be recovered. This requires us to make judgments and estimates regarding future reversals of existing taxable temporary differences, future taxable income, and the impact of tax planning strategies. As of December 31, 2022, we continued to maintain a full valuation allowance against U.S. deferred tax assets based on our cumulative operating results as of December 31, 2022, three-year cumulative loss, and an assessment of our expected future results of operations. We have evaluated all evidence, both positive and negative, in assessing the likelihood of realizability, and we determined the negative evidence outweighed the positive evidence.

As of December 31, 2022, we have a valuation allowance of \$18.7 million against gross foreign deferred tax assets of \$24.0 million, before deferred tax liability netting. Based on our cumulative operating results as of December 31, 2022 and assessment of our expected future results of operations, we determined it was not more likely than not we would be able to realize the remaining deferred tax assets prior to expiration.

Our tax positions are subject to income tax audits by multiple tax jurisdictions throughout the world. We recognize the tax benefit of an uncertain tax position only if it is more likely than not that the position is sustainable upon examination by the taxing authority. We measure the tax benefit recognized as the largest amount of benefit which is more likely than not to be realized upon settlement with the taxing authority. This determination involves significant judgment in estimating the impact of uncertainties in the application of GAAP and complex tax laws. As of December 31, 2022 and 2021, we have an unrecognized tax benefit of \$4.5 million and \$3.1 million, respectively, none of which would affect our effective tax rate if recognized due to the full valuation allowance against U.S. deferred tax assets.

We calculate the current and deferred income tax provision based on estimates and assumptions that could differ from the actual results reflected in income tax returns filed in subsequent years and record adjustments based on filed income tax returns when identified. The amount of income taxes paid is subject to examination by U.S. federal, state, and foreign tax authorities. The estimate of the potential outcome of any uncertain tax issue is subject to our assessment of relevant risks, facts, and circumstances existing at that time. To the extent the assessment of such tax position changes, we record the change in estimate in the period in which we make that determination.

Recent Accounting Pronouncements

See Note 2 of our consolidated financial statements for information related to recently issued accounting standards.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

We are exposed to market risks in the ordinary course of our business. Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily the result of fluctuations in interest rates and foreign currency exchange rates.

Interest Rate Risk

We had cash and cash equivalents of \$148.1 million as of December 31, 2022, which consisted of investments in a money market fund, cash in readily available checking accounts, and overnight repurchase investments. These securities, which are not dependent on interest rate fluctuations that may cause principal amounts to fluctuate, are held for reinvestment and working capital purposes or, in the case of restricted cash, to settle an escrow liability established pursuant to a business combination.

In addition, as of December 31, 2022, we held \$47.9 million of fixed income securities such as U.S. treasury bonds, commercial paper, corporate bonds, agency bonds, and asset-backed securities. These securities are subject to market risk due to fluctuations in interest rates, which may affect our interest income and the fair value of our investments. We classify investments as available-for-sale, including those with stated maturities beyond 12 months. As such, no gains or losses due to changes in interest rates are recognized in our consolidated statements of operations unless such securities are sold prior to maturity or due to expected credit losses. A hypothetical 100 basis point change in interest rates would not have had a material effect on the fair market value of our investment portfolio as of December 31, 2022. To date, fluctuations in interest income have also not been significant. Our investments are made for the purpose of preserving capital, fulfilling liquidity needs, and maximizing total return. We do not enter into investments for trading or speculative purposes.

As of December 31, 2022, we had outstanding debt of \$119.4 million, which carries interest as defined in our Credit Agreement. Refer to Note 9 of the consolidated financial statements in this 2022 Annual Report for additional details. We assessed our exposure to changes in interest rates by analyzing sensitivity to our operating results assuming various changes in market interest rates. A hypothetical increase of one percentage point in the interest rate as of December 31, 2022 would increase our interest expense by approximately \$1.2 million annually.

Inflation Risk

We are exposed to market risks related to inflation in personnel costs, third-party service providers, subcontracting costs, professional fees, and general overhead expenses. During 2022, inflation has increased to rates beyond recent history, and as a result we have experienced rising costs. If these inflation pressures continue or increase in severity, we may not be able to fully offset such higher costs through price increases and productivity initiatives. While we do not believe inflation has had a material impact on our results of operations to date, continued high rate of inflation in the future may have an adverse effect on our ability to maintain operating costs and adversely affect our gross profit margin.

Foreign Currency Exchange Risk

Our reporting currency is the U.S. dollar. Due to our international operations, we have foreign currency risks related to revenue and operating expenses denominated in currencies other than the U.S. dollar, primarily the British pound sterling, Euro, Australian dollar, and Swiss franc. Our sales contracts are primarily denominated in the local currency of the customer making the purchase. In addition, portions of operating expenses are incurred outside the United States and are denominated in foreign currencies. An increase in the relative value of the U.S. dollar to other currencies will negatively affect revenue and other operating results as expressed in U.S. dollars. Based on a sensitivity analysis, a 10% change in the foreign currency exchange rates would have impacted our total revenue by approximately 3% and our operating loss by approximately 2%. This calculation assumes all currencies change in the same direction and proportion relative to the U.S. dollar.

We have experienced, and will continue to experience, fluctuations in net loss as a result of transaction gains or losses related to remeasuring certain current asset and current liability balances denominated in currencies other than the functional currency of the entities in which they are recorded. We have not engaged in the hedging of foreign currency transactions to date, although we may choose to do so in the future.

Item 8. Financial Statements and Supplementary Data

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Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors
Appian Corporation
McLean, Virginia

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Appian Corporation (the “Company”) as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive loss, changes in stockholders’ equity, and cash flows for each of the three years in the period ended December 31, 2022, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at 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.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), 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”) and our report dated February 16, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s consolidated financial statements based on our audits. We are a public accounting firm registered with the 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 audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits 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. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

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: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of the critical audit matter 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 for Multiple Performance Obligations

As discussed in Note 3 to the consolidated financial statements, certain of the Company’s revenue contracts contain multiple performance obligations that might include cloud subscriptions, term license subscriptions, maintenance and support and professional services. The Company accounts for individual products and services separately if they are capable of being distinct and are distinct within the context of the contract. In such cases, the transaction price is allocated to the distinct performance obligations based on their relative standalone selling price or residual approach and revenue is recognized when control of the distinct performance obligation is transferred.

We identified the identification of distinct performance obligations and the determination of standalone selling prices as a critical audit matter. Auditing these elements of revenue recognition was especially challenging due to the significant judgment involved in assessing the completeness of the distinct performance obligations in arrangements containing multiple performance obligations. In addition, the evaluation of the reasonableness of the range of prices used to establish the standalone selling price for maintenance and support and professional services was complex, which directly affects the amount of cloud and term license subscriptions revenue recognized using the residual approach.

The primary procedures we performed to address this critical audit matter included:

- Testing the design and operating effectiveness of internal controls over the Company's revenue recognition process including controls over: (i) the identification of distinct performance obligations, and (ii) the determination of standalone selling prices for the distinct performance obligations.
- Testing a sample of revenue contracts and underlying order documents to evaluate management's identification of distinct performance obligations.
- Evaluating the reasonableness of management's analysis supporting the standalone selling prices by tracing, on a sample basis, revenue transactions to the underlying source documents and recalculating the mathematical accuracy of the analysis.

/s/ BDO USA, LLP

We have served as the Company's auditor since 2013.

McLean, Virginia
February 16, 2023

Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors
Appian Corporation
McLean, Virginia

Opinion on Internal Control over Financial Reporting

We have audited Appian Corporation's (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 (the "COSO criteria"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive loss, changes in stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2022, and the related notes and our report dated February 16, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Item 9A, Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit of internal control over financial reporting in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit 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 audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) 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 (3) 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.

/s/ BDO USA, LLP

McLean, Virginia
February 16, 2023

APIAN CORPORATION AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

(in thousands, except share and per share data)

	As of December 31,	
	2022	2021
Assets		
Current assets		
Cash and cash equivalents	\$ 148,132	\$ 100,796
Short-term investments and marketable securities	47,863	55,179
Accounts receivable, net of allowance of \$2,125 and \$1,400, respectively	165,964	130,049
Deferred commissions, current	30,196	24,668
Prepaid expenses and other current assets	28,093	26,781
Restricted cash, current	2,249	791
Total current assets	422,497	338,264
Property and equipment, net of accumulated depreciation of \$18,864 and \$14,106, respectively	41,855	36,913
Long-term investments	—	12,044
Goodwill	26,349	27,795
Intangible assets, net of accumulated amortization of \$2,715 and \$1,260, respectively	5,251	7,144
Operating right-of-use assets	37,248	27,897
Deferred commissions, net of current portion	55,788	49,017
Deferred tax assets	1,940	1,025
Restricted cash, net of current portion	—	2,373
Other assets	3,286	2,047
Total assets	\$ 594,214	\$ 504,519
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	\$ 7,997	\$ 5,766
Accrued expenses	12,227	15,483
Accrued compensation and related benefits	40,718	35,126
Deferred revenue, current	194,768	150,169
Debt, current	2,740	—
Operating lease liabilities, current	8,681	8,110
Other current liabilities	3,121	1,067
Total current liabilities	270,252	215,721
Long-term debt	115,379	—
Operating lease liabilities	57,225	48,784
Deferred revenue	5,556	2,430
Deferred tax liabilities	102	209
Other non-current liabilities	—	3,458
Total liabilities	448,514	270,602
Commitments and contingent liabilities (see Note 4 and Note 14)		
Stockholders' equity		
Class A common stock—par value \$0.0001; 500,000,000 shares authorized and 41,320,091 shares issued and outstanding as of December 31, 2022; 500,000,000 shares authorized and 39,964,298 shares issued and outstanding as of December 31, 2021	4	4
Class B common stock—par value \$0.0001; 100,000,000 shares authorized and 31,497,796 shares issued and outstanding as of December 31, 2022; 100,000,000 shares authorized and 31,497,796 shares issued and outstanding as of December 31, 2021	3	3
Additional paid-in capital	561,390	497,128
Accumulated other comprehensive loss	(7,246)	(5,687)
Accumulated deficit	(408,451)	(257,531)
Total stockholders' equity	145,700	233,917
Total liabilities and stockholders' equity	\$ 594,214	\$ 504,519

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

APPIAN CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS

(in thousands, except share and per share data)

	Year Ended December 31,		
	2022	2021	2020
Revenue			
Subscriptions	\$ 340,152	\$ 263,738	\$ 198,710
Professional services	127,839	105,521	105,863
Total revenue	467,991	369,259	304,573
Cost of revenue			
Subscriptions	36,005	27,330	20,826
Professional services	97,301	76,763	67,940
Total cost of revenue	133,306	104,093	88,766
Gross profit	334,685	265,166	215,807
Operating expenses			
Sales and marketing	220,374	167,852	130,316
Research and development	139,210	97,517	70,241
General and administrative	120,111	83,704	53,152
Total operating expenses	479,695	349,073	253,709
Operating loss	(145,010)	(83,907)	(37,902)
Other non-operating expense (income)			
Other expense (income), net	3,545	3,584	(5,786)
Interest expense	1,673	372	478
Total other non-operating expense (income)	5,218	3,956	(5,308)
Loss before income taxes	(150,228)	(87,863)	(32,594)
Income tax expense	692	778	883
Net loss	<u>\$ (150,920)</u>	<u>\$ (88,641)</u>	<u>\$ (33,477)</u>
Net loss per share:			
Basic and diluted	\$ (2.08)	\$ (1.25)	\$ (0.48)
Weighted average common shares outstanding:			
Basic and diluted	72,455,175	71,036,490	69,050,565

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

APPIAN CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

(in thousands)

	Year Ended December 31,		
	2022	2021	2020
Net loss	\$ (150,920)	\$ (88,641)	\$ (33,477)
Comprehensive loss, net of income taxes			
Foreign currency translation adjustments	(1,559)	(677)	(4,703)
Unrealized losses on available-for-sale securities	—	—	(22)
Total other comprehensive loss, net of income taxes	\$ (152,479)	\$ (89,318)	\$ (38,202)

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

APPIAN CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY

(in thousands, except share data)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance December 31, 2019	67,468,022	\$ 6	\$ 340,929	\$ (285)	\$ (135,413)	\$ 205,237
Net loss	—	—	—	—	(33,477)	(33,477)
Issuance of common stock from public offering, net of issuance costs	1,931,206	1	107,914	—	—	107,915
Issuance of common stock to directors	7,942	—	—	—	—	—
Vesting of restricted stock units	270,609	—	—	—	—	—
Exercise of stock options	1,001,411	—	6,376	—	—	6,376
Stock-based compensation expense	—	—	15,279	—	—	15,279
Other comprehensive loss	—	—	—	(4,725)	—	(4,725)
Balance December 31, 2020	70,679,190	7	470,498	(5,010)	(168,890)	296,605
Net loss	—	—	—	—	(88,641)	(88,641)
Issuance of common stock to directors	4,950	—	—	—	—	—
Vesting of restricted stock units	354,130	—	—	—	—	—
Exercise of stock options	423,824	—	2,786	—	—	2,786
Stock-based compensation expense	—	—	23,844	—	—	23,844
Other comprehensive loss	—	—	—	(677)	—	(677)
Balance December 31, 2021	71,462,094	7	497,128	(5,687)	(257,531)	233,917
Net loss	—	—	—	—	(150,920)	(150,920)
Issuance of common stock to directors	14,928	—	—	—	—	—
Vesting of restricted stock units	403,648	—	—	—	—	—
Exercise of stock options	937,217	—	25,432	—	—	25,432
Stock-based compensation expense	—	—	38,830	—	—	38,830
Other comprehensive loss	—	—	—	(1,559)	—	(1,559)
Balance December 31, 2022	<u>72,817,887</u>	<u>\$ 7</u>	<u>\$ 561,390</u>	<u>\$ (7,246)</u>	<u>\$ (408,451)</u>	<u>\$ 145,700</u>

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

APPIAN CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

	Year Ended December 31,		
	2022	2021	2020
Cash flows from operating activities:			
Net loss	\$ (150,920)	\$ (88,641)	\$ (33,477)
Adjustments to reconcile net loss to net cash used by operating activities:			
Stock-based compensation	38,830	23,844	15,279
Depreciation and amortization of intangible assets	7,297	5,743	5,851
Bad debt expense	1,298	410	984
Amortization of debt issuance costs	43	—	—
Loss on disposal of property and equipment	3	79	22
Change in fair value of available-for-sale securities	—	—	22
Deferred income taxes	(1,089)	(498)	(184)
Changes in assets and liabilities:			
Accounts receivable	(37,922)	(33,904)	(33,559)
Prepaid expenses and other assets	(2,027)	2,094	3,740
Deferred commissions	(12,298)	(21,588)	(8,575)
Accounts payable and accrued expenses	(3,289)	11,467	(4,238)
Accrued compensation and related benefits	6,582	12,598	11,801
Other current and non-current liabilities	(264)	(444)	3,681
Deferred revenue	47,534	33,378	27,626
Operating lease assets and liabilities	(329)	1,544	3,407
Net cash used by operating activities	(106,551)	(53,918)	(7,620)
Cash flows from investing activities:			
Proceeds from investments	84,642	120,593	—
Purchases of investments	(65,283)	(41,870)	(145,968)
Purchases of property and equipment	(9,095)	(6,058)	(1,251)
Payments for acquisitions, net of cash acquired	—	(30,729)	(6,138)
Net cash provided by (used by) investing activities	10,264	41,936	(153,357)
Cash flows from financing activities:			
Proceeds from borrowings	120,000	—	—
Payments for debt issuance costs	(1,940)	—	—
Debt repayments	(625)	—	—
Proceeds from exercise of common stock options	25,432	2,786	6,376
Proceeds from public offerings, net of underwriting discounts	—	—	108,260
Payments of costs related to public offerings	—	—	(346)
Principal payments on finance leases	—	—	(3,822)
Net cash provided by financing activities	142,867	2,786	110,468
Effect of foreign exchange rate changes on cash, cash equivalents, and restricted cash	(159)	694	3,216
Net increase (decrease) in cash, cash equivalents, and restricted cash	46,421	(8,502)	(47,293)
Cash, cash equivalents, and restricted cash at beginning of period	103,960	112,462	159,755
Cash, cash equivalents, and restricted cash at end of period	\$ 150,381	\$ 103,960	\$ 112,462
Supplemental cash flow information:			
Cash paid for interest	\$ 1,671	\$ 323	\$ 165
Cash paid for income taxes	\$ 1,239	\$ 1,505	\$ 1,182
Supplemental non-cash investing and financing information:			
Accrued capital expenditures	\$ 1,774	\$ 379	\$ —

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

APPIAN CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Organization and Description of Business

Appian Corporation (together with its subsidiaries, “Appian,” the “Company,” “we,” or “our”) is a software company that automates business processes. The Appian Platform includes everything you need to design, automate, and optimize even the most complex processes, from start to finish. The world's most innovative organizations trust Appian to improve their workflows, unify data, and optimize operations—resulting in better growth and superior customer experiences.

We are headquartered in McLean, Virginia and operate both in the U.S. and internationally including Australia, Canada, France, Germany, India, Italy, Japan, Mexico, the Netherlands, Singapore, Spain, Sweden, Switzerland, and the United Kingdom.

2. Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements and footnotes have been prepared in accordance with accounting principles generally accepted in the United States (“U.S. GAAP”) as contained in the Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”).

Use of Estimates

The preparation of our consolidated financial statements in conformity with U.S. GAAP requires us to make estimates and judgments that affect the amounts reported in these consolidated financial statements and accompanying notes. Although we believe the estimates we use are reasonable, due to the inherent uncertainty involved in making these estimates, actual results reported in future periods could differ from those estimates.

Significant estimates embedded in the consolidated financial statements include, but are not limited to, revenue recognition, income taxes and the related valuation allowance, costs to obtain a contract with a customer, and stock-based compensation.

Principles of Consolidation

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

Segment Reporting

Operating segments are defined as components of an enterprise for which discrete financial information is available that is evaluated regularly by the chief operating decision maker (“CODM”) for purposes of allocating resources and evaluating financial performance. We have determined our CODM is our Chief Executive Officer.

We operate one operating and reportable segment, representing our consolidated business that helps organizations build applications and workflows rapidly with our low-code platform to maximize their resources and improve business results. Our reportable segment determination is based on our management and internal reporting structure, the nature of the subscriptions and services we offer, and the financial information evaluated regularly by our CODM.

Revenue Recognition

Refer to Note 3 for a detailed discussion on specific revenue recognition principles related to our major revenue streams.

APPIAN CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Concentration of Credit and Customer Risk

Our financial instruments exposed to concentration of credit and customer risk consist primarily of cash, cash equivalents, restricted cash, accounts receivable, and our short- and long-term investments. Deposits held with banks may exceed the amount of insurance provided on such deposits; however, we believe the financial institutions holding our cash deposits are financially sound and, accordingly, minimal credit risk exists with respect to these balances.

With regard to our customers, credit evaluation and account monitoring procedures are used to minimize the risk of loss. Revenue generated from government agencies represented 19.2%, 19.6%, and 18.1% of our revenue for the years ended December 31, 2022, 2021, and 2020, respectively, of which the top three U.S. federal government agencies generated 4.5%, 5.6%, and 6.6% of our revenue for the years ended December 31, 2022, 2021, and 2020, respectively. Additionally, 33.5%, 34.0%, and 33.8% of our revenue during the years ended December 31, 2022, 2021, and 2020, respectively, was generated from international customers.

Cash, Cash Equivalents, and Restricted Cash

We consider all highly liquid investments with original maturities of three months or less at the date of purchase, as well as overnight repurchase agreements, to be cash equivalents. Restricted cash consists of cash designated to settle an escrow liability stemming from our acquisition of Lana Labs GmbH (“Lana Labs”). The remaining balance as of December 31, 2022 is due on August 11, 2023.

The following table presents a reconciliation of cash, cash equivalents, and restricted cash as presented in the consolidated statements of cash flows (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Cash and cash equivalents	\$ 148,132	\$ 100,796	\$ 112,462
Restricted cash, current	2,249	791	—
Restricted cash, non-current	—	2,373	—
Total cash, cash equivalents, and restricted cash	<u>\$ 150,381</u>	<u>\$ 103,960</u>	<u>\$ 112,462</u>

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable are stated at realizable value, net of an allowance for doubtful accounts. The allowance for doubtful accounts is based on our assessment of the collectability of accounts and incorporates an estimation of expected lifetime credit losses on our receivables. We regularly review the composition of the accounts receivable aging, historical bad debts, changes in payment patterns, customer creditworthiness, and current economic trends. If the financial condition of our customers were to deteriorate, resulting in their inability to make required payments, additional provisions for doubtful accounts would be required and would increase bad debt expense.

Activity in the allowance for doubtful accounts was as follows (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Beginning balance	\$ 1,400	\$ 1,400	\$ 600
Additions	1,298	410	984
Less: Write-offs, net of recoveries	(573)	(410)	(184)
Ending balance	<u>\$ 2,125</u>	<u>\$ 1,400</u>	<u>\$ 1,400</u>

APPIAN CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Assets Recognized from the Costs to Obtain a Contract with a Customer

We capitalize incremental costs of obtaining a contract with a customer, which consists of sales commissions paid to our sales team. These costs are recorded as deferred commissions in the consolidated balance sheets. Costs to obtain a contract for a new customer or upsell are amortized over an estimated economic life of five years as sales commissions on initial sales are not commensurate with sales commissions on contract renewals. We determine the estimated economic life based on both qualitative and quantitative factors such as customer attrition, expected renewals, product life cycles, and contractual terms. We periodically review the carrying amount of deferred contract acquisition costs to determine whether events or changes in circumstances have occurred that could impact the estimated economic life. Commissions paid relating to contract renewals are deferred and amortized over the related renewal period. Costs to obtain a contract for professional services arrangements are expensed as incurred as the contractual period of our professional services arrangements are one year or less.

Amortization associated with deferred commissions is recorded to sales and marketing expense in our consolidated statements of operations. The following table summarizes the activity of costs to obtain a contract with a customer for the years ended December 31, 2022, and 2021 (in thousands):

	Year Ended December 31,	
	2022	2021
Beginning balance	\$ 73,685	\$ 52,097
Additional contract costs deferred	49,816	51,283
Amortization of deferred contract costs	(37,517)	(29,695)
Ending balance	<u>\$ 85,984</u>	<u>\$ 73,685</u>

Commission expense was \$39.4 million, \$32.4 million, and \$23.3 million for the years ended December 31, 2022, 2021, and 2020, respectively.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets. Significant additions or improvements extending the useful life of an asset are capitalized, while repairs and maintenance costs which do not significantly improve the related assets or extend their useful lives are charged to expense as incurred.

The following table outlines the useful lives of our major asset categories:

Asset Category	Useful Life (in years)
Computer software	3
Computer hardware	3
Equipment	5
Office furniture and fixtures	10
Leasehold improvements	(a)

(a) - Leasehold improvements have an estimated useful life of the shorter of the useful life of the assets or the lease term.

Business Combinations

We account for business combinations using the acquisition method of accounting as of the business combination date. Under this method, we allocate the fair value of purchase consideration to identifiable tangible and intangible assets acquired and liabilities assumed at their estimated fair values on the acquisition date. The excess of the consideration transferred over the fair value of the identifiable net assets acquired is recorded as goodwill and represents the future economic benefits expected to arise from other intangible assets acquired that do not qualify for separate recognition, including assembled workforce, non-contractual relationships, and expected future synergies. Determining the fair value of assets acquired and liabilities assumed requires us to use significant judgments and estimates, including the selection of valuation methodologies, estimates of future revenue, costs, and cash flows, and discount rates.

APPIAN CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

During the measurement period, which can be up to one year from the acquisition date, these estimates may be refined, as necessary, and we may record adjustments to the fair value of tangible and intangible assets acquired and liabilities assumed, with the corresponding offset to goodwill. Upon the conclusion of the measurement period or the final determination of the fair value of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to our consolidated statements of operations. Acquisition related expenses and post-acquisition integration costs are recognized separately from the business combination and are expensed as incurred.

Impairment of Long-Lived Assets

Long-lived tangible assets and intangible assets with definite useful lives are reviewed for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable through undiscounted cash flows from the use of the assets. If such assets are considered to be impaired, the assets are written down to their estimated fair value.

Goodwill is accounted for at the segment level and allocated to, and tested for impairment at, a level referred to as the reporting unit. We have determined our one segment consists of a single reporting unit. We test for impairment annually on the first day of our fourth quarter or between annual tests if events or changes in circumstances indicate the fair value of our reporting unit may be below its carrying amount. We have the option to qualitatively assess whether it is more likely than not the fair value our reporting unit is less than its carrying value. If we elect to perform a qualitative assessment and conclude it is more likely than not the fair value of the reporting unit is equal to or greater than its carrying value, no further assessment of that reporting unit's goodwill is necessary; otherwise, goodwill must be tested for impairment. In 2022, we elected to not perform the optional qualitative assessment of goodwill and instead performed the quantitative impairment test.

When performing the quantitative test, we determine the fair value of the reporting unit and compare it to the carrying amount, including goodwill. If the carrying amount of the reporting unit exceeds the fair value of the reporting unit, the reporting unit's goodwill is impaired, and we must recognize an impairment loss for the difference between the carrying amount and the fair value of the reporting unit. We estimate the fair value of our reporting unit using a market-based valuation methodology, which is primarily based on our consolidated market capitalization plus a reasonable control premium.

In the fourth quarter of 2022, we completed our annual goodwill impairment test for our reporting unit, and the results of the test indicated the estimated fair value of our reporting unit significantly exceeded the carrying value.

Investments and Fair Value of Financial Instruments

Refer to Note 17 for a detailed discussion on our policies specific to investments and determining fair value.

Stock-Based Compensation

We account for stock-based compensation expense related to stock-based awards based on the estimated fair value of the award on the grant date. We calculate the fair value of stock options containing only a service condition using the Black-Scholes option pricing model. The fair value of restricted stock units ("RSUs") is based on the closing market price of our common stock on the Nasdaq Global Market on the date of grant. For service-based awards such as RSUs, stock-based compensation expense is recognized on a straight-line basis over the requisite service period. For awards that contain market conditions, compensation expense is measured using a Monte Carlo simulation and is recognized using the accelerated attribution method over the derived service period based on the expected market performance as of the grant date. We account for forfeitures as they occur rather than estimating expected forfeitures. Refer to Note 11 for additional information related to stock-based compensation.

Leases

We combine and account for lease and non-lease components as a single lease component for leases of our facilities. The discount rates related to our lease liabilities are based on estimates of our incremental borrowing rate on a secured basis, as the discount rates implicit in our lease agreements cannot be readily determined.

APPIAN CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Basic and Diluted Loss per Common Share

We compute net loss per common share using the two-class method required for multiple classes of common stock and participating securities. The rights, including the liquidation and dividend rights, of the Class A common stock and Class B common stock are substantially identical, other than voting and conversion rights. Accordingly, the Class A common stock and Class B common stock share equally in our net losses.

Basic net loss per common share is computed by dividing net loss by the weighted-average number of shares of common stock outstanding during the period. Diluted net loss per common share is computed by dividing net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period increased by common shares that could be issued upon the conversion or exercise of other outstanding securities to the extent those additional common shares would be dilutive. The dilutive effect of potentially dilutive securities is reflected in diluted net loss per share by application of the treasury stock method.

Income Taxes

We use the asset and liability method of accounting for income taxes in which deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the consolidated financial statement carrying amounts of existing assets and liabilities and their respective tax bases. We measure deferred tax assets and liabilities using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recoverable or settled. We recognize the effect on deferred tax assets and liabilities of a change in tax rates as income and expense in the period that includes the enactment date. A valuation allowance is established if it is more likely than not that all or a portion of the deferred tax asset will not be realized.

Our tax positions are subject to income tax audits by multiple tax jurisdictions throughout the world. We recognize the tax benefit of an uncertain tax position only if it is more likely than not the position is sustainable upon examination by the taxing authority. We measure the tax benefit recognized as the largest amount of benefit which is more likely than not to be realized upon settlement with the taxing authority. We recognize penalties and interest related to unrecognized tax benefits as income tax expense.

We calculate the current and deferred income tax provision based on estimates and assumptions that could differ from the actual results reflected in income tax returns filed in subsequent years and record adjustments based on filed income tax returns when identified. The amount of income taxes paid is subject to examination by U.S. federal, state, and foreign tax authorities. The estimate of the potential outcome of any uncertain tax issue is subject to our assessment of relevant risks, facts, and circumstances existing at that time. To the extent the assessment of such tax position changes, we record the change in estimate in the period in which we make that determination.

Foreign Currency

Our operations located outside of the United States where the local currency is the functional currency are translated into U.S. dollars using the current rate method. Results of operations are translated at the average rate of exchange for the period. Assets and liabilities are translated at the closing rates on the balance sheet date. Gains and losses on translation of these accounts are accumulated and reported as a separate component of stockholders' equity and other comprehensive loss.

Gains and losses on foreign currency transactions are recognized in the accompanying consolidated statements of operations as a component of Other expense (income), net. Gains and losses from transactions denominated in foreign currencies resulted in net transaction losses of \$6.1 million, net transaction losses of \$3.7 million, and net transaction gains of \$4.3 million for the years ended December 31, 2022, 2021, and 2020, respectively.

Research and Development

Research and development expenses include payroll, employee benefits, and other headcount-related costs associated with product development. Our product utilizes a common codebase, whether accessed by customers via the cloud or via an on-premises installation. Since our software is sold and licensed externally, we consider our software as external-use software for purposes of applying the capitalized software development guidance. Product development costs are expensed as incurred until

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technological feasibility has been established, which is defined as the completion of all planning, designing, coding, and testing activities necessary to establish products that meet design specifications including functions, features, and technical performance requirements. We have determined technological feasibility for our software products is reached shortly before they are released for sale. Costs incurred after technological feasibility is established are not significant, and accordingly we expense all research and development costs when incurred.

Advertising Expenses

We expense advertising costs as they are incurred. Advertising expenses were \$5.8 million, \$4.4 million, and \$6.0 million for the years ended December 31, 2022, 2021, and 2020, respectively.

Recent Accounting Pronouncements

We did not adopt any new accounting guidance in 2022 that had a material impact on our consolidated financial statements or disclosures. Additionally, there is no pending accounting guidance that we expect to have a material impact on our consolidated financial statements.

3. Revenue

Revenue Recognition

We generate subscriptions revenue primarily through the sale of cloud subscriptions bundled with maintenance and support and hosting services as well as term license subscriptions bundled with maintenance and support. We generate professional services revenue from fees for our consulting services, including application development and deployment assistance as well as training related to our platform.

The following table summarizes revenue recorded during the years ended December 31, 2022, 2021, and 2020 (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Cloud subscriptions	\$ 236,922	\$ 179,415	\$ 129,219
Term license subscriptions	79,753	63,203	51,415
Maintenance and support	23,477	21,120	18,076
Total subscriptions	340,152	263,738	198,710
Professional services	127,839	105,521	105,863
Total revenue	<u>\$ 467,991</u>	<u>\$ 369,259</u>	<u>\$ 304,573</u>

Performance Obligations and Timing of Revenue Recognition

We primarily sell products and services that fall into the categories discussed below. Each category contains one or more performance obligations that are either (1) capable of being distinct (i.e., the customer can benefit from the product or service on its own or together with readily available resources, including those purchased separately from us) and distinct within the context of the contract (i.e., separately identified from other promises in the contract) or (2) a series of distinct products or services that are substantially the same and have the same pattern of transfer to the customer. Our term license subscriptions are delivered at a point in time while our cloud subscriptions, maintenance and support, and professional services are delivered over time.

Subscriptions Revenue

Subscriptions revenue is primarily related to (1) cloud subscriptions bundled with maintenance and support and hosting services and (2) term license subscriptions bundled with maintenance and support. We generally charge subscription fees on a per-user basis or through non-user based single application licenses. We bill customers and collect payment for subscriptions to

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our platform in advance on an annual, quarterly, or monthly basis. In certain instances, our customers have paid their entire contract up front.

Cloud Subscriptions

We generate cloud-based subscriptions revenue primarily from the sales of subscriptions to access our cloud offering, together with related support services to our customers. We perform all required maintenance and support for our cloud offering. Revenue is recognized on a ratable basis over the contract term beginning on the date the service is made available to the customer. Our cloud-based subscription contracts generally have a term of one to three years in length. We bill customers and collect payment for subscriptions to our platform in advance, and they are non-cancellable.

Term License Subscriptions

Our term license subscription revenue is derived from customers with on-premises installations of our platform. The majority of our contracts are one year in length. Although term license subscriptions are sold with maintenance and support, the software is fully functional at the beginning of the subscription and is considered a distinct performance obligation. If a cloud agreement includes the right for the customer to take possession of the license, the revenue is treated as a term license. Revenue from term license subscriptions is recognized when control of the software license has transferred to the customer, which is the later of delivery or commencement of the contract term.

Maintenance and Support

Maintenance and support subscriptions include both technical support and when-and-if-available software upgrades, which are treated as a single performance obligation as they are considered a series of distinct services that are substantially the same and have the same duration and measure of progress. Revenue from maintenance and support is recognized ratably over the contract period, which is the period over which the customer has continuous access to maintenance and support.

Professional Services Revenue

Our professional services revenue is comprised of fees for consulting services, including application development and deployment assistance as well as training services related to our platform.

Consulting Services

We sell consulting services to assist customers in planning and executing the deployment of our software. Customers are not required to use consulting services to fully benefit from the software. Consulting services are regularly sold on a standalone basis and either (1) under a fixed-fee arrangement or (2) on a time and materials basis. Consulting service contracts are considered separate performance obligations because they do not integrate with each other or with other products and services to deliver a combined output to the customer, do not modify or customize (or are not modified or customized by) each other or other products and services, and do not affect the customer's ability to use the other consulting offerings or other products and services. Revenue under consulting contracts is recognized over time as services are delivered. For time and materials-based consulting contracts, we have elected the practical expedient of recognizing revenue upon invoicing since the invoiced amount corresponds directly to the value of our service to date.

Training Services

We sell various training services to our customers. Training services are sold in the form of prepaid training credits that are redeemed based on a fixed rate per course. Training revenue is recognized when the associated training services are delivered.

Significant Judgments and Estimates

Determining the Transaction Price

The transaction price is the total amount of consideration we expect to receive in exchange for the service offerings in a contract and may include both fixed and variable components. Variable consideration is included in the transaction price to the

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extent it is probable a significant reversal will not occur. The amount of variable consideration excluded from the transaction price for the years ended December 31, 2022, 2021, and 2020 was insignificant. Our estimates of variable consideration are also subject to subsequent true-up adjustments and may result in changes to transaction prices; however, such true-up adjustments are not expected to be material.

Allocating the Transaction Price Based on Standalone Selling Prices (“SSP”)

We allocate the transaction price to each performance obligation in a contract based on its relative SSP. The SSP is the observable price at which we sell the product or service separately. In the absence of observable pricing, we estimate SSP using the residual approach. We establish SSP as follows:

1. Cloud subscriptions - Given the highly variable selling price of our cloud subscriptions, we establish the SSP of our cloud subscriptions using a residual approach after first determining the SSP of consulting and training services. We have concluded the residual approach to estimating SSP of our cloud subscriptions is an appropriate allocation of the transaction price.
2. Term license subscriptions - Given the highly variable selling price of our term license subscriptions, we have established SSP of term license subscriptions using a residual approach after first determining the SSP of maintenance and support. Maintenance and support is sold on a standalone basis in conjunction with renewals of our legacy perpetual software licenses and within a narrow range of the net license fee. Because an economic relationship exists between the license and maintenance and support, we have concluded the residual approach to estimating SSP of term license subscriptions is an appropriate allocation of the transaction price.
3. Maintenance and support - We establish the SSP of maintenance and support as a percentage of the stated net subscription fee based on observable pricing of maintenance and support renewals from our legacy perpetual software licenses.
4. Consulting and training services - The SSP of consulting and training services is established based on the observable pricing of standalone sales within each geographic region where the services are sold.

Contract Balances

Timing may differ between the satisfaction of performance obligations and the invoicing and collection of amounts related to our contracts with customers. Contract assets primarily relate to unbilled amounts for contracts with customers for which the amount of revenue recognized exceeds the amount billed to the customer. Contract assets are transferred to accounts receivable when the right to invoice becomes unconditional. As of December 31, 2022 and 2021, contract assets of \$14.3 million and \$14.0 million, respectively, are included in the Prepaid expenses and other current assets and Other assets line items in our consolidated balance sheets.

Contract liabilities consist of deferred revenue and include payments received in advance of the satisfaction of performance obligations. Deferred revenue is then recognized as the revenue recognition criteria are met. Deferred revenue that will be recognized during the succeeding 12-month period is recorded as current, and the remaining deferred revenue is recorded as non-current. For the year ended December 31, 2022, we recognized \$147.0 million of revenue that was included in the deferred revenue balance as of December 31, 2021.

Transaction Price Allocated to the Remaining Performance Obligations

As of December 31, 2022, we had an aggregate transaction price of \$376.5 million allocated to unsatisfied performance obligations. We expect to recognize \$243.2 million of this balance as revenue over the next 12 months with the remaining amount recognized thereafter.

4. Leases

As of December 31, 2022, our lease portfolio consists entirely of operating leases, all of which are for corporate offices. Our operating leases have remaining lease terms with various expiration dates through 2031, and some leases include options to extend the term for up to an additional 10 years.

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Right-of-Use (“ROU”) Assets and Lease Liabilities

At the inception of an arrangement, we determine whether the arrangement is or contains a lease based on the unique facts and circumstances present and the classification of the lease. Operating leases with a term greater than one year are recognized on the consolidated balance sheet as ROU assets, lease liabilities, and, if applicable, long-term lease liabilities. ROU assets represent our right to use an underlying asset for the lease term, and lease liabilities represent our obligation to make lease payments arising from the lease. We have elected not to recognize on our consolidated balance sheets leases with a term of one year or less.

Lease liabilities and their corresponding ROU assets are recorded based on the present value of lease payments over the expected lease term. The implicit rates within most of our leases are generally not determinable; therefore, we estimate our incremental borrowing rate to determine the present value of lease payments. The determination of our incremental borrowing rate requires judgment and is estimated for each lease based on the rate we would have to pay for a collateralized loan with the same terms as the lease. We consider various factors, including our level of collateralization, estimated credit rating, and the currency in which the lease is denominated. Operating lease ROU assets also include any lease prepayments, offset by lease incentives. Certain of our leases include options to extend or terminate the lease. An option to extend the lease is considered in connection with determining the ROU asset and lease liability when it is reasonably certain we will exercise that option.

Lease Costs

Expense for operating leases is recognized on a straight-line basis over the lease term as an operating expense. We have lease agreements which require payments for lease and non-lease components (i.e., common area maintenance) that are accounted for as a single lease component. Variable lease payment amounts that cannot be determined at the commencement of the lease, such as maintenance costs based on future obligations, are not included in ROU assets or lease liabilities but rather are expensed as incurred and recorded as variable lease expense.

The following table sets forth the components of lease expense for the years ended December 31, 2022, 2021 and 2020 (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Operating lease cost	\$ 6,950	\$ 6,619	\$ 6,649
Finance lease costs:			
Amortization of right-of-use assets	—	—	1,242
Interest on lease liabilities	—	—	150
Short-term lease cost	583	149	565
Variable lease cost	3,817	2,713	281
Total	\$ 11,350	\$ 9,481	\$ 8,887

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Supplemental Lease Information

Supplemental balance sheet information related to operating leases as of December 31, 2022 and December 31, 2021 is as follows (in thousands, except for lease term and discount rate):

	As of December 31,	
	2022	2021
Right-of-use assets for operating leases	\$ 37,248	\$ 27,897
Operating lease liabilities, current	\$ 8,681	\$ 8,110
Operating lease liabilities, net of current portion	57,225	48,784
Total operating lease liabilities	\$ 65,906	\$ 56,894
Weighted average remaining lease term (in years)	8.4	9.5
Weighted average discount rate	9.4 %	9.5 %

Supplemental cash flow and expense information related to operating leases for the years ended December 31, 2022 and 2021 is as follows (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Operating cash outflows for operating leases	\$ 7,073	\$ 7,732	\$ 3,407
Operating cash outflows for finance leases	—	—	150
Financing cash outflows for finance leases	—	—	3,822
Amortization of operating lease ROU assets	1,495	1,361	1,554
Interest expense on operating lease liabilities	5,406	5,268	1,853

A summary of our future minimum lease commitments under non-cancellable leases as of December 31, 2022 is as follows (in thousands):

	Operating Leases
2023	\$ 9,076
2024	11,122
2025	11,409
2026	11,666
2027	11,717
Thereafter	42,513
Total lease payments	97,503
Less: imputed interest	(31,597)
Total	\$ 65,906

5. Business Combinations

In August 2021, we acquired 100% of the outstanding common stock of Lana Labs, a developer of process mining software, for approximately \$30.7 million, net of cash acquired and debt. The acquisition was made due to the attractive nature

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of the product offerings of Lana Labs and in furtherance of our objective to enhance our automation platform. The transaction was financed through available cash on hand.

The allocation of the purchase price was based upon the fair value of the assets acquired and liabilities assumed. The purchase price allocated to goodwill and intangible assets is not deductible for tax purposes. The following table summarizes the fair value of the assets acquired and liabilities assumed in connection with the acquisition (in thousands):

Cash acquired	\$ 256
Other current assets	106
Property and equipment	59
Developed technology	5,974
Customer relationships	750
Goodwill	24,521
Other non-current assets	27
Total assets acquired	31,693
Current liabilities	638
Non-current liabilities	38
Total liabilities assumed	676
Net assets acquired	<u>\$ 31,017</u>

During the third quarter of 2022, we finalized the fair value of the assets acquired and liabilities assumed in the acquisition, and the amounts presented above are now final. Measurement period adjustments recorded in 2021 included a \$0.8 million adjustment to developed technology and goodwill related to an update to the discount rate utilized in our valuation of intangible assets, a \$0.3 million increase in deferred revenue stemming from our early adoption of new accounting guidance relating to deferred revenue recognized pursuant to a business combination, a \$0.1 million deferred tax adjustment, and an immaterial adjustment to working capital.

6. Goodwill and Intangible Assets

The following table summarizes goodwill balances as of December 31, 2022 and 2021 (in thousands):

	Carrying Amount
Balance as of December 31, 2020	\$ 4,862
Goodwill acquired, net of measurement period adjustments	24,521
Foreign currency translation adjustments	(1,588)
Balance as of December 31, 2021	\$ 27,795
Goodwill acquired	—
Foreign currency translation adjustments	(1,446)
Balance as of December 31, 2022	<u>\$ 26,349</u>

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Intangible assets, net consisted of the following as of December 31, 2022 and 2021 (in thousands):

	As of December 31,	
	2022	2021
Developed technology	\$ 6,893	\$ 7,271
Customer relationships - Non-Robotic Process Automation (“RPA”)	827	872
Customer relationships - RPA	246	261
Intangible assets, gross	7,966	8,404
Less: Accumulated amortization	(2,715)	(1,260)
Intangible assets, net	<u>\$ 5,251</u>	<u>\$ 7,144</u>

Intangible amortization expense was \$1.5 million, \$0.8 million, and \$0.4 million for the years ended December 31, 2022, 2021, and 2020, respectively. As of December 31, 2022, the weighted average remaining amortization periods for developed technology, non-RPA customer relationships, and RPA customer relationships were approximately 3.4 years, 8.7 years, and 7.0 years, respectively.

The projected annual amortization expense related to amortizable intangible assets as of December 31, 2022 is as follows (in thousands):

Year Ended December 31,	
2023	\$ 1,471
2024	1,471
2025	1,170
2026	753
2027	92
Thereafter	294
Total projected amortization expense	<u>\$ 5,251</u>

7. Property and Equipment, net

Property and equipment, net consisted of the following as of December 31, 2022 and 2021 (in thousands):

	As of December 31,	
	2022	2021
Leasehold improvements	\$ 45,959	\$ 41,005
Office furniture and fixtures	3,476	2,536
Computer hardware	9,689	6,001
Computer software	1,353	1,353
Equipment	242	124
Property and equipment, gross	60,719	51,019
Less: Accumulated depreciation	(18,864)	(14,106)
Property and equipment, net	<u>\$ 41,855</u>	<u>\$ 36,913</u>

Depreciation expense totaled \$5.8 million, \$4.9 million, and \$5.4 million for the years ended December 31, 2022, 2021, and 2020, respectively. During the year ended December 31, 2022, we retired and disposed of fully depreciated laptops and computer hardware with a gross asset value of approximately \$1.0 million. Disposals during the year ended December 31, 2021 were not significant.

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8. Accrued Expenses

Accrued expenses consisted of the following as of December 31, 2022 and 2021 (in thousands):

	As of December 31,	
	2022	2021
Hosting costs	\$ 2,802	\$ 1,995
Contract labor costs	1,465	891
Marketing and tradeshow expenses	1,000	1,167
Audit and tax expenses	911	439
Taxes payable	827	550
Legal costs	475	5,511
Reimbursable employee expenses	1,004	870
Third party license fees	1,223	1,066
Capital expenditures	744	379
Other accrued expenses	1,776	2,615
Total	\$ 12,227	\$ 15,483

9. Debt

Senior Secured Credit Facilities Credit Agreement

On November 3, 2022, we entered into a new Senior Secured Credit Facilities Credit Agreement (the “Credit Agreement”) which provides for a five-year term loan facility in an aggregate principal amount of \$100.0 million and, in addition, up to \$50.0 million for a revolving credit facility, including a letter of credit sub-facility in the aggregate availability amount of \$15.0 million and a swingline sub-facility in the aggregate availability amount of \$10.0 million (as a sublimit of the revolving loan facility). On December 13, 2022, we executed the first amendment to the credit agreement which increased the aggregate principal amount of the term loan facility by \$20.0 million and the limit of the revolving credit facility by \$10.0 million. The Credit Agreement matures on November 3, 2027. We will use the proceeds from the \$120.0 million term loan to fund the continued growth of our business and support our working capital requirements.

Under the agreement, we may elect whether amounts drawn bear interest on the outstanding principal amount at a rate per annum equal to either (a) the higher of the Prime rate or the Federal Funds Effective (“Base Rate”) rate plus 0.50% or (b) the forward-looking term rate based on the secured overnight financing rate (“Term SOFR”). An additional interest rate margin is added to the elected interest rates. During the first three years of the Credit Agreement, the additional interest rate margin ranges from 1.5% to 2.5% in the case of Base Rate advances or from 2.5% to 3.5% in the case of Term SOFR advances, depending on our debt to recurring revenue leverage ratio (as defined in the Credit Agreement). During the final two years of the Credit Agreement, the interest rate margin ranges from 0.5% to 2.5% in the case of Base Rate advances and from 1.5% to 3.5% in the case of Term SOFR advances, depending on our debt to consolidated adjusted EBITDA leverage ratio (as defined in the Credit Agreement).

In addition, the Credit Agreement contains other customary representations, warranties and covenants, including covenants by us limiting additional indebtedness, guaranties, liens, fundamental changes, mergers and consolidations, dispositions of assets, investments, paying dividends on capital stock or redeeming, repurchasing or retiring capital stock, or prepaying certain junior indebtedness and preferred stock, certain corporate changes, and transactions with affiliates. The Credit Agreement also provides for customary events of default, including but not limited to non-payment, breaches or defaults in the performance of covenants, insolvency, bankruptcy, and the occurrence of a material adverse effect on us.

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The following table summarizes outstanding long-term debt balances (in thousands):

	As of December 31,	
	2022	2021
Secured term loan facility	\$ 119,375	\$ —
Less: Debt issuance costs	(1,256)	—
Total long-term debt, net of debt issuance costs	\$ 118,119	\$ —
Long-term debt, current	\$ 2,740	\$ —
Long-term debt, net of current portion	115,379	—
Total long-term debt	\$ 118,119	\$ —

The following table summarizes the annual maturities of the principal amount of total debt due (in thousands):

Repayment schedule of principal long-term debt as of December 31, 2022

2023	\$ 3,000
2024	3,750
2025	6,000
2026	6,000
2027	100,625
Total	\$ 119,375

We were in compliance with all covenants as of December 31, 2022. As of December 31, 2022, we had no outstanding borrowings under the revolving credit facility, and we had outstanding letters of credit totaling \$12.0 million in connection with securing our leased office space.

10. Income Taxes

For the years ended December 31, 2022, 2021, and 2020, our loss before income taxes was comprised of the following (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Domestic	\$ (102,434)	\$ (48,743)	\$ (25,463)
Foreign	(47,794)	(39,120)	(7,131)
Total	\$ (150,228)	\$ (87,863)	\$ (32,594)

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For the years ended December 31, 2022, 2021, and 2020, our income tax expense (benefit) was comprised of the following (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Current:			
Federal	\$ 72	\$ 15	\$ 11
State	119	79	79
Foreign	1,409	1,156	977
Total current expense	<u>1,600</u>	<u>1,250</u>	<u>1,067</u>
Deferred:			
Federal	—	—	—
State	—	—	—
Foreign	(908)	(472)	(184)
Total deferred benefit	<u>(908)</u>	<u>(472)</u>	<u>(184)</u>
Total income tax expense	<u>\$ 692</u>	<u>\$ 778</u>	<u>\$ 883</u>

For the years ended December 31, 2022, 2021, and 2020, the provision for income taxes differs from the amount computed by applying the federal statutory income tax rates to our loss before the provision (benefit) for income taxes as follows:

	Year Ended December 31,		
	2022	2021	2020
U.S. federal statutory tax rate	21.0 %	21.0 %	21.0 %
State tax expense	4.1	4.7	18.2
Foreign rate differential	(3.3)	(4.1)	(3.6)
Nondeductible expenses	(0.3)	(0.5)	(0.6)
Foreign tax expense	0.3	(0.2)	—
Equity compensation	1.0	7.0	46.2
Tax credits	4.7	5.0	12.0
Unrecognized tax benefits	(0.9)	(0.9)	(2.2)
Change in tax rate	0.3	(1.2)	—
Other	(0.5)	(0.1)	(1.1)
Deferred adjustments	(0.8)	0.9	(1.7)
Change in valuation allowance	(26.1)	(32.5)	(90.9)
Total	<u>(0.5)%</u>	<u>(0.9)%</u>	<u>(2.7)%</u>

The effective tax rate of (0.5)% in 2022 includes \$39.2 million of tax expense attributable to the change in the valuation allowance in the United States, Switzerland, and Germany (Lana Labs GmbH), partially offset by \$8.6 million of favorable excess tax benefits for equity compensation and research credits.

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Deferred tax assets and liabilities reflect the net tax effects of temporary differences between the carrying amount of the assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. As of December 31, 2022 and 2021, significant components of our deferred tax assets and liabilities were as follows (in thousands):

	As of December 31,	
	2022	2021
Deferred tax assets:		
Net operating losses	\$ 85,442	\$ 81,499
Tax credits	21,215	15,510
Deferred revenue	416	466
Equity compensation	5,314	4,917
Lease liabilities	17,732	15,089
Accrued compensation	4,510	3,390
Bad debt	656	373
Other accrued expense	16	1,452
Capitalized research and development costs	29,991	—
Other	431	301
Gross deferred tax assets	165,723	122,997
Less: Valuation allowance	(132,581)	(94,399)
Total deferred tax assets	33,142	28,598
Deferred tax liabilities:		
Prepaid expenses	(15,309)	(12,576)
Right-of-use assets	(10,056)	(7,361)
Unbilled receivables	—	(1,248)
Depreciation	(4,275)	(3,892)
Intangible assets	(1,540)	(2,102)
Other	(123)	(603)
Total deferred tax liabilities	(31,303)	(27,782)
Net deferred tax assets	\$ 1,839	\$ 816

As of December 31, 2022 and 2021, we had \$237.7 million and \$239.9 million of gross net operating loss (“NOL”) carryforwards for U.S. federal tax purposes, respectively. U.S. federal NOL carryforwards in the amount of \$16.9 million, gross, generated prior to 2018 will expire, if unused, in 2037. Under the Tax Cuts and Jobs Act of 2017 (the “TCJA”), as modified by the Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”), federal NOL carryforwards generated in tax years beginning after December 31, 2017 may be carried forward indefinitely. As of December 31, 2022, we had \$220.8 million of gross NOL carryforwards generated after 2017 for U.S. federal tax purposes, which may be used to offset 80% of our taxable income annually.

Section 382 of the Internal Revenue Code limits the utilization of NOL carryforwards when ownership changes occur, as defined by that section. A number of states have similar state laws that limit utilization of state NOL carryforwards when ownership changes occur. We have performed an analysis of our Section 382 ownership changes and have determined all U.S. federal and state NOL carryforwards are available for use as of December 31, 2022.

Beginning in 2022, the TCJA eliminated the option to deduct research and development expenditures immediately in the year incurred and requires companies to amortize such expenditures over five or fifteen years for tax purposes, depending on whether the activities were incurred in the U.S. or outside of the U.S. This change resulted in an increase to gross deferred tax assets of approximately \$30.0 million in 2022. Due to the full valuation allowance recorded against our U.S. deferred tax assets, there was no impact to net deferred tax assets. Additionally, there was no cash tax impact for 2022 due to our ability to use NOL carryforwards to fully offset taxable income generated by the changes to research and development expenditures.

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As of December 31, 2022 and 2021, we had \$19.3 million and \$13.7 million, respectively, of U.S. federal tax credit carryforwards which will expire, if unused, between 2031 and 2042.

As of December 31, 2022 and 2021, we had U.S. gross state NOL carryforwards of \$256.3 million and \$249.8 million, respectively. We had tax effected state NOL carryforwards of \$14.8 million and \$14.1 million as of December 31, 2022 and 2021, respectively. The rules regarding carryforwards vary from state to state, and the ability to utilize NOLs varies based on timing and amount. The majority of state NOL carryforwards generated prior to 2018 will expire, if unused, in 2037. Due to the TCJA, certain state NOL carryforwards generated after 2017 have an indefinite carryforward period.

As of December 31, 2022 and 2021, we had foreign gross NOL carryforwards of \$163.4 million and \$126.6 million, respectively, primarily attributable to our subsidiary in Switzerland. In 2022, \$8.1 million of Swiss NOLs expired related to the 2015 tax year. An additional piece of those NOL carryforwards will expire each year, if unused, between 2023 and 2029.

The net change in the total valuation allowance during the year ended December 31, 2022 was \$38.2 million, primarily driven by the valuation allowance recorded against the United States and Switzerland deferred tax assets. The \$1.1 million valuation allowance against the Germany (Lana Labs GmbH) deferred tax assets was released in 2022 as a result of post-integration tax planning and the merger of German subsidiaries.

As of December 31, 2022, we continued to maintain a full valuation allowance against U.S. deferred tax assets based on our cumulative operating results as of December 31, 2022, three-year cumulative loss, and an assessment of our expected future results of operations. We have evaluated all evidence, both positive and negative, in assessing the likelihood of realizability, and we determined the negative evidence outweighed the positive evidence.

As of December 31, 2022, we have a valuation allowance of \$18.7 million against foreign deferred tax assets at our subsidiary in Switzerland. Based on our cumulative operating results as of December 31, 2022 and assessment of our expected future results of operations, we determined it was not more likely than not we would be able to realize the deferred tax assets prior to expiration.

We plan to distribute previously undistributed earnings of our foreign subsidiaries back to the United States in future years. Upon repatriation of those earnings, if any, we may be subject to taxes, including withholding taxes, net of any applicable foreign tax credits. Determination of the amount of unrecognized deferred U.S. income tax liability is not practicable.

As of December 31, 2022 and 2021, we had unrecognized tax benefits of \$4.5 million and \$3.1 million, respectively, none of which would affect our effective tax rate if recognized due to the valuation allowance. The following table summarizes the activity related to our unrecognized tax benefit from December 31, 2019 to December 31, 2022 (in thousands):

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Balance as of December 31, 2019	\$ 1,575
Additions for tax positions in current years	702
Additions for tax positions in prior years	—
Reductions due to lapse in statutes of limitations	—
Settlements	—
Balance as of December 31, 2020	2,277
Additions for tax positions in current years	812
Additions for tax positions in prior years	—
Reductions due to lapse in statutes of limitations	—
Settlements	—
Balance as of December 31, 2021	3,089
Additions for tax positions in current years	1,399
Additions for tax positions in prior years	—
Reductions due to lapse in statutes of limitations	—
Settlements	—
Balance as of December 31, 2022	\$ 4,488

We recognize interest and penalties related to uncertain tax positions in income tax expense. During the years ended December 31, 2022, 2021, and 2020, we recognized nominal amounts in interest. The cumulative balance of interest and penalties as of December 31, 2022 and 2021 were not meaningful. We anticipate total unrecognized tax benefits will not decrease over the next year.

We file income tax returns in the U.S. federal jurisdiction and in various state and foreign jurisdictions. Due to the NOL carryforward, tax years 2016 through 2022 remain open to examination by the major taxing jurisdictions to which we are subject. There are no open examinations that would have a meaningful impact to our consolidated financial statements.

11. Stock-Based Compensation

Equity Incentive Plans

In May 2017, our Board of Directors adopted, and our stockholders approved, the 2017 Equity Incentive Plan (the “2017 Plan”), which became effective as of the date of the final prospectus for our initial public offering. The 2017 Plan provides for the grant of incentive stock options to employees and for the grant of nonstatutory stock options, restricted stock awards, restricted stock units (“RSUs”), stock appreciation rights, performance-based stock awards, and other forms of equity compensation to employees, including officers, non-employee directors, and consultants. We initially reserved 6,421,442 shares of Class A common stock for issuance under the 2017 Plan, which included 421,442 shares that remained available for issuance under our 2007 Stock Option Plan (the “2007 Plan”) at the time the 2017 Plan became effective. The number of shares reserved under the 2017 Plan increases for any shares subject to outstanding awards originally granted under the 2007 Plan that expire or are forfeited prior to exercise. As a result of the adoption of the 2017 Plan, no further grants may be made under the 2007 Plan. As of December 31, 2022, there were 7,196,149 shares of Class A common stock reserved for issuance under the 2017 Plan, of which 2,839,475 were available to be issued.

Stock Options

We estimate the fair value of stock options containing only a service condition using the Black-Scholes option pricing model, which requires the use of subjective assumptions, including the expected term of the option, the current price of the underlying stock, the expected stock price volatility, expected dividend yield, and the risk-free interest rate for the expected term of the option. The expected term represents the period of time the stock options are expected to be outstanding. Due to the lack of sufficient historical exercise data to provide a reasonable basis upon which to derive an estimate, we use the simplified method to estimate the expected term for our stock options. Under the simplified method, the expected term of an option is presumed to be the mid-point between the vesting date and the end of the contractual term. Expected volatility is based on the

APPIAN CORPORATION AND SUBSIDIARIES
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historical volatility of our publicly traded stock over the estimated expected term of the stock options. We assume zero dividend yield because we have historically not paid dividends and do not anticipate paying dividends in the near future.

In June 2022, our Board of Directors granted a stock option to purchase 700,000 shares of our Class A common stock to our Chief Executive Officer (the “2022 CEO Grant”) under the 2017 Plan with an exercise price of \$50.63 per share. The 2022 CEO Grant is eligible to vest based on the achievement of various stock price appreciation targets of our Class A common stock. Specifically, the 2022 CEO Grant vests in four installments of 25% each if the average closing price per share for a 365 day calendar period equals each of \$175, \$200, \$225, and \$250, respectively (the “Vesting Price Threshold”), prior to June 7, 2030. The option also vests if the Company engages in a Corporate Transaction, as defined in the Plan, in which the Company’s Class A common stock is valued at or above the Vesting Price Threshold. The fair value of the 2022 CEO Grant was determined using a Monte Carlo simulation. The fair value of the award at the grant date was \$18.8 million and is being amortized over derived service periods ranging from 3.4 years to 4.1 years.

The only stock option awarded during the years ended December 31, 2022, 2021, and 2020 was the 2022 CEO Grant. The following table summarizes the assumptions used to estimate the fair value of the 2022 CEO stock option grant:

	Year Ended December 31,		
	2022	2021	2020
Risk-free interest rate	3.01 %	*	*
Expected term (in years)	**	*	*
Expected volatility	70 %	*	*
Expected dividend yield	— %	*	*

* Not applicable because no stock options were granted during the period.

** Each Vesting Price Threshold for the 2022 CEO grant has a unique expected term ranging from 3.4 years to 4.1 years.

The following table summarizes stock option activity for the years ended December 31, 2022, 2021, and 2020:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2019	4,458,611	\$ 12.30	5.8	\$ 115,501
Granted	—	—		
Exercised	(1,001,411)	6.39		81,181
Expired	(1,380)	11.82		
Forfeited	(56,580)	11.33		
Outstanding at December 31, 2020	3,399,240	14.06	4.9	503,174
Granted	—	—		
Exercised	(423,824)	6.55		43,525
Expired	(4,100)	10.54		
Forfeited	(17,960)	11.78		
Outstanding at December 31, 2021	2,953,356	15.16	4.0	147,812
Granted	700,000	50.63		
Exercised	(937,217)	27.14		32,858
Expired	(7,900)	4.06		
Forfeited	(10,280)	12.28		
Outstanding at December 31, 2022	2,697,959	\$ 20.25	5.1	\$ 45,867
Exercisable at December 31, 2022	1,997,959	\$ 9.60	3.6	\$ 45,867

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The total fair value of stock options that vested during the years ended December 31, 2022, 2021, and 2020 was \$0.9 million, \$10.8 million, and \$2.8 million, respectively. As of December 31, 2022, the total compensation cost related to unvested stock options not yet recognized, which relates exclusively to the 2022 CEO Grant, was \$16.0 million. This amount will be recognized over a weighted average period of 3.19 years.

Restricted Stock Units

The following table summarizes RSU activity for the years ended December 31, 2022, 2021, and 2020:

	Number of Shares	Weighted Average Grant Date Fair Value
Non-vested and outstanding at December 31, 2019	1,022,835	\$ 31.39
Granted	589,692	60.47
Vested	(270,609)	31.29
Forfeited	(176,915)	32.01
Non-vested and outstanding at December 31, 2020	1,165,003	46.04
Granted	488,462	108.98
Vested	(354,130)	43.39
Forfeited	(89,806)	62.72
Non-vested and outstanding at December 31, 2021	1,209,529	70.99
Granted	606,203	52.63
Vested	(403,648)	58.63
Forfeited	(221,364)	70.30
Non-vested and outstanding at December 31, 2022	1,190,720	\$ 65.97

As of December 31, 2022, total unrecognized compensation cost related to unvested RSUs was approximately \$58.3 million, which will be recognized over a weighted average period of 1.6 years.

The following table summarizes the components of our stock-based compensation expense by instrument type for the years ended December 31, 2022, 2021, and 2020 (in thousands):

	Year Ended December 31,		
	2022	2021	2020
RSUs	\$ 35,290	\$ 19,382	\$ 10,745
Stock options	2,790	3,839	4,164
Common stock awards to Board of Directors	750	623	370
Total stock-based compensation expense	\$ 38,830	\$ 23,844	\$ 15,279

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Stock-based compensation expense for RSUs, stock options, and issuances of common stock to the Board of Directors is included in the following line items in the accompanying consolidated statements of operations for the years ended December 31, 2022, 2021, and 2020 (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Cost of revenue			
Subscriptions	\$ 996	\$ 1,199	\$ 943
Professional services	5,309	3,131	1,477
Operating expenses			
Sales and marketing	9,152	5,426	2,821
Research and development	12,523	5,224	2,718
General and administrative	10,850	8,864	7,320
Total stock-based compensation expense	<u>\$ 38,830</u>	<u>\$ 23,844</u>	<u>\$ 15,279</u>

12. Stockholders' Equity

As of December 31, 2022, we had authorized 500,000,000 shares of Class A common stock and 100,000,000 shares of Class B common stock, each with a par value of \$0.0001 per share, of which 41,320,091 shares of Class A common stock and 31,497,796 shares of Class B common stock were issued and outstanding. The rights of the holders of Class A common stock and Class B common stock are identical, except with respect to voting and conversion rights. The holders of Class A common stock are entitled to one vote per share, and the holders of Class B common stock are entitled to ten votes per share on all matters subject to stockholder vote. The holders of Class B common stock also have approval rights for certain corporate actions. Each share of Class B common stock may be converted into one share of Class A common stock at the option of its holder and will be automatically converted upon transfer thereof, subject to certain exceptions. In addition, upon the date on which the outstanding shares of Class B common stock represent less than 10% of the aggregate voting power of our capital stock, all outstanding shares of Class B common stock shall convert automatically into Class A common stock.

13. Basic and Diluted Loss per Common Share

The following table sets forth the computation of basic and diluted net loss per share for the years ended December 31, 2022, 2021, and 2020 (in thousands, except share and per share data):

	Year Ended December 31,		
	2022	2021	2020
Numerator:			
Net loss	\$ (150,920)	\$ (88,641)	\$ (33,477)
Denominator:			
Weighted average common shares outstanding, basic and diluted	72,455,175	71,036,490	69,050,565
Net loss per share, basic and diluted	<u>\$ (2.08)</u>	<u>\$ (1.25)</u>	<u>\$ (0.48)</u>

Due to net losses for the years ended December 31, 2022, 2021, and 2020, basic and diluted net loss per share were the same as the effect of potentially dilutive securities would have been antidilutive.

The following outstanding securities, prior to the use of the treasury stock method, have been excluded from the computation of diluted weighted-average shares outstanding for the respective periods below because they would have been antidilutive to earnings per share:

APPIAN CORPORATION AND SUBSIDIARIES
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	Year Ended December 31,		
	2022	2021	2020
Stock options	2,697,959	2,953,356	3,399,240
Non-vested restricted stock units	1,190,720	1,209,529	1,165,003

14. Commitments and Contingencies

Minimum Purchase Commitments

In July 2021, we executed a non-cancellable cloud hosting arrangement with Amazon Web Services (“AWS”) that contains provisions for minimum purchase commitments. Specifically, purchase commitments under the agreement total \$131.0 million over five years, including \$22.0 million in the first year, \$25.0 million in the second year, and \$28.0 million in each of the third, fourth, and fifth years. The timing of payments under the agreement may vary, and the total amount of payments may exceed the minimum depending on the volume of services utilized. Spending under this agreement for the year ended December 31, 2022 totaled \$33.1 million.

Letters of Credit

At December 31, 2022 and 2021, we had outstanding letters of credit totaling \$12.0 million and \$11.2 million, respectively, in connection with securing our leased office space. All letters of credit are secured by our current or historical borrowing arrangements as described in Note 9.

Pegasystems Litigation

On May 29, 2020, we filed a civil complaint against Pegasystems, Inc. (“Pegasystems”) and Youyong Zou, a Virginia resident, in the Circuit Court for Fairfax County, Virginia. *Appian Corp v. Pegasystems Inc. & Youyong Zou, No. 2020-07216 (Fairfax Cty. Ct.)*. On May 10, 2022, we announced the jury awarded us \$2.036 billion in damages for misappropriation of our trade secrets and \$1 in damages for violating the Virginia Computer Crimes Act. Pegasystems filed several post-trial motions seeking relief in the form of reducing the damages award or setting aside the jury’s verdict and either granting a new trial or entering judgment in Pegasystems’ favor. All of these motions were denied, and final judgment was entered by the Court on September 15, 2022. The final judgment reaffirmed the \$2.036 billion in damages and also ordered Pegasystems to pay Appian \$23.6 million in attorney’s fees associated with the case as well as statutory post-judgment interest on the judgment at an annual rate of 6%, or approximately \$122.0 million per year.

Defendant Youyong Zou has satisfied the judgment of \$5,000 (plus interest) against him in lieu of appealing that judgment. On September 15, 2022, Pegasystems filed a notice of appeal, and on February 6, 2023, Pegasystems filed its opening brief with the Court of Appeals of Virginia. Appian expects to file its responsive brief in March 2023, to which Pegasystems will file a reply brief. After submission of the reply brief, the timeline of the case is solely within the control of the Court of Appeals until it rules. Pegasystems is not required to pay us the judgment, attorney’s fees, or post-judgment interest until all appeals are exhausted. We cannot predict the outcome of any appeals or the time it will take to resolve them. Consistent with other judgments, there is no guarantee we will be able to collect all or any portion of the judgment. Consequently, we will not record the award in our consolidated financial statements until all contingencies are resolved and we collect on the judgment.

Other Legal Matters

From time to time, we are subject to legal, regulatory, and other proceedings and claims that arise in the ordinary course of business. Other than as disclosed elsewhere in this Annual Report, we are not presently a party to any legal proceedings that, if determined adversely to us, would individually or taken together have a material adverse effect on our business, operating results, financial condition, or cash flows. We do not believe any material liability will be imposed as a result of any of the foregoing matters.

APPIAN CORPORATION AND SUBSIDIARIES
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15. Segment and Geographic Information

The following table summarizes revenue by geography for the years ended December 31, 2022, 2021, and 2020 (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Domestic	\$ 311,075	\$ 243,562	\$ 201,483
International	156,916	125,697	103,090
Total	<u>\$ 467,991</u>	<u>\$ 369,259</u>	<u>\$ 304,573</u>

With respect to geographic information, revenue is attributed to respective geographies based on the contracting address of the customer. There were no individual foreign countries from which more than 10% of our total revenue was attributable for the years ended December 31, 2022 and 2021. Revenue from customers attributed to the United Kingdom were 12.5% of our total revenue for the year ended December 31, 2020. Substantially all of our long-lived assets were held in the United States as of December 31, 2022 and 2021.

16. Retirement Plans

We have a defined contribution 401(k) retirement and savings plan (the “Plan”) to provide retirement benefits for all eligible employees. With limited exceptions, all employees over the age of 21 on the first day of the month immediately following the month of hiring are eligible to participate in the Plan. The Plan allows eligible employees to make salary-deferred contributions up to 75% of their pre-tax annual compensation, as defined in the Plan, as long as the total contributed does not exceed the annual maximum allowable amount under the Internal Revenue Code. The Company makes a semi-monthly matching contribution of 100% of the employee's contribution for that pay period, up to a maximum of 4% of the employee's eligible gross compensation for that pay period. Company contributions vest ratably based on years of service over a four year period, beginning with the completion of the first year of service. For the years ended December 31, 2022, 2021, and 2020, we incurred \$11.5 million, \$8.7 million, and \$6.8 million, respectively, in contribution expense related to employer matching contributions.

17. Investments and Fair Value Measurements

Fair Value Measurements

U.S. GAAP establishes a three-tier fair value hierarchy to classify and disclose all assets and liabilities measured at fair value on a recurring basis, as well as assets and liabilities measured at fair value on a non-recurring basis, in periods subsequent to their initial measurement. The hierarchy requires us to use observable inputs when available and to minimize the use of unobservable inputs when determining fair value. The three tiers are defined as follows:

- **Level 1.** Observable inputs based on unadjusted quoted prices in active markets for identical assets or liabilities;
- **Level 2.** Inputs, other than quoted prices in active markets, that are observable either directly or indirectly; and
- **Level 3.** Unobservable inputs for which there is little or no market data, and which require us to develop our own estimates and assumptions reflecting those that a market participant would use.

The asset or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques maximize the use of relevant observable inputs and minimize the use of unobservable inputs. There were no instruments measured at fair value on a recurring basis using significant unobservable inputs during the years ended December 31, 2022 and 2021.

The valuation techniques that may be used to measure fair value are as follows:

APPIAN CORPORATION AND SUBSIDIARIES
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- **Market approach.** Uses prices and other relevant information generated by market transactions involving identical or comparable assets or liabilities;
- **Income approach.** Uses valuation techniques to convert future amounts to a single present amount based on current market expectations about those future amounts; and
- **Cost approach.** Based on the amount that currently would be required to replace the service capacity of an asset (i.e., replacement cost).

The carrying amounts of our cash and cash equivalents, accounts receivable, accounts payable, and accrued expenses approximate fair value as of December 31, 2022 and 2021 because of the relatively short duration of these instruments. Additionally, the carrying value of our debt associated with the term loan facility approximates fair value because the interest rates are variable and reset on a relatively short durations to the then market rates.

Investments

Our investment portfolio consists largely of debt investments classified as available-for-sale. Changes in the fair value of available-for-sale securities, excluding other-than-temporary impairments, are recorded in accumulated other comprehensive loss in our consolidated balance sheets. The components of our investments as of December 31, 2022 and 2021 are as follows (in thousands):

	As of December 31, 2022					
	Fair Value Measurement				Balance Sheet Classification	
	Fair Value Level	Cost Basis	Unrealized Gains (Losses)	Market Value	Cash and Cash Equivalents	Short-term Investments and Marketable Securities
Money market fund	Level 1	\$ 39,469	\$ —	\$ 39,469	\$ 39,469	\$ —
U.S. Treasury bonds	Level 1	9,396	(13)	9,383	—	9,383
Commercial paper	Level 2	26,704	—	26,704	—	26,704
Corporate bonds	Level 2	9,353	(12)	9,341	—	9,341
Agency bonds	Level 2	2,432	3	2,435	—	2,435
Total investments		<u>\$ 87,354</u>	<u>\$ (22)</u>	<u>\$ 87,332</u>	<u>\$ 39,469</u>	<u>\$ 47,863</u>

As of December 31, 2021, our investments consisted of the following (in thousands):

	As of December 31, 2021						
	Fair Value Measurement				Balance Sheet Classification		
	Fair Value Level	Cost Basis	Unrealized Gains (Losses)	Market Value	Cash and Cash Equivalents	Short-Term Investments and Marketable Securities	Long-Term Investments
Money market fund	Level 1	\$ 38,301	\$ —	\$ 38,301	\$ 38,301	\$ —	\$ —
U.S. Treasury bonds	Level 1	8,171	—	8,171	—	8,171	—
Commercial paper	Level 2	23,312	—	23,312	—	23,312	—
Corporate bonds	Level 2	20,107	(14)	20,093	—	8,049	12,044
Asset-backed securities	Level 2	15,655	(8)	15,647	—	15,647	—
Total investments		<u>\$ 105,546</u>	<u>\$ (22)</u>	<u>\$ 105,524</u>	<u>\$ 38,301</u>	<u>\$ 55,179</u>	<u>\$ 12,044</u>

APPIAN CORPORATION AND SUBSIDIARIES
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There were no Level 3 assets held at any point during the year ended December 31, 2022 and 2021. Additionally, there were no transfers between Levels 1 and 2 during the years ended December 31, 2022 and 2021. Interest income on our investments totaled \$0.9 million for the year ended December 31, 2022.

The amortized cost basis and fair value of debt securities at December 31, 2022 and 2021, by contractual maturity, are as follows (in thousands):

	As of December 31, 2022	
	Cost Basis	Fair Value
Due in one year or less	\$ 87,354	\$ 87,332
Due after one year through five years	—	—
Total investments	\$ 87,354	\$ 87,332

	As of December 31, 2021	
	Cost Basis	Fair Value
Due in one year or less	\$ 93,497	\$ 93,480
Due after one year through five years	12,049	12,044
Total investments	\$ 105,546	\$ 105,524

Actual maturities may differ from the contractual maturities in the table above because borrowers have the right to call or prepay certain obligations.

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

We maintain “disclosure controls and procedures,” as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Exchange Act that are designed to ensure information required to be disclosed by a company in the reports it files or submits under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure information required to be disclosed by a company in the reports it files or submits under the Exchange Act is accumulated and communicated to its management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2022. Based on the evaluation of our disclosure controls and procedures as of December 31, 2022, our Chief Executive Officer and Chief Financial Officer concluded, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15(d)-15(f) of the Exchange Act. Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2022 based on the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”) in Internal Control - Integrated Framework (2013). Based on this assessment, management concluded that, as of December 31, 2022, our internal control over financial reporting was effective.

The Annual Report on Form 10-K includes an attestation report of our independent registered public accounting firm regarding internal control over financial reporting, which appears in Part II, Item 8 of this Annual Report on Form 10-K.

Changes in Internal Control Over Financial Reporting

There have been no material changes in our internal control over financial reporting that occurred during the quarter ended December 31, 2022 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our Chief Executive Officer and Chief Financial Officer, believes our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives and are effective at the reasonable assurance level. However, our management does not expect our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance the objectives of the control system are met. Further, the design of a control system must reflect the fact 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, 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 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.

None.

Part III

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this item is incorporated by reference to our Proxy Statement for our 2023 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the fiscal year ended December 31, 2022.

We have adopted a Code of Conduct, applicable to all of our employees, executive officers, and directors. The Code of Conduct is available on our website at www.appian.com. We expect any amendments to the Code of Conduct or any waivers of its requirement will be disclosed on our website (www.appian.com) as required by applicable law or the listing standards of the Nasdaq Stock Market. The information contained on, or that can be accessed through, our website is not incorporated by reference into this Annual Report on Form 10-K or in any other report or document we file with the SEC, and any references to our website are intended to be inactive textual references only.

Item 11. Executive Compensation.

The information required by this item is incorporated by reference to our Proxy Statement for our 2023 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the year ended December 31, 2022.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this item is incorporated by reference to our Proxy Statement for our 2023 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the year ended December 31, 2022.

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

The information required by this item is incorporated by reference to our Proxy Statement for our 2023 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the year ended December 31, 2022.

Item 14. Principal Accounting Fees and Services.

The information required by this item is incorporated by reference to our Proxy Statement for our 2023 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the year ended December 31, 2022.

Part IV

Item 15. Exhibits, Financial Statement Schedules.

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

(1) Consolidated Financial Statements and Report of Independent Registered Public Accounting Firm are shown in the Index to Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K.

(2) All financial statement schedules are omitted because they are not applicable or the required information is shown in the financial statements or notes thereto.

(3) Exhibits are incorporated herein by reference or are filed with this Annual Report on Form 10-K as indicated below.

(b) Exhibits

<u>Exhibit No.</u>	<u>Description</u>	<u>Reference</u>
3.1	Amended and Restated Certificate of Incorporation of Appian Corporation.	<u>Previously filed as Exhibit 3.2 to Amendment No. 3 to the Company's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on May 12, 2017, and incorporated herein by reference.</u>
3.2	Amended and Restated Bylaws of Appian Corporation.	<u>Previously filed as Exhibit 3.4 to Amendment No. 2 to the Company's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on May 10, 2017, and incorporated herein by reference.</u>
4.1	Form of Class A common stock certificate of Appian Corporation.	<u>Previously filed as Exhibit 4.1 to Amendment No. 3 to the Registrant's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on May 12, 2017, and incorporated herein by reference.</u>
4.2	Description of Securities.	<u>Previously filed as Exhibit 4.3 to the Company's Annual Report on 10-K (File No. 001-38098), filed with the Securities and Exchange Commission on February 17, 2022, and incorporated herein by reference.</u>
10.1	2007 Stock Option Plan and Form of Option Agreement and Exercise Notice thereunder, as amended to date. ⁺	<u>Previously filed as Exhibit 10.1 to the Company's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on April 27, 2017, and incorporated herein by reference.</u>
10.2	2017 Equity Incentive Plan and Forms of Stock Option Agreement, Notice of Exercise and Stock Option Grant Notice thereunder. ⁺	<u>Previously filed as Exhibit 10.2 to Amendment No. 2 to the Company's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on May 10, 2017, and incorporated herein by reference.</u>
10.3	2017 Equity Incentive Plan French Qualifying Sub-Plan, with Forms of Restricted Stock Unit Grant Notice and Restricted Stock Unit Award Agreement thereunder. ⁺	<u>Previously filed as Exhibit 10.14 to the Company's Annual Report on Form 10-K (File No. 001-38098), filed with the Securities and Exchange Commission on February 23, 2018, and incorporated herein by reference.</u>
10.4	2017 Equity Incentive Plan CSOP Sub-Plan for UK Eligible Employees, with Forms of CSOP Stock Option Grant Notice and CSOP Option Agreement thereunder. ⁺	<u>Previously filed as Exhibit 10.15 to the Company's Annual Report on Form 10-K (File No. 001-38098), filed with the Securities and Exchange Commission on February 23, 2018, and incorporated herein by reference.</u>
10.5	Forms of Restricted Stock Unit Grant Notices and Restricted Stock Unit Award Agreements under 2017 Equity Incentive Plan. ⁺	<u>Previously filed as Exhibit 10.12 to the Company's Annual Report on Form 10-K (File No. 001-38098), filed with the Securities and Exchange Commission on February 23, 2018, and incorporated herein by reference.</u>
10.6	Forms of Restricted Stock Award Grant Notice and Restricted Stock Award Agreement under 2017 Equity Incentive Plan. ⁺	<u>Previously filed as Exhibit 10.13 to the Company's Annual Report on Form 10-K (File No. 001-38098), filed with the Securities and Exchange Commission on February 23, 2018, and incorporated herein by reference.</u>

10.7	Appian Corporation Employee Stock Purchase Plan. ⁺	<u>Previously filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-38098) filed with the Securities and Exchange Commission on August 5, 2021, and incorporated herein by reference.</u>
10.8	Agreement on the Sale and Transfer of Shares dated as of August 4, 2021, by and among Appian Europe Ltd., and each of the Sellers and Managers identified therein.	<u>Previously filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-38098) filed with the Securities and Exchange Commission on November 4, 2021, and incorporated herein by reference.</u>
10.9	Non-Employee Director Compensation Plan, as amended December 16, 2020. ⁺	<u>Previously filed as Exhibit 10.3 to the Company's Annual Report on 10-K (File No. 001-38098), filed with the Securities and Exchange Commission on February 18, 2021, and incorporated herein by reference.</u>
10.10	Form of Indemnification Agreement by and between Appian Corporation and each of its directors and executive officers. ⁺	<u>Previously filed as Exhibit 10.4 to Amendment No. 2 to the Company's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on May 10, 2017, and incorporated herein by reference.</u>
10.11	Senior Executive Cash Incentive Bonus Plan. ⁺	<u>Previously filed as Exhibit 10.11 to the Company's Annual Report on Form 10-K (File No. 001-38098), filed with the Securities and Exchange Commission on February 23, 2018, and incorporated herein by reference.</u>
10.12	Employment Agreement, dated as of September 7, 2012, by and between Appian Corporation and Matthew Calkins. ⁺	<u>Previously filed as Exhibit 10.5 to the Company's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on April 27, 2017, and incorporated herein by reference.</u>
10.13	Form of Amended and Restated Employment Agreement, dated as of April 27, 2017, by and between Appian Corporation and each of Mark Lynch and Chris Winters. ⁺	<u>Previously filed as Exhibit 10.7 to the Company's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on April 27, 2017, and incorporated herein by reference.</u>
10.14	Employment Agreement, dated as of September 7, 2012, by and between Appian Corporation and Robert Kramer. ⁺	<u>Previously filed as Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 001-38098) filed with the Securities and Exchange Commission on May 7, 2020, and incorporated herein by reference.</u>
10.15	Employment Agreement, dated as of May 6, 2020, by and between Appian Corporation and Eric Cross. ⁺	<u>Previously filed as Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 001-38098) filed with the Securities and Exchange Commission on August 6, 2020, and incorporated herein by reference.</u>
10.16	Employment Agreement, dated as of March 31, 2020, by and between Appian Corporation and Pavel Zamudio-Ramirez . ⁺	<u>Filed herewith.</u>
10.17	Employment Agreement, dated as of April 2, 2022, by and between Appian Corporation and Mark Matheos. ⁺	<u>Previously filed as Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 001-38098) filed with the Securities and Exchange Commission on May 5, 2022, and incorporated herein by reference.</u>
10.18	Employment Agreement, dated as of October 14, 2022, by and between Appian Corporation and Christopher Jones. ⁺	<u>Previously filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-38098) filed with the Securities and Exchange Commission on November 3, 2022, and incorporated herein by reference.</u>
10.19	Consultant Agreement, dated as of May 23, 2022, by and between Appian Corporation and William McCarthy. ⁺	<u>Previously filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-38098) filed with the Securities and Exchange Commission on August 4, 2022, and incorporated herein by reference.</u>
10.20	Deed of Lease, dated April 17, 2018, between Appian Corporation and Tamares 7950 Owner LLC.	<u>Previously filed as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-38098), filed with the Securities and Exchange Commission on April 23, 2018, and incorporated herein by reference.</u>
10.21	First Amendment to Deed of Lease, dated December 23, 2019, between Appian Corporation and Tamares 7950 Owner LLC.	<u>Previously filed as Exhibit 10.15 to the Company's Annual Report on Form 10-K (File No. 001-38098), filed with the Securities and Exchange Commission on February 20, 2020, and incorporated herein by reference.</u>
10.22	Second Amendment to Deed of Lease, effective as of January 1, 2020, between Appian Corporation and Tamares 7950 Owner LLC.	<u>Previously filed as Exhibit 10.16 to the Company's Annual Report on Form 10-K (File No. 001-38098), filed with the Securities and Exchange Commission on February 20, 2020, and incorporated herein by reference.</u>
10.23	Third Amendment to Deed of Lease, dated as of November 30, 2021, between Appian Corporation and Tamares 7950 Owner LLC.	<u>Previously filed as Exhibit 10.21 to the Company's Annual Report on Form 10-K (File No. 001-38098), filed with the Securities and Exchange Commission on February 17, 2022, and incorporated herein by reference.</u>

10.24	Agreement of Sublease, dated as of November 30, 2021, between Appian Corporation and Octagon, Inc.	<u>Previously filed as Exhibit 10.22 to the Company's Annual Report on Form 10-K (File No. 001-38098), filed with the Securities and Exchange Commission on February 17, 2022, and incorporated herein by reference.</u>
10.25	Software Enterprise OEM License Agreement, dated as of June 15, 2016, by and between Appian Corporation and Kx Systems, Inc.†	<u>Previously filed as Exhibit 10.11 to the Company's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on April 27, 2017, and incorporated herein by reference.</u>
10.26	Addendum No. 1 to Software Enterprise OEM License Agreement, dated as of August 20, 2019, by and between Appian Corporation and Kx Systems, Inc.	<u>Previously filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-38098) filed with the Securities and Exchange Commission on October 31, 2019, and incorporated herein by reference.</u>
10.27	Senior Secured Credit Facilities Credit Agreement, dated as of November 3, 2022, by and among Appian Corporation, Wells Fargo Bank, National Association, Comerica Bank, and Silicon Valley Bank.	<u>Filed herewith.</u>
10.28	Joinder and First Amendment to Credit Agreement, dated as of December 13, 2022, by and among Appian Corporation, MUFG Bank, Ltd., Wells Fargo Bank, National Association, Comerica Bank, and Silicon Valley Bank.	<u>Filed herewith.</u>
21.1	Subsidiaries of Appian Corporation.	<u>Filed herewith.</u>
23.1	Consent of BDO USA, LLP, independent registered public accounting firm.	<u>Filed herewith.</u>
24.1	Power of Attorney. Reference is made to the signature page hereto.	Filed herewith.
31.1	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	<u>Filed herewith.</u>
31.2	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	<u>Filed herewith.</u>
32.1	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.	<u>Filed herewith.</u>
101.INS	XBRL Instance Document - The instance document does not appear in the interactive data file because its XBRL tags are embedded within the inline XBRL document.	Attached.
101.SCH	Inline XBRL Taxonomy Extension Schema Document	Attached.
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document	Attached.
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document	Attached.
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document	Attached.
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document	Attached.

104 Cover page interactive data file (formatted as Attached.
Inline XBRL and contained in Exhibit 101)

+ Indicates management contract or compensatory plan.

† Confidential treatment has been granted as to certain portions of this exhibit. These portions have been omitted and filed separately with the Securities and Exchange Commission.

* This certification is deemed not filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended.

Item 16. Form 10-K Summary.

None.

SIGNATURE

Pursuant to the requirements 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.

APPIAN CORPORATION

February 16, 2023

By: /s/ Matthew Calkins	/s/ Mark Matheos
<hr/>	<hr/>
Name: Matthew Calkins	Name: Mark Matheos
Title: Chief Executive Officer and Chairman of the Board (Principal Executive Officer)	Title: Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Matthew Calkins, Mark Matheos, and Christopher Winters, and each of them acting individually, as his or her true and lawful attorneys-in-fact and agents, with full power of each to act alone, with full powers 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 with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, with full power of each to act alone, 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 for all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or his, her or their substitutes, may lawfully do or cause to be done by virtue hereof.

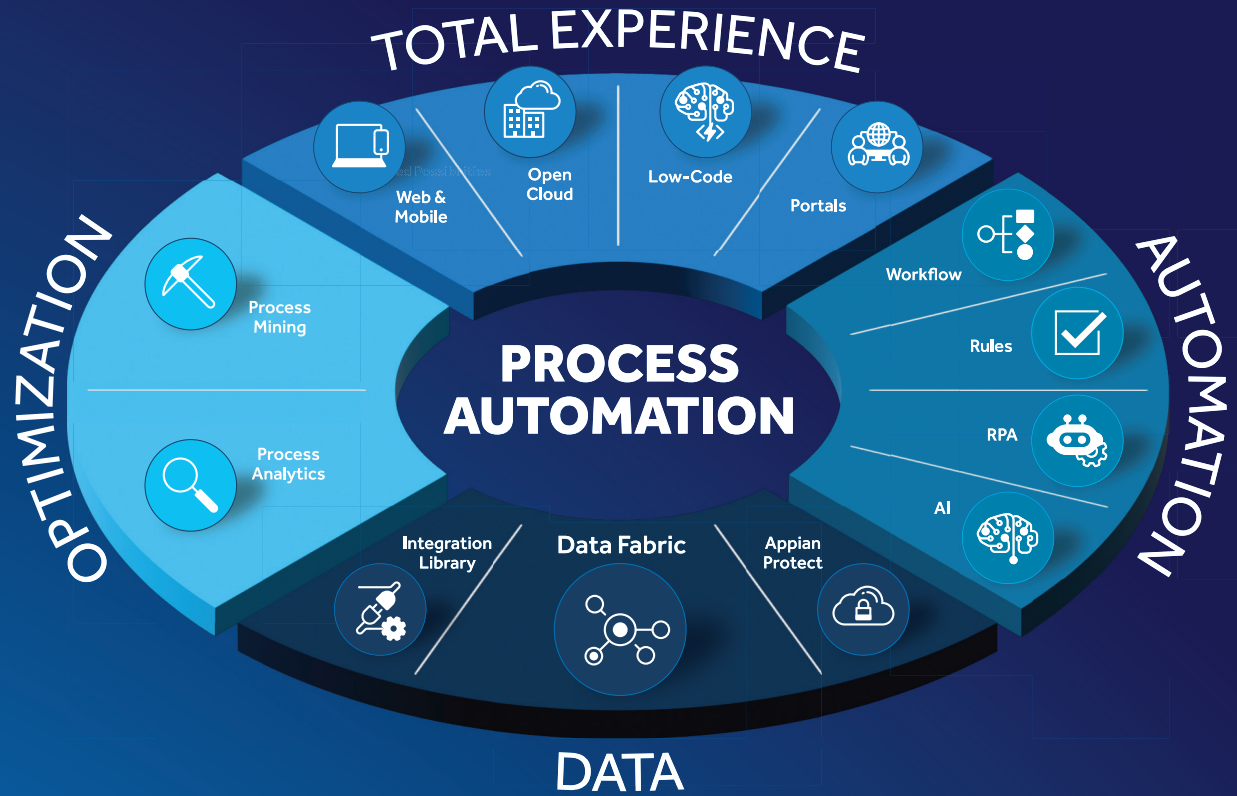
Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
<u>/s/ Matthew Calkins</u> Matthew Calkins	Chief Executive Officer and Chairman of the Board (Principal Executive Officer)	February 16, 2023
<u>/s/ Mark Matheos</u> Mark Matheos	Chief Financial Officer (Principal Financial Officer)	February 16, 2023
<u>/s/ Robert Kramer</u> Robert Kramer	General Manager and Director	February 16, 2023
<u>/s/ A.G.W. "Jack" Biddle, III</u> A.G.W. "Jack" Biddle, III	Director	February 16, 2023
<u>/s/ Prashanth "PV" Boccassam</u> Prashanth "PV" Boccassam	Director	February 16, 2023
<u>/s/ Shirley Edwards</u> Shirley Edwards	Director	February 16, 2023
<u>/s/ Barbara "Bobbie" Kilberg</u> Barbara "Bobbie" Kilberg	Director	February 16, 2023
<u>/s/ Mark Lynch</u> Mark Lynch	Director	February 16, 2023
<u>/s/ William McCarthy</u> William McCarthy	Director	February 16, 2023
<u>/s/ Michael Mulligan</u> Michael Mulligan	Director	February 16, 2023

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The Appian Platform





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