

**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: 333-239644

VERTEX, INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware
(State or other jurisdiction of
incorporation or organization)
2301 Renaissance Blvd
King of Prussia, Pennsylvania
(Address of principal executive offices)

23-2081753
(I.R.S. Employer
Identification No.)

19406

(Zip Code)

Registrant's telephone number, including area code: (800) 355-3500

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

Title of each class	Trading symbol	Name of each exchange on which registered
Class A Common Stock, Par Value \$0.001 Per Share	VERX	NASDAQ

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

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

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

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

The aggregate market value of the voting and non-voting common equity common equity held by non-affiliates of Vertex, Inc. as of June 30, 2022 totaled approximately \$329,737,964. Such value excludes common stock held by executive officers, directors and 10% or greater stockholders as of June 30, 2022. The identification of 10% or greater stockholders as of June 30, 2022 is based on Schedule 13G and amended Schedule 13G reports publicly filed before June 30, 2022. This calculation does not reflect a determination that such parties are affiliates for any other purposes.

As of March 3, 2023, the registrant had 50,724,550 shares of Class A common stock, \$0.001 par value per share, and 100,307,000 shares of Class B common stock, \$0.001 par value per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's Definitive Proxy Statement relating to the 2023 Annual Meeting of Shareholders, are incorporated by reference into Part III of this report. The Definitive Proxy Statement will be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year ended December 31, 2022.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements. We intend such forward looking statements to be covered by the safe harbor provision for forward looking statements contained in Section 27A of the Securities Act of 1933, as amended, (the “Securities Act”), and Section 21E of the Securities Exchange Act of 1934, as amended, (the “Exchange Act”). All statements made in this Annual Report on Form 10-K that are not statements of historical fact, including statements about our beliefs and expectations and regarding future events or our future results of operations, financial condition, business, strategies, financial needs, and the plans and objectives of management, are forward-looking statements and should be evaluated as such. These statements often include words such as “anticipate,” “believe,” “expect,” “suggests,” “plans,” “intend,” “estimates,” “targets,” “projects,” “should,” “could,” “would,” “may,” “will,” “forecast,” and other similar expressions or the negatives of those terms. We base these forward-looking statements on our current expectations, plans and assumptions that we have made in light of our experience in the industry, as well as our perceptions of historical trends, current conditions, expected future developments and other factors we believe are appropriate under the circumstances at such time. As you read and consider this Annual Report on Form 10-K, you should understand that these statements are not guarantees of future performance or results. The forward-looking statements are subject to and involve risks, uncertainties and assumptions, and you should not place undue reliance on these forward-looking statements. Although we believe that these forward-looking statements are based on reasonable assumptions at the time they are made, you should be aware that many factors could affect our actual results or results of operations and could cause actual results to differ materially from those expressed in the forward-looking statements.

You should not place undue reliance on our forward-looking statements, and you should not rely on forward-looking statements as predictions of future events. The results, events, and circumstances reflected in the forward-looking statements may not be achieved or occur, and actual results, events, or circumstances could differ materially from those described in the forward-looking statements. The forward-looking statements made in this Annual Report on Form 10-K speak only as of the date of this report. We undertake no obligation to update any forward-looking statements made in this report to reflect events or circumstances after the date of this report or to reflect new information or the occurrence of unanticipated events, except as required by law. If we update one or more forward-looking statements, no inference should be drawn that we will make additional updates with respect to those or other forward-looking statements.

PART I

Throughout this Annual Report on Form 10-K, Vertex, Inc. and its subsidiaries together are called “Vertex,” “the Company,” “we,” “us,” or “our,” unless otherwise noted. References in this Annual Report on Form 10-K to a particular “year,” or “fiscal,” mean our fiscal year, which ends on December 31.

Item 1. Business

Overview

Vertex is a leading provider of enterprise tax technology solutions. Our software, content, and services help customers stay in compliance with indirect taxes that occur in taxing jurisdictions all over the world.

Collectively, indirect taxes refer to taxes that are collected and remitted to the government by an entity other than the one being taxed. As an example, sales tax is paid by a person or entity that is purchasing a product or service, but it is collected and remitted by the company or entity selling that product or service. This contrasts with direct taxes, such as income tax, which are paid directly by the entity being taxed.

Indirect taxes, such as sales tax, use tax, and value-added tax (“VAT”) are complex. In the United States (“U.S.”) alone, Vertex tax content addresses indirect taxes for over 13,000 unique taxing jurisdictions. Compounding the complexity, rules, regulations, and indirect tax rates are constantly changing. For a company doing business in multiple jurisdictions, compliance with these taxes is a significant challenge and one they encounter in literally every sale or purchase transaction they execute on a daily basis.

Vertex helps companies with complex tax operations to automate their indirect tax processes. Our software, content and services address the increasing complexities of global commerce and compliance by reducing friction, enhancing transparency, and enabling greater confidence in meeting indirect tax obligations. As a result, our software is ubiquitous within our customers' business systems, touching nearly every line item of every transaction that an enterprise can conduct.

The rapid changes taking place in today's global business, technology and regulatory environments are having a compounding effect on the complexity of indirect tax management. As companies expand their business models by entering new geographies, enhancing their distribution channels, adding eCommerce capabilities, or transforming their digital footprint, they increase their exposure to indirect tax obligations. Additionally, as they expand their core offerings to incorporate new digital products and services, they are increasingly impacted by new tax regulations being pursued by jurisdictions. This complexity demands intelligent solutions that enable businesses to satisfy tax obligations and support growth opportunities.

We have pioneered tax technology for over 40 years. Today, we have over 4,200 customers, including the majority of the Fortune 500, and provide our customers with tax support in over 130 countries. Our software enables tax determination, compliance and reporting, tax data management and document management, and analytics and insights with powerful pre-built integrations to core business applications used by most companies, particularly those applications that have a significant impact on global commerce transactions. Our software is fueled by over 500 million data-driven effective tax rules and supports indirect tax compliance in more than 19,000 jurisdictions worldwide. Our solutions can be deployed in the cloud, on-premise environments, or at the network edge, all with implementation services available to enable optimal customer outcomes and satisfy unique business requirements.

Our Solutions

Our Vertex solutions can automate the end-to-end indirect tax processes for all companies with complex tax operations and audit risk. Our software includes tax determination, compliance and reporting, tax data management and document management tools, analytics and insights, as well as pre-built integrations to major business applications. Customers can utilize these solutions individually or as part of a broader suite and can choose the delivery model that best aligns to their enterprise technology environments.

- **Tax Determination.** Our tax determination solutions enable real-time calculation of indirect taxes and applicable fees for sale and purchase transactions. This solution includes a powerful indirect tax calculation engine that applies rules-based logic from our proprietary content database to determine taxability, identify

precise taxing jurisdictions, and consistently apply the appropriate amount of tax to each transaction in real-time. Our solution supports determination for sales tax, consumer and seller use tax, VAT, communications tax, leasing tax, payroll tax and lodging and occupancy tax.

- **Compliance and Reporting.** Our compliance and reporting solutions enable the automation of signature-ready returns and remittance of indirect tax to appropriate jurisdictions. Companies use these solutions to leverage tax data files imported from Vertex or third-party applications to establish visible audit trails of tax determinations and user-made adjustments. Our solutions also include workflow management tools, such as calendar and document management, and role-based security and event logging, which supports our customers' internal control over financial reporting and compliance with the Sarbanes-Oxley Act. We support e-filing and print formats for returns, schedules, worksheets, tax reports and payment requests, and provide archiving and retrieval of all filings.
- **Tax Data Management.** Our tax data management tools enable enterprises to unify transaction data from multiple business applications and sources. These solutions enable tax teams to view detailed transaction-level tax data, identify anomalies or errors, and establish necessary rules to address gaps in data and audit logs for any adjustments or corrections that have been made.
- **Document Management.** Our document management solutions automate the validation and storage of, and tax audit support for, sales tax exemptions and reseller certificates, enabling enterprises to manage large quantities of documents, such as tax exemption certificates.
- **Analytics and Insights.** Our analytics and insights tools improve data quality and provide data intelligence to optimize the end-to-end tax process and improve business outcomes.
- **Pre-Built Integrations.** Our solutions are supported by a suite of powerful, pre-built integrations that enable real-time coordination between our solutions and major business applications, such as Adobe/Magento, Coupa, Microsoft Dynamics, NetSuite, Oracle, Salesforce, SAP, SAP Ariba, Workday and Zuora, among many others. Much more than traditional application programming interfaces, our integrations include mapping data fields, business logic and configurations to improve the processing of transactions to and from our solutions. The majority of our integrations are designed, tested and supported by us. We also allow for partner-developed integrations as part of a rigorous certification program.
- **Industry-Specific Solutions.** We offer a range of solutions that support certain industries that have specific indirect tax needs, such as retail, communications, and leasing. For example, our retail solution supports omnichannel transactions spanning store kiosks, eCommerce websites, catalog sales and mobile device transactions. Our communications solution supports the determination of taxes, surcharges and fees affecting U.S. providers of communication services, including wireless, voice-over-IP, satellite, internet and video and audio streaming services. We have pre-built integrations specific to the leading providers of business applications used by these industries.
- **Technology Specific Solutions – Chain Flow Accelerator, SAP-specific tools.** We offer a number of technology solutions that offer tools and enhancements to certain ecosystems, like SAP or Oracle, that are deeply integrated into their technology stack. For example, our Chain Flow Accelerator tool allows configuration of tax specific flows within the SAP stack. In addition, through the acquisition of LCR-Dixon Corporation (“LCR-Dixon”), in 2021, we acquired an SAP specific tool set that provides customers the ability to maintain, analyze and validate tax data in procure-to-pay as well as sales and billing systems that enhance its usefulness for indirect taxes as well as other business applications.
- **Implementation Services.** Due to the ubiquitous nature of our software in our customers' technology environments, we also offer implementation services to enable our customers to realize the full benefit of our solution at initial deployment. These software implementation services include configuration, data migration and implementation, and premium support and training.

- **Managed Services.** Customers can also license indirect tax returns outsourcing as a managed service for compliance in the U.S. and Canada. These managed services include indirect tax return preparation, filing and tax payment and notice management.

Our Tax Content

All our software and solutions are underpinned by our proprietary content database, which currently supports over 500 million effective tax rules. Our content quality and accuracy are key components of our software subscriptions revenue and customer value. Our content quality and accuracy are critical to the longevity of our customer relationships. On a monthly basis, our content team combines legislative research, analysis, technical logic, and automation to embed updated rules into our software. Unlike many enterprise software solutions where maintenance and support are focused solely on periodic technology upgrades, our monthly updates are a critical element of allowing our customers to ensure that they are utilizing the latest tax changes to accurately calculate their indirect taxes.

Our Technology

Our software and solutions are built upon a robust set of technology capabilities designed for the flexibility, configurability, speed, and scale to handle complex tax scenarios and processing volumes and interoperability across core business applications.

- **Real-Time Engine.** Our real-time engine determines the appropriate tax rules to apply to a line item in a transaction through a sequence of real-time processes that combine tax algorithms and tax content with transaction line-item level detail. Combining tax content stored as structured data with sequencing and decision tree logic results in one or more individual tax rules that are applied to each line item in a transaction. This is built within memory and cached for performance. The in-memory processes of the core calculation engine are tuned to accommodate high-volume and complex transactions at speed and scale.
- **Configuration.** Our solutions are built to be highly configurable. Through our graphical user interfaces, users can configure and map their taxability to ensure the correct tax rules are executed. Our flexibility in configuration also extends to users who can create their own taxability rules, as appropriate. These user-defined taxability rules act as an override, providing flexibility to ensure that non-standard tax scenarios and processes can be addressed. Additionally, users can augment transactions entering and exiting the engine by building their own logic through our drag-and-drop experience. This logic is saved to then execute within the engine.
- **Tax Geography.** Accuracy in determining the appropriate taxation of a transaction depends on many factors, including detailed location information for where a transaction is occurring. We designed and created a proprietary solution for tax jurisdiction identification that leverages industry geographic information system tools and geospatial data. With our proprietary technology we are able to create and map multiple tax jurisdictions for a particular location and assign a unique identifier to each location so that it can be used by the engine to allow for higher accuracy. This technology is highly relevant to emerging economic shifts, such as the sharing economy, where the physical nexus of transactions is unclear, such as ride-sharing services.
- **Security.** Our application security framework allows our customers to define how users can interact with sensitive enterprise data and how they are authorized to use certain aspects of our software. Users are mapped to a set of predefined roles, and we provide our customers with the ability to create user-defined roles. User-defined role-based access can be defined on a screen-by-screen level and further refined with read and/or write privileges.
- **Cloud Solutions.** We provide cloud services from six geographically separate data centers located on two continents: North America and Europe. The data centers are paired for failover of operations to an alternate, geographically separate production facility in case any single data center becomes unavailable. All data centers are operated by leading vendors providing physical security, internet access, environmental controls, and data retention services.

Our Customers

Today, we serve a large, diverse, and growing global customer base. Our market leadership in key industries can be demonstrated by our relationships with many of the largest and most well-known companies in retail trade, wholesale trade, and manufacturing. Our customers include the majority of the Fortune 500, as well as a majority of the top 10 companies by revenue in industries such as retail, technology, and manufacturing, in addition to leading digital marketplaces. We have significant expansion opportunities with these customers driven by our growing product portfolio and geographic coverage.

A distinct and growing subset of our customer base includes digital marketplaces and various professional service providers, including accounting firms and outsourcing firms. Our robust technology and deep tax content differentiate us in our ability to serve the indirect tax needs of 7 of the top 10 digital marketplace providers in North America by revenue. These customers support tens of thousands of merchants who rely on their platform for their eCommerce transaction processing. We also support service providers such as outsourcing and accounting firms who use our technology to calculate tax and file tax returns for their end-customers. While we include these marketplaces and service providers in our customer counts, the tens of thousands of their end-user customers are not included in our customer counts.

As of December 31, 2022, we had 4,289 customers and our Annual Recurring Revenue (“ARR”) per customer was over \$100,500. While most of our revenue is currently generated by customers domiciled in the U.S., many of our customers are multinational organizations with global business operations. We also provide tax software solutions outside the U.S., primarily in Canada and Europe. No single customer represented more than 10% of our total revenue for the years ended December 31, 2022, 2021 or 2020.

Our Growth Strategies

We believe today’s global commerce environment provides durable growth opportunities for our business. Our growth strategies include:

- **Retention and expansion of revenues from existing customers.** The breadth of our solutions allows us to continually meet our customer needs, even as their needs expand in scope. For example, customers initially investing in sales tax determination may need support for other tax types, jurisdictions, and capabilities to manage their indirect tax lifecycle over time. As our customers evolve through acquisitions, expand their products and services, enter new geographies, and enhance their distribution channels, we believe their need for our software, services, and content will also grow. We plan to continue to invest in new innovations and enhance our solutions to support the ongoing retention and expansion of revenue from our existing customers. Our flexible, tiered revenue-based pricing model also results in our customers growing their spend with us as they grow and continue to use our solutions.
- **Acquire new customers.** We believe the market for our software and solutions is large and underpenetrated, both in the U.S. and globally. As enterprise and mid-market companies continue to expand their business operations and their tax complexity grows, we expect demand for our solutions to increase among new customers and partners. We also expect these companies to adopt our solutions much earlier in their corporate lifecycle. This adoption is driven by advances in cloud computing and digital commerce, which enable more companies to accelerate new product delivery and scale their business through online marketplaces and emerging commerce platforms. These increases in business complexity necessitate advanced tax solutions for a broader number of companies. We plan to continue to invest in our direct sales, indirect sales, and partnership marketing teams, and our solution development to capture this demand increase and acquire new customers.
- **Broaden and deepen our partner ecosystem.** We integrate with key technology partners that span enterprise resource planning (“ERP”), customer relationship management (“CRM”), procurement, billing, point of sale (“POS”), and eCommerce platforms. Our partners enhance our go-to-market capacity and extend our brand leadership and reach. We leverage our partnerships to maximize the benefits of our solutions for our customers and to identify new growth opportunities. We believe expanding our strategic alliances with emerging participants who are fueling global commerce, such as payment and digital commerce platforms, will create new value for our customers and new sources of revenue. Future partnerships with large-scale

digital payments players will allow us to develop additional customer-centric solutions and further expand our customer base.

- **Extend global footprint.** We have a significant opportunity to further expand internationally, in terms of our regional operations, content depth and go-to-market coverage. We expect to continue to invest in our software and solutions outside of the U.S., most notably in Latin America and Europe. These jurisdictions are among the most complex and the largest international markets for our customers. We have also made significant investments in our own operations in these regions. In Europe and Brazil, for example, we have tailored our go-to-market strategy, enhanced our country-specific content database, and furthered our investment in our global compliance reporting solution. By extending our global footprint, we believe we will also expand account penetration of existing customers with operations around the globe.
- **Sustained investment in new product innovation.** With the pace of change in commerce and compliance, we believe it is important to continue innovating and extending the functionality and breadth of our software and solutions. Our approach to innovation is driven by our relationships with our customers and partners, with whom we create new solutions, align product roadmaps, and embed our software within their applications and platforms. We have also created and invest in an innovation lab where we design, test, and incubate next generation tax solutions and adjacent market opportunities. Over time, we expect such investment will bring additional value to existing customers and help us acquire new customers.

Sales and Marketing

We license our software and solutions primarily through our direct and indirect sales organization, with a focus on enterprise and midmarket businesses that have complex tax operations. Our direct sales team is comprised of inside sales and field sales, supported by our technical pre-sales and services teams. Teams are organized by territory and company size. We also have customer success teams focused on onboarding, usage, retention, renewals, and cross-selling additional products.

Our direct sales force leverages our partnerships with technology providers such as Oracle, SAP, Microsoft, and Salesforce, and a growing network of system integrators to influence and drive growth opportunities. These partnerships can include certified integrations that drive ease of implementation and rapid time-to-value for our joint customers. We leverage our relationships with professional services firms such as Deloitte, PwC, Ernst and Young, and KPMG to drive tax software adoption in partnership with their tax advisory and tax technology practices.

We also utilize indirect sales to efficiently grow and scale our revenues. Our indirect sales team focuses on building relationships with leading system integrators who implement eCommerce and other platforms, and resellers who offer our software, services, and training to their customer networks. These partnerships allow us to extend our demand generation and market reach efforts. We also extend our reach efficiently through marketplaces and service providers who use our technology to calculate tax and/or file tax returns for their end-customers.

Our marketing investments are focused on establishing and expanding our brand recognition, creating sales leads and growing our customer relationships. We generate sales leads through online and offline marketing channels, including search engine marketing, outbound lead generation, technology events and conferences, and digital marketing programs. Word-of-mouth referrals from our customers, technology partners and consulting firms further scale our market reach. We engage and grow our customer revenues through hosted events, customer advisory boards and user groups, and digital seminars. We extend brand awareness through advertising, press coverage and social media, as well as through sponsorships of industry associations such as Tax Executive Institute, Council on State Taxation, and CPA.com.

Partners

We believe the scale and quality of our ecosystem is unparalleled in the industry, and we are committed to growing it even further. Our partner ecosystem consists of multiple types of partners that provide us access to their customers and clients.

Our continued success is enabled by our seamless integration into customers' business applications, gathering high-quality new customer leads, and collaborating with professional service providers to help our customers solve their specific

tax needs. In addition to driving technological innovation and growing our range of solution offerings, expanding our partner ecosystem has been an essential part of our growth.

- **Accounting & Consulting Partners.** We collaborate with over 50 tax, accounting, and consulting firms, which not only complement our global, local, and industry-specific regulatory expertise but also point us towards specific commercial opportunities. Our wide range of offerings and sophisticated technology align with these firms' areas of specialization, enabling organizations to strengthen end-to-end delivery capabilities for a diverse array of clients.
- **Technology Partners.** Our pre-built integrations with key partners including Adobe/Magento, Coupa, Microsoft Dynamics, NetSuite, Oracle, Salesforce, SAP, SAP Ariba, Workday, and Zuora, among many others, are key differentiators that enable our customers to seamlessly connect our solutions into their business applications and processes. Our trusted brand reputation has allowed us to be the leading SAP and Oracle tax technology provider, with a relationship spanning many years with these vendors. Our technology software and solutions and highly scalable transaction volume throughput has earned the trust of world-class online marketplaces. These deep partnerships allow us to expand the frontier of tax technology innovation and market opportunity.
- **Channel and Resellers.** We continue to expand our indirect go-to-market reach to capitalize on the significant mid-market growth opportunities. These partners include value-added resellers, service providers and original equipment manufacturer relationships with technology firms, system integrators, tax consultants and industry groups such as Avanade, Acumatica and CPA.com. These investments enable certification, training, and enablement to deliver rapid time-to-value and scale.

Research and Development

Our research and development team consists of our architecture, software engineering, user experience, infrastructure development operations automation and technical production support teams. This organization is responsible for the design, development, testing and delivery of new technologies, features and integrations of our tax software and solutions, as well as the continued improvement of our existing solutions. It is also responsible for operating and scaling our software and solutions and infrastructure that run in the cloud. We continue to invest in our research and development capabilities with significant focus on emerging technologies such as edge computing, artificial intelligence/machine learning, data fabric/mesh platforms, blockchain, application programming interface/microservices, and containerization to extend our solutions further into the cloud and partner ecosystems to continuously deliver more value.

Competition

Our industry is highly competitive and fragmented. Businesses employ a mix of approaches to address their indirect tax obligations, including:

- in-house practices and spreadsheets that result in custom transaction-specific research, manual determination, static tax tables or rate calculator services, as well as manual filing and remittance activities;
- businesses utilizing native ERP capabilities with rudimentary tax determination capabilities, which are typically not designed for complex tax support and lack tax rates, rules and complex calculation functionality and require the user to manually track, input, maintain and update all tax law changes that occur;
- outsourced transaction tax compliance services offered by accounting and specialized consulting firms; and
- tax-specific solutions from other vendors.

We believe customers consider the following factors when selecting indirect tax technologies:

- ability to minimize compliance risk exposure associated with inaccurate and/or inconsistent determination and remittance of taxes;

- ability to deliver real time tax determinations;
- ease of deployment and use;
- ease of integration with the customer's business applications, across multiple systems;
- ability to address multiple transaction tax compliance functions, from initial taxability and tax rate determination through compliance and remittance of funds;
- lower total cost of ownership; and
- continuously updated tax content applicable to the customer's business.

Depending on the importance and complexity associated with these factors for each customer we maintain varying competitive advantages. We monitor these factors and adjust our functionalities, service offerings, pricing structures and overall solution delivery approach to continually strengthen our position.

Intellectual Property

Our success has resulted in part from our proprietary methodologies, software, reusable knowledge capital and other intellectual property rights. We rely on a combination of copyright, trademark, and trade secret law, as well as contractual restrictions such as confidentiality and non-compete provisions to protect our intellectual property rights, including our brand, technology, and confidential information. We have policies related to security, privacy, confidentiality, ownership, and the use and protection of our intellectual property. We also enter into confidentiality and invention assignment/proprietary rights agreements with our consultants, employees and other third parties as appropriate that protect and control access to our intellectual property, and we enforce these agreements where necessary. We recognize the value of our intellectual property in the marketplace and vigorously identify, create, and protect it. We believe the innovation of our employees and our continued enhancement of the features and functionality of our solutions is the keystone of our success.

Human Capital

Our culture is the foundation of everything we do, guided by a common purpose to build trusted relationships at work, in business and in our communities. We strive to be a values-driven employer of choice who attracts, retains, and inspires talented professionals to achieve their full potential. We have been recognized as one of the best places to work in Philadelphia for the past eight years according to The Philadelphia Inquirer. We create and nurture an engaging work environment that embodies our core values of collaboration, performance, integrity, innovation, and fun, and we actively support our employees' participation in community service and philanthropy.

As of December 31, 2022, we had over 1,400 full-time employees. Of these employees, 89% were based in the U.S., 10% based in Europe and 1% in Latin America. We believe we have a strong relationship with our employees, and we have not experienced any work stoppages.

We have designed the following dashboards to power the business with human capital data to inform leaders on the development, attraction, and retention of personnel: Board Reporting, SEC Reporting and Program Management Reporting. These dashboards are maintained by our People and Culture and Recruiting teams. These dashboards present information regarding recruiting time to fill averages, retention of employees, workforce costs, diversity, employee engagement, training and development, culture initiatives, and workforce skills and capabilities.

Available Information

We file annual, quarterly, and current reports and other information with the Securities and Exchange Commission ("SEC"). The SEC maintains a website (www.sec.gov) that contains reports, proxy and information statements, and other information regarding registrants that file electronically with the SEC, including us. You may also access, free of charge, our reports filed with the SEC (for example, our Annual Reports on Form 10-K, our Quarterly Reports on Form 10-Q, and our Current Reports on Form 8-K and any amendments to those forms) through the "Investors" portion of our website

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(<https://www.vertexinc.com/>). Reports filed with or furnished to the SEC will be available as soon as reasonably practicable after they are filed with or furnished to the SEC. Our website is included in this Annual Report on Form 10-K as an inactive textual reference only. The information found on our website is not part of this or any other report filed with or furnished to the SEC.

Item 1A. Risk Factors

Our business faces significant risks and uncertainties. Certain important factors may have a material adverse effect on our business prospects, financial condition and results of operations, and they should be carefully considered. Accordingly, in evaluating our business, we encourage you to consider the following discussion of risk factors, in its entirety, in addition to other information contained in or incorporated by reference to this Annual Report on Form 10-K and our other public filings with the SEC. Other events that we do not currently anticipate or that we currently deem immaterial may also affect our business, prospects, financial condition and results of operations. See "Special Note Regarding Forward-Looking Statements" elsewhere in this Annual Report on Form 10-K.

A large portion of our revenue depends on maintaining and growing our revenue from existing customers and adding new customers, and if we fail to add new customers, retain our customers, or expand their usage of our solutions, our business, results of operations, financial condition and cash flows would be harmed.

We currently derive a substantial portion of our revenue from subscriptions to our indirect tax software. We have added, and will continue to add, additional solutions to expand our offerings, but, at least in the near term, we expect to continue to derive the majority of our revenue from our indirect tax software. As such, the ability of our indirect tax software to meet our customers' requirements is critical to our success. Demand for our solutions is affected by a number of factors, many of which are beyond our control, such as continued market acceptance and continued employment of our solutions by existing and new customers, the timing of the development and release of upgraded or new solutions, the introduction or upgrading of products and services by our competitors, technological change and growth or contraction in our addressable market. If our indirect tax software does not continue to meet customer requirements, our business, results of operations, financial condition and growth prospects will suffer.

Our customers have no obligation to renew their subscriptions for our solutions after the expiration of their subscription periods and our customers may not renew subscriptions for a similar mix of solutions. Our retention rates would decline as a result of a number of factors, including customer dissatisfaction, decreased customer spending levels, decreased customer transaction volumes, increased competition, changes in tax laws or rules, pricing changes or legislative changes affecting tax compliance providers. If our customers do not renew their subscriptions, or our customers reduce the solutions purchased under their subscriptions, our revenue would decline and our business may be harmed.

Our future success also depends in part on our ability to sell additional solutions to existing customers and on our customers' expanded use of our solutions. If our efforts to sell our additional solutions to our customers are not successful or if our customers do not expand their use of our solutions, it would decrease our revenue growth and harm our business, results of operations, financial condition and cash flows.

Our business and success depend in part on our strategic relationships with third parties, including our partner ecosystem, and our business would be harmed if we fail to maintain or expand these relationships.

We depend in part on and anticipate that we will continue to depend in part on, various third-party relationships to sustain and grow our business. Our relationships with third-party publishers of software business applications, including accounting, ERP, eCommerce, POS, recurring billing and CRM systems, help drive our business because the integration of our solutions with their applications allows us to reach their sizeable customer bases. Our customers' user experience is dependent on our ability to connect easily to such third-party software applications. We may fail to retain and expand these integrations or relationships for many reasons, including due to failures by third parties to maintain, support or secure their technology platforms in general and our integrations in particular, or errors, bugs or defects in such third-party technology, or changes in our technology platform. Any such failure could harm our relationship with our customers, our reputation and brand and our business and results of operations.

In addition, integrating third-party technology can be complex, costly and time-consuming. Third parties may be unwilling to build integrations, and we may be required to devote additional resources to develop integrations for business applications on our own. Providers of business applications with which we have integrations may decide to compete with us or enter into arrangements with our competitors, resulting in such providers withdrawing support for our integrations. In addition, any failure of our solutions to operate effectively with business applications could reduce the demand for our solutions, resulting in customer dissatisfaction and harm to our business. If we are unable to respond to these changes or failures in a cost-effective manner, our solutions may become less marketable, less competitive or obsolete and our results of operations may be negatively impacted.

If we are unable to adapt to technological change by successfully introducing new and enhanced solutions and services, our business, results of operations, financial condition and cash flows would be adversely affected.

The market for our solutions is characterized by rapid technological change, frequent new product and service introductions and enhancements, changing customer demands and evolving industry standards. The introduction of software embodying new technologies can quickly make existing software obsolete and unmarketable. Software solutions are inherently complex, and it can take a long time and require significant research and development expenditures to develop and test new or enhanced solutions. The success of any enhancements or improvements to our software solutions or any new solutions and services depends on several factors, including timely completion, competitive pricing, adequate quality testing, integration with existing technologies and our platform and overall market acceptance. We cannot be sure that we will succeed in developing, marketing and delivering on a timely and cost-effective basis enhancements or improvements to our software or any new solutions and services that respond to technological change or new customer requirements, nor can we be sure that any enhancements or improvements to our software or any new solutions and services will be free of errors and defects or that they will achieve market acceptance. Moreover, even if we introduce new solutions, we would experience a decline in revenue of our existing solutions that is not offset by revenue from the new solutions. Customers may delay making purchases of new solutions to permit them to make a more thorough evaluation of these solutions or until industry and marketplace reviews become widely available. In addition, we may lose existing customers who choose a competitor's solutions rather than migrate to our new solutions. This could result in a temporary or permanent revenue shortfall and adversely affect our business.

Any failures in information technology or infrastructure could lead to disruptions of our software, loss of customer data or untimely remittance of taxes, any of which could adversely affect our reputation and financial condition.

Our software depends on uninterrupted, high-speed access to the internet in order to provide real-time tax determinations and processing of indirect tax data. Failures in our or our customers' and partners' information technology and infrastructure, or service outages at third-party internet providers, could lead to disruptions to our software. Such failures may be caused by numerous factors, including mechanical failure, power outage, human error, physical or electronic security breaches, war, terrorism, fire, earthquake, hurricane, flood and other natural disasters, sabotage and vandalism. Disruptions to our software could cause customers to lose sensitive or confidential information and could also lead to our or our customers' inability to timely remit taxes to the appropriate authorities. Any of these outcomes could lead customers to switch to our competitors or avoid using our solutions, which would negatively impact our revenue and harm our opportunities for growth.

Incorrect or improper implementation, integration or use of our solutions could result in customer dissatisfaction and negatively affect our business, results of operations, financial condition and cash flows.

Our customers may need training or education in the proper use of, and the variety of benefits that can be derived from, our solutions to maximize their potential benefits. If our solutions are not implemented or used correctly or as intended, inadequate performance may result. Because our customers rely on our solutions to manage a wide range of tax compliance operations, the incorrect or improper implementation or use of our solutions, or our failure to provide adequate support to our customers, may result in negative publicity or legal claims against us, which could harm our business, results of operations, financial condition and cash flows. Also, as we continue to expand our customer base, any failure by us to properly provide training and support will likely result in lost opportunities for additional subscriptions for our solutions. In addition, the upfront costs of our solutions can limit our sales to businesses using manual processes.

If we fail to attract and retain qualified technical and tax-content personnel, our business could be harmed.

Our technology is complex and our success depends in large part on our ability to attract and retain highly qualified personnel, particularly tax-content specialists, software developers, technical support and research and development personnel. Competition for skilled personnel is intense and we may not be successful in attracting, motivating and retaining needed personnel. We have recently experienced efforts by a significant competitor to solicit our employees, and other competitors may take similar actions in the future. We also may be unable to attract or integrate into our operations qualified personnel on the schedule we desire. Any inability to attract, integrate, motivate and retain the necessary personnel could harm our business. Dealing with the loss of the services of our executive officers or key personnel and the process to replace any of our executive officers or key personnel may involve significant time and expense, take longer than anticipated, and significantly delay or prevent the achievement of our business objectives, which would harm our financial condition, results of operations, and business.

We face competitive pressures from other tax software and services providers, as well as the challenge of convincing businesses using native ERP functions to switch to our software.

We face significant competitive challenges from other tax-specific software vendors and from outsourced transaction tax compliance services offered by accounting and specialized consulting firms. There are a number of competing tax-specific software vendors, some of which have substantially greater revenue, personnel and other resources than we do. Corporate competitors, as well as the state and local tax services offered by accounting firms, have historically targeted our customer base of large enterprise companies. In addition, our competitors who currently focus their tax compliance services on small- to medium-sized businesses may be better positioned to increase their market share with small- to medium-sized businesses and may choose to enter our markets, whether competing based on price, service or otherwise. We also face a growing number of competing private transaction tax compliance businesses focused primarily on eCommerce. Increased competition may impact our ability to add new customers and to retain and expand revenues from existing customers. It is also possible that large enterprises with substantial resources that operate in adjacent compliance, finance or eCommerce verticals may decide to pursue transaction tax compliance automation and become immediate, significant competitors. Our failure to successfully and effectively compete with current or future competitors could lead to lost business and negatively affect our revenue.

Our recent success may not be indicative of our future results of operations.

We cannot predict with certainty our customers' future usage or retention given the diversity of our customer base across industries, geographies, customer size and other factors. Accordingly, we may be unable to accurately forecast our revenues notwithstanding our substantial investments in sales and marketing, tax content infrastructure and research and development in anticipation of continued growth in our business. If we do not realize returns on these investments in our growth, our results of operations could differ materially from our prior results, which could cause our stock price to decline.

Changes to customers' and partners' software systems may impact our ability to offer a specific software deployment method to existing customers, which could cause a termination of customer contracts utilizing that deployment method, or otherwise affect our results of operations, financial condition and cash flow.

Our solutions are integrated with the software systems and complex workflows of our customers and partners. In the event that such software systems are modified or updated in a way that is incompatible with our software, we may be unable to continue to support the operations of our customers and partners. If our customers are unable to implement our solutions successfully or in a timely manner, or if our partners are unable to integrate with our solutions through our integrations, customer perceptions of our solutions may be impaired, our reputation and brand may suffer and customers may choose not to renew or expand the use of our solutions. In addition, if we fail to anticipate technological changes that our customers and partners may look to adopt, our solutions may be perceived as being less effective or obsolete. Any of these changes could have a material adverse effect on our results of operations and financial condition.

We need to continue making significant investments in software development and equipment to improve our business.

To improve the scalability, security and efficiency of our solutions, and to support the expansion of our software into other tax types, we will need to continue making significant capital expenditures and also invest in additional software and infrastructure development. If we experience increasing demand in subscriptions, we may not be able to augment our infrastructure quickly enough to accommodate such increasing demand. In the event of decreases in subscription sales, certain of our fixed costs, such as for capital expenditures, may make it difficult for us to quickly adjust our expenses downward. Additionally, we are continually updating our software and content, which increases expenses for us. We may also need to review or revise our software architecture as we grow, which may require significant resources and investments. As a result, although we may have significant research and development expenditures, which may be incurred and certain of which may be capitalized, there is no guarantee our solutions will be accepted by the market. This could result in increased costs or an impairment of capitalized development costs with no resulting future revenue benefit.

If we fail to effectively manage our growth, our business, results of operations, financial condition and cash flows will be harmed.

We have experienced, and may continue to experience, growth in our headcount and operations, both domestically and internationally, which has placed, and may continue to place, significant demands on our management and our administrative, operational and financial reporting resources. We have also experienced significant growth in the number

of customers, number of transactions and the amount of tax content that our platform and solutions support. Our growth will require us to hire additional employees and make significant expenditures, particularly in sales and marketing but also in our technology, professional services, finance and administration teams, as well as in our facilities and infrastructure. Our ability to effectively manage our growth will also require the allocation of valuable management and employee resources and improvements to our operational and financial controls and our reporting procedures and systems. In addition, as we seek to continue to expand internationally, we will likely encounter unexpected challenges and expenses due to unfamiliarity with local requirements, practices and markets. Our expenses may increase more than we plan, and we may fail to hire qualified personnel, expand our customer base, enhance our existing software, expand our tax content, develop new solutions, integrate any acquisitions, satisfy the requirements of our existing customers, respond to competitive challenges or otherwise execute our strategies. If we are unable to effectively manage our growth, our business, results of operations, financial condition and cash flows would likely be harmed.

Future acquisitions of, and investments in, other businesses, software, tax content or technologies may not yield expected benefits, and our inability to successfully integrate acquisitions may negatively impact our business, results of operations, financial condition and cash flows.

We may in the future seek to grow our operations by pursuing acquisitions of businesses, software and technologies. We may not realize the anticipated benefits, or any benefits, from future acquisitions. In addition, if we finance acquisitions by incurring debt or by issuing equity or convertible or debt securities, our existing stockholders may be diluted or we could face constraints related to covenants in the agreements governing the indebtedness, which could affect the market value of our capital stock. To the extent that the acquisition consideration is paid in the form of an earnout on future financial results, the success of such acquisition will not be fully realized by us for a period of time as it is shared with the sellers. Further, if we fail to properly evaluate and execute acquisitions or investments, our business and prospects may be seriously harmed, and the value of your investment may decline. For us to realize the benefits of future acquisitions, we must successfully integrate the acquired businesses, software or technologies with ours. This may take time and divert management's attention from our day-to-day operations, which could negatively impact our business, results of operations, financial condition and cash flows.

Our quarterly and annual results of operations will fluctuate in future periods.

We will experience quarterly or annual fluctuations in our results of operations due to a number of factors, many of which are outside of our control. This makes our future results difficult to predict and could cause our results of operations to fall below expectations or our predictions. Factors that might cause quarterly or annual fluctuations in our results of operations include, but are not limited to:

- our ability to attract new customers and retain and grow revenue from existing customers;
- our ability to maintain, expand, train and achieve an acceptable level of production from our sales and marketing teams;
- our ability to find and nurture successful sales opportunities;
- the timing of our introduction of new solutions or updates to existing solutions;
- our ability to grow and maintain our relationships with our ecosystem of third-party partners, including integration partners and referral partners;
- the success of our customers' businesses;
- the timing of large subscriptions and customer renewal rates;
- new government regulations;
- changes in our pricing policies or those of our competitors;
- the amount and timing of our expenses related to the expansion of our business, operations and infrastructure;
- any impairment of our intangible assets, capitalized software, long-lived assets and goodwill;
- any seasonality in connection with new customer agreements, as well as renewal and upgrade agreements, each of which have historically occurred at a higher rate in the fourth quarter of each year;

- future costs related to acquisitions of content, technologies or businesses and their integration; and
- general economic conditions.

Any one of the factors above, or the cumulative effect of some or all of the factors referred to above, may result in significant fluctuations in our quarterly and annual results of operations. This variability and unpredictability could result in our failure to meet or exceed our internal operating plan. In addition, a percentage of our operating expenses is fixed in nature and is based on forecasted financial performance. In the event of revenue shortfalls, we may not be able to mitigate the negative impact on our results of operations quickly enough to avoid short-term impacts.

We generally recognize revenue from subscription fees paid by customers ratably over the subscription term. As a result, most of the subscription revenue we report in each quarter is the result of agreements entered into during previous quarters. Consequently, a decline in new or renewed subscriptions in any one quarter will not be fully reflected in our revenue results for that quarter. Any such decline, however, will negatively affect our revenue in future quarters. Our subscription model also makes it difficult for us to rapidly increase our revenue through additional sales in any period, as subscription revenue from new customers is generally recognized over the applicable subscription terms.

Operating globally involves challenges that may adversely affect our ability to grow.

We plan to continue expanding our business operations globally and to enter new markets where we have limited or no experience in marketing, selling and deploying our solutions. If we fail to deploy or manage our operations in international markets successfully, our business may suffer. In the future, as our international operations increase, or more of our expenses are denominated in currencies other than the U.S. dollar, our results of operations may become more sensitive to fluctuations in the exchange rates of the currencies in which we do business. In addition, we are subject to a variety of risks inherent in doing business internationally, including:

- political, social and economic instability;
- risks related to the legal and regulatory environment in foreign jurisdictions, including with respect to privacy, localization and content laws as well as unexpected changes in laws, regulatory requirements and enforcement due to the wide discretion given to some local lawmakers and regulators regarding the enactment, interpretation and implementation of local regulations;
- potential damage to our brand and reputation due to compliance with local laws, including potential censorship and requirements to provide user information to local authorities;
- fluctuations in currency exchange rates;
- higher levels of credit risk and payment fraud;
- complying with the tax laws and regulations of multiple tax jurisdictions;
- enhanced difficulties of integrating any foreign acquisitions;
- complying with a variety of foreign laws, including certain employment laws requiring national collective bargaining agreements that set minimum salaries, benefits, working conditions and termination requirements;
- reduced protection for intellectual property rights in some countries;
- difficulties in staffing and managing global operations and the increased travel, infrastructure and compliance costs associated with multiple international locations;
- regulations that might add difficulties in repatriating cash earned outside our core markets and otherwise prevent us from freely moving cash;
- import and export restrictions and changes in trade regulation;
- complying with statutory equity requirements;
- complying with the U.S. Foreign Corrupt Practices Act (the "FCPA"), the U.K. Bribery Act and similar laws in other jurisdictions; and

- complying with export controls and economic sanctions administered by the relevant local authorities, including in the U.S. and European Union, in our international business.

If we are unable to expand internationally and manage the complexity of our global operations successfully, our business could be seriously harmed.

We hold significant amounts of money that we remit to taxing authorities on behalf of our customers, and this may expose us to liability from errors, delays, fraud or system failures, which may not be covered by insurance.

We handle significant amounts of our customers' money so that we can remit those amounts to various taxing jurisdictions on their behalf. If we make mistakes in the determination or remittance of tax payments to the appropriate jurisdictions, our reputation and results of operations could suffer. Moreover, if our banks' or our own internal compliance procedures regarding cash management fail, are hacked or sabotaged, there is a communication error of taxing jurisdiction remittance instructions between the banks' and our systems, or if our banks or we are the subject of fraudulent behavior by personnel or third parties, we could face significant financial losses. Our efforts to remit tax payments to applicable taxing jurisdictions after receiving the corresponding funds from our customers may fail, which would expose us to the financial risk of collecting from our customers after we have remitted funds on their behalf.

Additionally, we are subject to risk from concentration of cash and cash equivalent accounts, including cash from our customers that is to be remitted to taxing jurisdictions, with financial institutions where deposits routinely exceed federal insurance limits. If the financial institutions in which we deposit our customers' cash were to experience insolvency or other financial difficulty, our access to cash deposits could be limited, any deposit insurance may not be adequate, we could lose our cash deposits entirely and we could be exposed to liability to our customers. Any of these events would negatively impact our liquidity, results of operations and our reputation.

If we are unable to successfully adapt to organizational changes and effectively implement strategic initiatives, our reputation and results of operations could be impacted.

We have a dynamic organization and routinely implement changes to our priorities and workforce in order to keep up with the constantly evolving market in which we operate. We expect these types of changes to continue for the foreseeable future. Our success is dependent on identifying, developing and retaining key employees to provide uninterrupted leadership and direction for our business. This includes developing organizational capabilities in key growth markets where the depth of skilled employees is limited and competition for these resources is intense. Further, business and organizational changes may result in more reliance on third parties for various services, and that reliance may increase reputational, operational and compliance risks.

Errors in our customers' transaction tax determinations and reporting functions, or delays in the remittance of their tax payments, could harm our reputation, results of operations and growth prospects.

The tax determinations functions that our customers have to perform are complicated from a data management standpoint, time-sensitive and dependent on the accuracy of the database of tax content underlying our solutions. Some of our processes are not fully automated, such as our process for monitoring updates to tax rates and rules, and even to the extent our processes are automated, our solutions are not proven to be without any possibility of errors. If errors are made in our customers' tax determinations and reporting functions, or delays occur in the remittance of their tax payments, our customers may be assessed interest and penalties. Although our agreements generally have disclaimers of warranties and limit our liability, a court could determine that such disclaimers and limitations are unenforceable as a matter of law and hold us liable for these errors. Additionally, erroneous tax determinations could result in overpayments to taxing authorities that are difficult to reclaim from the applicable taxing authorities or underpayments that could result in penalties. Any history of erroneous tax determinations for our customers could also harm our reputation, could result in negative publicity, loss of or delay in market acceptance of our solutions, loss of customer renewals and loss of competitive position. In addition, our insurance coverage may not cover all amounts claimed against us if such errors or failures occur. The financial and reputational costs associated with any erroneous tax determinations may be substantial and could harm our results of operations.

Changes in tax laws and regulations, or their interpretation or enforcement, may cause us to invest substantial amounts to modify our software, cause us to change our business model or draw new competitors to the market.

Changes in tax laws or regulations or interpretations of existing taxation requirements in the U.S. or in other countries may require us to change the manner in which we conduct some aspects of our business and could harm our ability to attract and retain customers. For example, a material portion of our revenue is generated by performing what can be complex transaction tax determinations and the corresponding preparation of tax returns and remittance of taxes. Changes in tax laws or regulations that reduce complexity or decrease the frequency of tax filings could negatively impact our revenue. In addition, there is considerable uncertainty as to if, when and how tax laws and regulations might change. As a result, we may need to invest substantial funds to modify our solutions to adapt to new tax laws or regulations. If our software solutions are not flexible enough to adapt to changes in tax laws and regulations, our financial condition and results of operations may suffer.

A number of states have considered or adopted laws that attempt to require out-of-state retailers to collect sales taxes on their behalf or to provide the jurisdiction with information enabling it to more easily collect use tax. On June 21, 2018, the U.S. Supreme Court issued its opinion in *South Dakota v. Wayfair, Inc.*, upholding South Dakota's economic nexus law, which requires certain out-of-state retailers to collect and remit sales taxes on sales into South Dakota. Following the Supreme Court's decision, certain states with pre-existing economic nexus provisions announced that they would begin enforcing these provisions on out-of-state retailers and additional states have proceeded with similar efforts. There also has been consideration of federal legislation related to taxation of interstate sales, which, if enacted into law, would place guidelines or restrictions on states' authority to require online and other out of state merchants to collect and remit indirect tax on products and services that they may sell. Similar issues exist outside of the U.S., where the application of value-added taxes or other indirect taxes on online retailers is uncertain and evolving. The effect of changes in tax laws and regulations is uncertain and dependent on a number of factors. Depending on the content of any indirect tax legislation, the role of third-party compliance vendors may change, we may need to invest substantial amounts to modify our solutions or our business model, we could see a decrease in demand, we could see new competitors enter the market, or we could be negatively impacted by such legislation in a way not yet known.

We are exposed to cybersecurity and data privacy risks that, if realized, could expose us to legal liability, damage our reputation and harm our business.

We face risks of cyber-attacks, computer hacks, theft, viruses, malicious software, phishing, employee error, denial-of-service attacks and other security breaches that could jeopardize the performance of our software and expose us to financial and reputational harm. Any of these occurrences could create liability for us, put our reputation in jeopardy and harm our business. Such harm could be in the form of theft of our or our customers' confidential information, the inability of our customers to access our systems or the improper re-routing of customer funds through fraudulent transactions or other frauds perpetrated to obtain inappropriate payments. In some cases, we rely on the safeguards put in place by third parties to protect against security threats. These third parties, including vendors that provide products and services for our operations, could also be a source of security risk to us in the event of a failure or a security incident affecting their own security systems and infrastructure. Our network of ecosystem partners could also be a source of vulnerability to the extent their applications interface with ours, whether unintentionally or through a malicious backdoor. We do not review the software code included in third-party integrations in all instances. Because the techniques used to obtain unauthorized access or to sabotage systems change frequently and generally are not recognized until launched against a target, we or these third parties may be unable to anticipate these techniques or to implement adequate preventative measures. We have internal controls designed to prevent cyber-related frauds related to authorizing the transfer of funds, but such internal controls may not be adequate. With the increasing frequency of cyber-related frauds to obtain inappropriate payments and other threats related to cyber-attacks, we may find it necessary to expend resources to remediate cyber-related incidents or to enhance and strengthen our cybersecurity. Our remediation efforts may not be successful and could result in interruptions, delays or cessation of service. Although we have insurance coverage for losses associated with cyber-attacks, as with all insurance policies, there are coverage exclusions and limitations, and our coverage may not be sufficient to cover all possible claims, and we may still suffer losses that could have a material adverse effect on our reputation and business.

Our customers provide us with information that our solutions store, some of which may be confidential information about them or their financial transactions. In addition, we store personal information about our employees and, to a lesser extent, those who purchase products or services from our customers. We have security systems and information technology infrastructure designed to protect against unauthorized access to such information. The security systems and infrastructure

we maintain may not be successful in protecting against all security breaches and cyber-attacks, social-engineering attacks, computer break-ins, theft and other improper activity. Threats to our information technology security can take various forms, including viruses, worms and other malicious software programs that attempt to attack our solutions or platform or to gain access to the data of our customers or their customers. Like other companies, we have on occasion and will continue to experience threats to our data and systems. Any significant data breach could result in the loss of business, litigation and regulatory investigations, loss of customers and fines and penalties that could damage our reputation and brand and adversely affect the growth of our business. To date, the Company has not experienced any material impact to the business or operations resulting from information or cybersecurity attacks; however, because of the frequently changing attack techniques, along with the increased volume and sophistication of the attacks, there is the potential for the Company to be adversely impacted.

The increase in remote working arrangements by our employees, vendors, and other third parties also increases the risk of a data security compromise and the possible attack surfaces. Although we conduct training as part of our information security, cybersecurity, and data privacy efforts, that training cannot be completely effective in preventing those attacks from being successful.

We may become involved in material legal proceedings and audits, the outcomes which could adversely affect our business, results of operations, financial condition and cash flows.

From time to time, we are involved in claims, suits, investigations, audits and proceedings arising in the ordinary course of our business, and we may in the future become involved in legal proceedings and audits that could have a material adverse effect on our business, results of operations, financial condition and cash flows. Claims, suits, investigations, audits and proceedings are inherently difficult to predict and their results are subject to significant uncertainties, many of which are outside of our control. Regardless of the outcome, such legal proceedings could have a negative impact on us due to legal costs, diversion of management resources and other factors. In addition, it is possible that a resolution of one or more such proceedings could result in reputational harm, substantial settlements, judgments, fines or penalties, criminal sanctions, consent decrees or orders preventing us from offering certain features, functionalities, products or services, requiring us to change our development process or other business practices.

There is also inherent uncertainty in determining reserves for these matters. There is significant judgment required in the analysis of these matters, including assessing the probability of potential outcomes and determining whether a potential exposure can be reasonably estimated. Further, it may take time to develop factors on which reasonable judgments and estimates can be based. If we fail to establish appropriate reserves, our business could be negatively impacted.

Undetected errors, bugs or defects in our software could harm our reputation or decrease market acceptance of our software, which would harm our business and results of operations.

Our software may contain undetected errors, bugs or defects. We have experienced these errors, bugs or defects in the past in connection with new software and software upgrades and we expect that errors, bugs or defects may be found from time to time in the future in new or enhanced software after their commercial release. Our software is often used in connection with large-scale computing environments with different operating systems, system management software, equipment and networking configurations, which may cause or reveal errors or failures in our software or in the computing environments in which they are deployed. Despite testing by us, errors, bugs or defects may not be found in our software until they are used by our customers. In the past, we have discovered errors, bugs and defects in our software after they have been deployed to customers.

Any errors, bugs, defects, disruptions in service or other performance problems with our software may damage our customers' businesses and could hurt our reputation, brand and business. We may also be required, or may choose, for customer relations or other reasons, to expend additional resources to correct actual or perceived errors, bugs or defects in our software. If errors, bugs or defects are detected or perceived to exist in our software, we may experience negative publicity, loss of competitive position or diversion of the attention of our key personnel, our customers may delay or withhold payment to us or elect not to renew their subscriptions, or other significant customer relations problems may arise. We may also be subject to liability claims for damages related to errors, bugs or defects in our software. A material liability claim or other occurrence that harms our reputation or decreases market acceptance of our software may harm our business and results of operations.

Our software utilizes open-source software, and any defects or security vulnerabilities in the open-source software could negatively affect our business.

Certain of our software employs open-source software and we expect to use open-source software in the future. To the extent that our software depends upon the successful operation of open-source software, any undetected errors or defects in this open-source software could prevent the deployment or impair the functionality of our software, delay the introduction of new solutions, result in a failure of our software, and injure our reputation. For example, undetected errors or defects in open-source software could render it vulnerable to breaches or security attacks, and, in conjunction, make our systems more vulnerable to data breaches.

In addition, the terms of various open-source licenses have not been interpreted by U.S. courts, and there is a risk that such licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to market certain of our software solutions. Some open-source licenses might require us to make our source code available for no cost, to make publicly available source code for modifications or derivative works that we create based upon, incorporating or using the open-source software, and/or to license such modifications or derivative works under the terms of the particular open-source license. While we try to insulate our proprietary code from the effects of such open-source license provisions, we cannot guarantee we will be successful. In addition to risks related to open-source license requirements, usage of open-source software can lead to greater risks than use of third-party commercial software, as open-source licensors generally do not provide warranties or controls on the origin of the software. Many of the risks associated with usage of open-source software cannot be eliminated and could negatively affect our business, financial condition and results of operations.

We rely on third-party data centers, systems and technologies to operate our business, and interruptions or performance problems with these third-party providers may adversely affect our business and results of operations.

We rely on data centers and other technologies and services provided by third parties in order to operate our business. If any of these services becomes unavailable or otherwise is unable to serve our requirements, there could be interruptions to our software and provision of services to our customers. Our business depends on our ability to protect the growing amount of information stored in data centers and related systems, offices and hosting facilities against damage from earthquakes, floods, fires, other extreme weather conditions, power loss, telecommunications failures, hardware failures, viruses, terrorist attacks, acts of war, unauthorized electronic or physical intrusion, overload conditions and other events. If our data centers or related systems fail to operate properly or become disabled even for a brief period of time, we could suffer financial loss, a disruption of our business, liability to customers or damage to our reputation. Our response to any type of disaster may not be successful in preventing the loss of customer data, service interruptions, disruptions to our operations or damage to our important facilities. Our data center providers have no obligations to renew their agreements with us on commercially reasonable terms, or at all, and it is possible that we will not be able to switch our operations to another provider in a timely and cost-effective manner should the need arise. If we are unable to renew our agreements with these providers on commercially reasonable terms, or if in the future we add additional data center facility providers, we may face additional costs or expenses or downtime, which could harm our business.

We also rely on computer hardware purchased or leased from, software licensed from, content licensed from and services provided by a variety of third parties, which include database, operating system, virtualization software, tax requirement content and geolocation content and services. Any errors, bugs or defects in such third-party hardware, software, content or services could result in errors or a failure of our solutions, which could harm our business. In the future, we might need to license other hardware, software, content or services to enhance our solutions and meet evolving customer requirements. Any inability to license or otherwise obtain such hardware or software could result in a reduction in functionality, or errors or failures of our products, until equivalent technology is either developed by us or, if available, is identified, obtained through purchase or license, and integrated into our solutions, any of which may reduce demand for our solutions and increase our expenses. In addition, third-party licenses may expose us to increased risks, including risks associated with the integration of new technology, the diversion of resources from the development of our own proprietary technology, and our inability to generate revenue from new technology sufficient to offset associated acquisition and maintenance costs, all of which may increase our expenses and harm our results of operations.

Our business is dependent upon the proper functioning of our business processes and information systems, and modification or interruption of such systems may disrupt our business, processes and internal controls.

We rely upon internal processes and information systems to support key business functions, including our assessment of internal controls over financial reporting as required by Section 404 of the Sarbanes-Oxley Act. The efficient operation

of these processes and systems is critical, and these processes and systems need to be scalable to support our growth. We have launched a project to implement a new ERP system. The scope of the project includes multiple business areas across the organization, and has consumed and will continue to consume significant time, and requires significant resource allocation in the planning, executing, and testing phases. Any issues, problems, and errors with the implementation of the ERP system or its subsequent operation may impact our continued ability to successfully operate our business or to timely and accurately report our financial results. In addition, failure to implement new or updated controls governing the new ERP system, or difficulties encountered in its implementation, could harm our results of operations or cause us to fail to meet our reporting obligations.

In connection with the ERP system implementation, material weaknesses or significant deficiencies may be identified. If we identify weaknesses or deficiencies in our internal control over financial reporting that we are unable to sufficiently remediate, our management may be unable to assert that our disclosure controls and procedures and our internal control over financial reporting is effective. If we are unable to assert that our internal control over financial reporting is effective, or if our independent registered public accounting firm is required but unable to express an unqualified opinion as to the effectiveness of our internal control over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our Class A common stock could be adversely affected and we could become subject to litigation or investigations by NASDAQ, the SEC, or other regulatory authorities, which could require additional financial and management resources.

If we fail to effectively protect, maintain and enhance our brand, our business may suffer.

As a leader in our industry for over 40 years, our brand is one of our most valuable assets, and any failure to protect our brand could cause our business to suffer. In addition, the promotion of our brand requires us to make substantial expenditures, and we anticipate that the expenditures will increase as our market becomes more competitive and as we expand into new regions. The demand for and cost of online and traditional advertising have been increasing and may continue to increase. Our brand promotion efforts will require investment not just in our indirect tax solutions, but also in our full suite of software and services. To the extent that these activities yield increased revenue, this revenue may not offset the increased expenses we incur. If we do not successfully maintain and enhance our brand, our business may not grow, we may have reduced pricing power relative to competitors and we could lose customers or fail to attract potential new customers, all of which would adversely affect our business, results of operations, financial condition and cash flows.

Changes in the application, scope, interpretation or enforcement of laws and regulations pertaining to our operations may harm our business or results of operations, subject us to liabilities and require us to implement new compliance programs or business methods.

We perform a number of critical business functions for our customers, including remittance of the taxes our customers owe to taxing authorities. Our electronic payment of customers' taxes may be subject to federal or state laws or regulations relating to money transmission. The Federal Bank Secrecy Act requires that financial institutions, of which money transmitters are a subset, register with the U.S. Department of Treasury's Financial Crimes Enforcement Network and maintain policies and procedures reasonably designed to monitor, identify, report and, where possible, avoid money laundering and criminal or terrorist financing by customers. Most U.S. states also have laws that apply to money transmitters, and impose various licensure, examination and bonding requirements on them. We believe these federal and state laws and regulations were not intended to cover the business activity of remitting transaction taxes that taxpayers owe to the various states and localities. However, if federal or state regulators were to apply these laws and regulations to this business activity, whether through expansion of enforcement activities, new interpretations of the scope of certain of these laws or regulations or of available exemptions, or if our activities are held by a court to be covered by such laws or regulations, we could be required to expend time, money and other resources to deal with enforcement actions and any penalties that might be asserted, to institute and maintain a compliance program specific to money transmission laws, and possibly to change aspects of how we conduct our business to achieve compliance or minimize regulation. Application of these laws to our business could also make it more difficult or costly for us to maintain our banking relationships. Financial institutions may also be unwilling to provide banking services to us due to concerns about the large dollar volume moving in and out of our accounts on behalf of our customers in the ordinary course of our business. As we continue to expand the solutions we offer and the jurisdictions in which we offer them, we could become subject to other licensing, examination or regulatory requirements relating to financial services.

Determining the taxes owed by our customers involves providing solutions tailored to the types and prices of products our customers sell, as well as information regarding addresses that products are shipped from and delivered to. Numerous

federal, state and local laws and regulations govern the collection, dissemination, use and safeguarding of personal information and other data, the scope of which is changing, subject to differing interpretations, and which may be costly to comply with, inconsistent between jurisdictions or conflicting with other rules. We may be subject to these laws in certain circumstances. Most states have also adopted laws that require notice be given to affected consumers in the event of a security breach. In the event of a security breach, our compliance with these laws may subject us to costs associated with notice and remediation, as well as potential investigations from federal regulatory agencies and state attorneys general. A failure on our part to safeguard consumer data adequately or to destroy data securely may subject us, depending on the personal information in question, to costs associated with notice and remediation, as well as to potential regulatory investigations or enforcement actions, and possibly to civil liability, under federal or state data security or unfair practices or consumer protection laws. If federal or state regulators were to expand their enforcement activities or change their interpretation of the applicability of these laws, or if new laws regarding privacy and protection of consumer data were to be adopted, the burdens and costs of complying with them could increase significantly, negatively affecting our results of operations and possibly the manner in which we conduct our business. For example, the European Union's General Data Protection Regulation requires certain operational changes for companies that receive or process personal data of residents of the EU and includes significant penalties for noncompliance. In addition, other governmental authorities around the world are considering implementing similar types of legislative and regulatory proposals concerning data protection. We may incur significant costs to comply with these mandatory privacy and security standards.

If economic conditions worsen, it may negatively affect our business and financial performance.

Our financial performance depends, in part, on the state of the economy, both in the U.S. and globally. Declining levels of economic activity may lead to declines in spending and customer revenue, which may result in decreased revenue for us. Concern about the strength of the economy may slow the rate at which businesses of all sizes are willing to hire an outside vendor to perform the determination and remittance of their transaction taxes and filing of related returns. If our customers and potential customers experience financial hardship as a result of a weak economy, industry consolidation or other factors, the overall demand for our solutions could decrease. If economic conditions worsen, our business, results of operations, financial condition and cash flows could be harmed. Additionally, over the past year, the consumer price index has increased substantially year over year. Federal policies to stimulate the economy during the pandemic and more recent global events, such as the rising price of oil and the conflict between Russia and Ukraine, may have exacerbated, and may continue to exacerbate, inflation and increases in the consumer price index. There is no guarantee that we will be able to offset this inflationary pressure through price increases, and a sustained or further increase in inflation could have an adverse impact on our operating expenses our business, results of operations, financial condition and cash flows. The extent of these effects on our business and financial results will depend largely on future developments, which are highly uncertain and cannot be predicted.

Natural disasters, epidemic or pandemic outbreaks, terrorist acts and political events could disrupt business and result in lower sales and otherwise have a material adverse effect on our business, financial performance and results of operations.

The occurrence of one or more major natural disasters, unusual weather conditions, epidemic or pandemic outbreaks, terrorist attacks or disruptive political events, each of which is out of our control, may result in reduced consumer and supplier spending and transactions, which in turn could cause our revenues to decline and our business to suffer. Natural disasters including tornados, hurricanes, floods and earthquakes may damage the facilities of our customers or those of their suppliers or retailers or their other operations, which could lead to reduced revenue for our customers and thus could result in declines in our revenue that is aligned with customer transaction volume. In addition, a global epidemic or pandemic outbreak, such as the outbreak of coronavirus disease 2019 ("COVID-19"), may have a material adverse effect on global economic conditions, consumer spending and the stability of global financial markets. Similarly, terrorist attacks or disruptive political events, such as the imposition of retaliatory tariffs or governmental trade or price manipulation, could cause our customers, or their customers, to defer spending plans or otherwise reduce their economic activity. If any of the foregoing risks were to be realized, it could have a material adverse effect on or business, financial performance and results of operations.

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

We are subject to requirements under the U.S. Treasury Department's Office of Foreign Assets Control, anti-corruption, anti-bribery and similar laws, such as the FCPA, the U.S. domestic bribery statute contained in 18 U.S.C. §

201, the U.S. Travel Act, the USA PATRIOT Act, the U.K. Bribery Act 2010, and other anti-corruption, anti-bribery and anti-money laundering laws in countries in which we conduct activities. Anti-corruption and anti-bribery laws have been enforced aggressively in recent years and are interpreted broadly and prohibit companies and their employees and agents from promising, authorizing, making, offering or providing anything of value to a "foreign official" for the purposes of influencing official decisions or obtaining or retaining business, or otherwise obtaining favorable treatment. As we increase our international operations, our risks under these laws may increase. Non-compliance with these laws could subject us to investigations, sanctions, settlements, prosecution, other enforcement actions, disgorgement of profits, significant fines, damages, other civil and criminal penalties or injunctions, adverse media coverage and other consequences. Any investigations, actions or sanctions could harm our business, results of operations, financial condition and cash flows.

In addition, in the future we may use third parties to sell access to our software and conduct business on our behalf abroad. We or such future third-party intermediaries may have direct or indirect interactions with officials and employees of government agencies or state-owned or affiliated entities, and we can be held liable for the corrupt or other illegal activities of such future third-party intermediaries, and our employees, representatives, contractors, partners and agents, even if we do not explicitly authorize such activities. We cannot provide assurance that our internal controls and compliance systems will always protect us from liability for acts committed by employees, agents or business partners of ours (or of businesses we acquire or partner with) that would violate U.S. and/or non-U.S. laws, including the laws governing payments to government officials, bribery, fraud, kickbacks, false claims, pricing, sales and marketing practices, conflicts of interest, competition, employment practices and workplace behavior, export and import compliance, economic and trade sanctions, money laundering, data privacy and other related laws. Any such improper actions or allegations of such acts could subject us to significant sanctions, including civil or criminal fines and penalties, disgorgement of profits, injunctions and debarment from government contracts, as well as related stockholder lawsuits and other remedial measures, all of which could adversely affect our reputation, business, results of operations and financial condition.

Any violation of economic and trade sanction laws, export and import laws, the FCPA or other applicable anti-corruption laws or anti-money laundering laws could also result in whistleblower complaints, adverse media coverage, investigations and severe criminal or civil sanctions, any of which could have a materially adverse effect on our reputation, business, results of operations and prospects.

Our ability to protect our intellectual property is limited, and we may be subject to claims of infringement by third parties.

Our success depends, in part, upon our proprietary technology, processes, trade secrets, and other proprietary information and our ability to protect this information from unauthorized disclosure and use. We primarily rely upon a combination of copyright, trademark and trade secret laws, as well as confidentiality procedures, contractual provisions and other similar measures to protect our proprietary or confidential information and intellectual property. Our trademarks and service marks include VERTEX™ and O Series™, which is our flagship indirect tax solution. Despite our efforts to protect our proprietary rights and intellectual property, unauthorized parties may attempt to copy aspects of our solutions or to obtain and use information that we regard as proprietary, and third parties may attempt to independently develop similar technology, policing unauthorized use of our technology and intellectual property rights may be difficult and may not be effective.

In addition, third parties may claim infringement by us with respect to current or future solutions or other intellectual property rights. The software and technology industries are characterized by the existence of a large number of patents, trademarks and copyrights and by frequent litigation based on allegations of infringement or other violations of intellectual property rights. The outcome of any claims or litigation, regardless of the merits, is inherently uncertain. Any claims and lawsuits to enforce our intellectual property rights or to defend ourselves against claims of infringement of third-party intellectual property rights, and the disposition of such claims and lawsuits, whether through settlement or licensing discussions, or litigation, could be time-consuming and expensive to resolve, divert management attention from executing our strategies, result in efforts to enjoin our activities, lead to attempts on the part of other parties to pursue similar claims, and, in the case of intellectual property claims, require us to change our technology, change our business practices, pay monetary damages, or enter into short- or long-term royalty or licensing agreements. Any adverse determination related to intellectual property claims or other litigation could prevent us from offering our solutions to others, could be material to our financial condition or cash flows, or both, or could otherwise harm our results of operations.

Our ability to obtain additional capital on commercially reasonable terms may be limited.

We intend to continue to make investments to support our business growth and may require additional funds, beyond those generated by our initial public offering or available under our existing credit facility, to respond to business challenges, including to better support and serve our customers, develop new software or enhance our existing solutions, expand our tax content, improve our operating and technology infrastructure or acquire complementary businesses and technologies. Accordingly, we may need to engage in public or private equity, equity-linked 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. Any debt financing that we secure in the future could involve restrictive covenants relating to our capital raising activities and other financial and operational matters, including the ability to pay dividends. This may make it more difficult for us to obtain additional capital and to pursue business opportunities, including potential acquisitions. 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 on terms satisfactory to us when we require it, our ability to continue to support our business growth and respond to business challenges could be significantly impaired, and our business and prospects could be adversely affected.

If we fail to maintain an effective system of disclosure controls and internal control over financial reporting, or fail to remediate any material weaknesses in our internal controls over financial reporting, our ability to produce timely and accurate financial statements or comply with applicable regulations could be impaired.

Ensuring that we have adequate internal financial and accounting controls and procedures in place to produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be re-evaluated frequently. The rapid growth of our operations and our ongoing transition to a publicly traded company has created a need for additional resources within the accounting and finance functions due to the increasing need to produce timely financial information and to ensure a level of segregation of duties customary for a U.S. public company. We continue to reassess the sufficiency of finance personnel in response to these increasing demands and expectations.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our management does not expect that our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within our company will have been detected.

We previously identified and disclosed certain material weaknesses in our internal control over financial reporting in our Annual Report on Form 10-K for the year ended December 31, 2020. These material weaknesses have since been remediated, but additional material weaknesses or significant deficiencies may be discovered in the future. If we identify additional material weaknesses in our internal control over financial reporting, our management will be unable to assert that our disclosure controls and procedures and our internal control over financial reporting is effective. If we are unable to assert that our internal control over financial reporting is effective, or if our independent registered public accounting firm is required but unable to express an unqualified opinion as to the effectiveness of our internal control over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our common stock could be adversely affected and we could become subject to litigation or investigations by NASDAQ, the SEC, or other regulatory authorities, which could require additional financial and management resources.

The price of our Class A common stock may fluctuate significantly, and you could lose all or part of your investment.

The market price of our Class A common stock is likely to be volatile and could be subject to wide fluctuations in response to many risk factors listed in this section, and others beyond our control, including:

- actual or anticipated fluctuations in our results of operations and financial condition;
- variance in our financial performance from expectations of securities analysts;
- changes in our software subscription revenue;

- changes in our projected operating and financial results;
- changes in tax laws or regulations;
- 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;
- changes in the anticipated future size and growth rate of our market; and
- general economic, regulatory and market conditions.

The stock markets have historically experienced price and volume fluctuations that at times have been extreme and have affected and continue to affect the market prices of equity securities of many companies. 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. If the market price of our Class A common stock falls below your investment price, you may lose some or all of your investment. 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.

We are a "controlled company" within the meaning of the NASDAQ Rules and, as a result, expect to qualify for, and intend to rely on, exemptions from certain corporate governance requirements. You will not have the same protections afforded to stockholders of companies that are subject to such requirements.

Our current principal stockholders beneficially own a majority of the combined voting power of all classes of our outstanding voting stock; thus, we are a controlled company within the meaning of the NASDAQ Rules, which state a company with more than 50% of the voting power held by another person or group of persons acting together is a controlled company and may elect not to comply with certain corporate governance requirements, including the requirements that:

- a majority of the board of directors consist of independent directors as defined under the rules of the NASDAQ Global Market;
- the nominating and governance committee be composed entirely of independent directors with a written charter addressing the committee's purpose and responsibilities; and
- the compensation committee be composed entirely of independent directors with a written charter addressing the committee's purpose and responsibilities.

These requirements will not apply to us as long as we remain a controlled company. We have elected to take advantage of the exemption from the requirement that a majority of our board of directors consist of independent directors and that our nominating and corporate governance committee consist entirely of independent directors. Accordingly, you may not have the same protections afforded to stockholders of companies that are subject to all of the corporate governance requirements of the NASDAQ Global Market.

Item 1B. Unresolved Staff Comments

Not applicable.

Item 2. Properties

Our corporate headquarters, which includes our operations and development teams, is located in King of Prussia, Pennsylvania, and consists of approximately 189,500 square feet of space under a lease that expires on September 30, 2028.

We also lease offices in Naperville, Illinois; London, United Kingdom; Amsterdam, The Netherlands; Frankfurt, Germany; Sao Paulo, Brazil; Chennai, India; Killorglin, Ireland; and Cork, Ireland.

We believe our facilities are adequate for our current and presently foreseeable needs.

Item 3. Legal Proceedings

On January 25, 2022, we filed a complaint (subsequently amended on February 9, 2022) against Avalara, Inc. (“Avalara”) in the United States District Court for the Eastern District of Pennsylvania. The complaint alleges claims of unfair competition, intentional interference with contractual relations, and trade secret misappropriation against Avalara. We are seeking a permanent injunction to prevent Avalara from further interfering in our contractual relations and to prohibit them from using or disclosing in any way our confidential, proprietary, and/or trade secret information. We are also seeking monetary damages, including punitive damages, and attorneys’ fees. On February 7, 2022, Avalara filed a motion to dismiss the complaint for lack of personal jurisdiction. Avalara withdrew that motion on February 17, 2022, and filed a renewed motion to dismiss the amended complaint for lack of personal matter jurisdiction on March 2, 2022. Vertex’s opposition to the motion to dismiss was filed in 2022. We believe that the allegations in the complaint, once proven, are sufficient to prevail in this matter. However, the eventual outcome of the case is subject to a number of uncertainties, and therefore we cannot offer any assurance as to the ultimate impact of this case on our business and operations.

In addition to the foregoing matter, from time to time, we may be involved in various legal proceedings arising from the normal course of business activities. We are not presently a party to any litigation the outcome of which we believe, if determined adversely to us, would individually or taken together have a material adverse effect on our business, operating results, cash flows or financial condition.

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 for Common Stock

Our Class A common stock has been listed on the NASDAQ Global Market exchange, under the symbol “VERX” since July 28, 2020. Prior to that date, there was no public trading market for our common stock.

Our Class B common stock is not listed on any stock exchange nor traded on any public market.

Holders

As of December 31, 2022, we had 11 holders of record of our Class A common stock. Because many of our shares of Class A common stock are held by brokers and other institutions on behalf of shareholders, we are unable to estimate the total number of shareholders represented by these record holders.

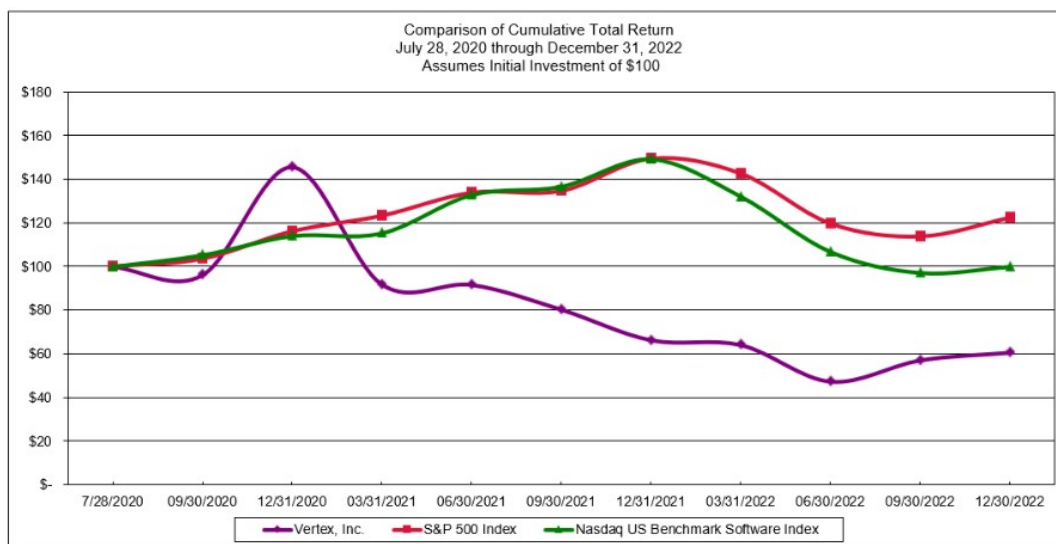
As of December 31, 2022, there were 28 stockholders of record of our Class B common stock.

Dividend Policy

We currently intend to retain all available funds and any future earnings for use in the operation of our business and do not anticipate paying any dividends on our common stock in the foreseeable future. Any future determination to declare dividends will be made at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, general business conditions, and other factors that our board of directors may deem relevant.

Stock Performance Graph

The graph below⁽¹⁾ compares the cumulative total return on our Class A common stock with that of the S&P 500 Index⁽²⁾ and the NASDAQ U.S. Benchmark Software TR Index⁽³⁾. The period shown commences on July 28, 2020, and ends on December 31, 2022, the end of our most recent fiscal year. The graph assumes an investment of \$100 in each of the aforementioned on the close of market on July 28, 2020. The stock price performance graph is not necessarily indicative of future price performance.



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² S&P 500 Index Data: Copyright Standard and Poor's, Inc. Used with permission. All rights reserved.

³ NASDAQ Index Data: Copyright NASDAQ OMX, Inc. Used with permission. All rights reserved.

Company / Index	Base Date										
	7/28/20	9/30/20	12/31/20	3/31/21	6/30/21	9/30/21	12/31/21	3/31/22	6/30/22	9/30/22	12/30/22
Vertex, Inc.	\$ 100.00	\$ 96.11	\$ 145.63	\$ 91.85	\$ 91.68	\$ 80.32	\$ 66.32	\$ 64.10	\$ 47.34	\$ 57.12	\$ 60.63
S&P 500	\$ 100.00	\$ 103.54	\$ 116.12	\$ 123.29	\$ 133.83	\$ 134.61	\$ 149.46	\$ 142.58	\$ 119.63	\$ 113.79	\$ 122.39
NASDAQ U.S. Benchmark Software TR	\$ 100.00	\$ 105.29	\$ 114.08	\$ 115.33	\$ 132.90	\$ 136.71	\$ 149.28	\$ 132.14	\$ 106.79	\$ 97.20	\$ 100.01

Recent Sales of Unregistered Securities

None.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

None.

Item 6. [Reserved]

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

You should read the following discussion and analysis of our financial condition and results of operations in conjunction with the consolidated financial statements and the notes thereto 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, beliefs and expectations that involve risks and uncertainties. Our actual results and the timing of events could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Annual Report on Form 10-K, particularly in the sections titled “Risk Factors” and “Special Note Regarding Forward-Looking Statements.”

This section of this Annual Report on Form 10-K generally discusses 2022 and 2021 items and year-to-year comparisons between 2022 and 2021. Discussions of 2020 items and year-to-year comparisons between 2021 and 2020 are not included in this Annual Report on Form 10-K, and can be found in “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in Part II, Item 7 of the Company’s Annual Report on Form 10-K for the year ended December 31, 2021.

Overview

Vertex is a leading global provider of indirect tax software and solutions. Our mission is to deliver the most trusted tax technology enabling global businesses to transact, comply and grow with confidence. Vertex provides cloud-based and on-premise solutions that can be tailored to specific industries for every major line of indirect tax, including sales and consumer use, value added and payroll. Headquartered in North America, and with offices in South America and Europe, Vertex employs over 1,400 professionals and serves companies across the globe.

We derive the majority of our revenue from software subscriptions. These subscriptions include use of our software and ongoing monthly content updates. Our software is offered on a subscription basis to our customers, regardless of their deployment preferences. On-premise subscriptions are typically sold through one-year contracts and cloud-based subscriptions are typically sold through one- to three-year contracts. We bill the majority of our customers annually in advance of the subscription period.

Our customers include a majority of the Fortune 500, as well as a majority of the top 10 companies by revenue in multiple industries such as retail, technology and manufacturing, in addition to leading marketplaces. As our customers expand geographically and pursue omnichannel business models, their tax determination and compliance requirements increase and become more complex, providing sustainable organic growth opportunities for our business. Our flexible, tiered transaction-based pricing model also results in our customers growing their spend with us as they grow and continue to use our solutions. We principally price our solutions based on a customer’s revenue base, in addition to a number of other factors.

We employ a hybrid deployment model to align to our customers’ technology preferences for their core financial management software across on-premise, cloud deployments or any combination of these models. Over time, we expect both existing and newly acquired customers to continue to shift toward cloud deployment models. Cloud-based subscription sales to new customers have grown at a significantly faster rate than on-premise software subscription sales, which is a trend that we expect to continue over time. We generated 41% and 35% of software subscription revenues from cloud-based subscriptions in 2022 and 2021, respectively. While our on-premise software subscription revenues comprised 59% and 65% of our software subscription revenues for 2022 and 2021, respectively, they continue to decrease as a percentage of total software subscriptions revenues as cloud-based subscriptions grow.

We license our solutions primarily through our direct sales force, which focuses on selling to qualified leads provided by our marketing efforts, and through our network of referral partners. We also utilize indirect sales to a lesser extent to efficiently grow and scale our enterprise and mid-market revenues.

Our partner ecosystem is a differentiating, competitive strength in both our software development and our sales and marketing activities. We integrate with key technology partners that span ERP, CRM, procurement, billing, POS and eCommerce. These partners include Adobe/Magento, Coupa, Microsoft Dynamics, NetSuite, Oracle, Salesforce, SAP, SAP Ariba, Workday and Zuora. We also collaborate with numerous accounting firms who have built implementation practices around our software to serve their customer base.

We believe that global commerce and the compliance environment provides durable and accelerating growth opportunities for our business. We generated revenues of \$491.6 million and \$425.5 million in 2022 and 2021, respectively. We had a net loss of (\$12.3) million and (\$1.5) million in 2022 and 2021, respectively. These amounts are presented in accordance with generally accepted accounting principles in the U.S. (“GAAP”).

We define Adjusted EBITDA as net income or loss before interest, taxes, depreciation, and amortization, as adjusted to exclude charges for asset impairments, stock-based compensation expense, severance expense, acquisition contingent consideration, litigation settlements, and transaction costs which includes offering costs related to the sale of shares of certain of our Class B shareholders which are not representative of normal business operations. Adjusted EBITDA was \$78.7 million and \$78.0 million in 2022 and 2021, respectively. Adjusted EBITDA is a non-GAAP financial measure. Refer to “Key Business Metrics” and “Use and Reconciliation of Non-GAAP Financial Measures” for further discussion of key business metrics and non-GAAP financial measures and their comparison to GAAP financial measures.

Key Factors Affecting Performance

The growth of our business and our future success depends on many factors, including our ability to retain and expand our revenues from existing customers, acquire new customers, broaden and deepen our partner ecosystem, continually innovate our software, invest in growth and scale our business and manage customer migrations to cloud solutions. While these areas represent significant opportunities for us, we also face significant risks and challenges that we must successfully address in order to sustain the growth of our business and improve our operating results. We anticipate that we will continue to expand our operations and headcount. The expected addition of new personnel and the investments that we anticipate will be necessary to manage our anticipated growth may make it more difficult for us to achieve or maintain profitability. Many of these investments will occur in advance of experiencing any direct benefit and will make it difficult to determine if we are allocating our resources efficiently.

Retention and expansion of revenues from existing customers. Given the breadth of our customer base and their own internal growth, the majority of our revenues and revenue growth comes from existing customers. This revenue growth is comprised of the acquisition of new licenses for additional products, increases in subscription fees due to expanded usage of currently licensed software and price increases. We plan to continue to invest in new innovations and offerings and in our sales and marketing teams in order to support the ongoing strong retention and expansion of revenues with our existing customers. We monitor our net revenue retention rate (“NRR”) in order to understand our ability to retain and grow revenues from our customers. Our NRR was 110% and 108% in 2022 and 2021, respectively. Refer to “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Key Business Metrics – Net Revenue Retention Rate” for further discussion.

Acquire new customers. Our solutions address the complexity of aligning commerce and compliance, and we believe the market for our software and solutions is large and underpenetrated, both in the U.S. and globally. As enterprise and mid-market companies continue to expand their business operations—both through their product and service offerings and their global footprint—we expect demand for our tax solutions to increase due to the fact that legacy solutions such as spreadsheets, manual processes, native ERP functionality or home-built solutions are error prone, inefficient and cannot scale. We plan to continue to invest in our sales and marketing teams and our solution development in order to address this increased demand from new customers. This increased investment will result in increases in expenses in advance of revenues attributable to these investments.

Broaden and deepen our partner ecosystem. We have an extensive network of partners that spans ERP, CRM, procurement, billing, POS and eCommerce platforms. Our partners enhance the coverage and adoption of our solutions and promote our thought leadership. We leverage our partnerships to maximize the benefits of our solutions for our customers and to identify new customer opportunities. By forming additional strategic alliances with participants in the global digital transformation, such as payments and eCommerce platforms, we can continue to expand our exposure to all transactions, both business-to-consumer and business-to-business. Future partnerships with large-scale digital payments companies will allow us to develop additional customer-centric solutions and further expand our customer base.

Continued innovation of our software. With the pace of change in commerce and compliance, we believe it is important to continue innovating and extending the functionality and breadth of our software. We plan on investing to further enhance our content and the speed and usability of our software. Historically such innovation has been accomplished through internal development efforts. However, we may pursue acquisitions, development arrangements with partners or similar activities to accelerate these investments. We believe continuing to enhance our existing software

and expanding our tax content will increase our ability to generate revenues by broadening the appeal of our software to new customers as well as increasing our engagement with existing customers. See Note 3, Business Combinations to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K for a discussion of our acquisitions.

Investing in growth and scaling our business. We believe that our market opportunity is large, and we will continue to invest significantly in scaling across organizational functions in order to support the anticipated growth in our operations both domestically and internationally. Any investments we make in our research and development and our sales and marketing organization will occur in advance of experiencing the benefits from such investments; therefore, it may be difficult for us to determine if we are efficiently allocating resources in those areas. The company may pursue acquisitions or partner arrangements to accelerate its growth initiatives. See Note 3, Business Combinations to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K for a discussion of our acquisitions.

Customer migration to cloud solutions. Over time, we expect a continued shift to our cloud solutions by our existing and newly acquired customers. When existing customers migrate from our on-premise to our cloud-based solutions, this generally has a favorable impact on our long-term ARR due to price structures and opportunities to promote additional license sales. Over the past three years, cloud sales to new customers have grown at a significantly faster rate than sales of on-premise solutions, which is a trend that we expect to continue over time. We generated 41% and 35% of software subscription revenues from cloud-based subscriptions in 2022 and 2021, respectively. We host our cloud-based subscriptions. To the extent that revenues from our cloud-based solutions continue to increase as a percentage of total revenues, our gross margin may decrease due to the associated hosting costs of those offerings.

Recent Developments

Impact of COVID-19

The COVID-19 pandemic had, and continues to have, a significant impact around the world, prompting governments and businesses to take unprecedented measures, such as restrictions on travel and business operations, temporary closures of businesses, and quarantine and shelter-in-place orders. The COVID-19 pandemic has at times significantly curtailed global economic activity and caused significant volatility and disruption in global financial markets.

The Company did not experience any significant reductions in sales, revenues or collections through December 31, 2022 as a result of COVID-19. The Company believes it has ample liquidity and capital resources to continue to meet its operating needs and to service debt and other financial obligations. For a further description of our liquidity, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources.”

Components of Our Results of Operations

Revenues

We generate revenues from software subscriptions and services.

Revenue is recognized upon transfer of control of promised products or services to customers in an amount that reflects the consideration expected to be received in exchange for those products or services. We enter into contracts that include various combinations of products and services, which are generally capable of being distinct and accounted for as separate performance obligations. Revenue is recognized net of allowance for subscription and non-renewal cancellations and any taxes collected from customers that are subsequently remitted to governmental authorities.

Software Subscriptions

Licenses for on-premise software subscriptions, which are generally one year, provide the customer with a right to use the software as it exists when made available to the customer. Customers purchase a subscription to these licenses, which includes the related software and tax content updates and product support. The updates and support, which are part of the subscription agreement, are essential to the continued utility of the software; therefore, we have determined the software and the related updates and support to be a single performance obligation. Accordingly, when on-premise software is licensed, the revenue associated with this combined performance obligation is recognized ratably over the

license term as these subscriptions are provided for the duration of the license term. Revenue recognition begins on the later of the beginning of the subscription period or the date the software is made available to the customer to download. Prior to January 1, 2022, certain on-premise software subscription prices in the initial subscription year were higher than standard renewal prices. The excess initial year price over the renewal price is a material right that provides customers with the right to this reduced renewal price. We recognize revenue associated with this material right over the estimated period of benefit to the customer, which is generally three years. Effective January 1, 2022, we changed the pricing structure for on-premise software so the initial year price and renewal prices were consistent, thus removing the material right for transactions after this date. The material right for applicable transactions prior to this pricing change will continue to be recognized over the remaining estimated period of benefit to the customer.

Our cloud-based subscriptions allow customers to use Vertex-hosted software over the contract period without taking possession of the software. The contracts are generally for one to three years and are generally billed annually in advance of the subscription period. Our cloud-based offerings also include related updates and support. Revenue recognition begins on the later of the beginning of the subscription period or the date the customer is provided access to the cloud-based solutions. All services within the cloud-based contracts consistently provide a benefit to the customer during the subscription period, thus the associated revenue is recognized ratably over the subscription period.

Revenue is impacted by the timing of sales and our customers' growth or contractions resulting in their need to expand or contract their subscription usage, the purchase of new solutions or the non-renewal of existing solutions. In addition, revenue will fluctuate with the cessation of extended product support fees charged for older versions of our software subscription solutions when they are retired and these fees are no longer charged. Contracts for on-premise licenses permit cancellations at the end of the license term, which is generally one year. Legacy cloud-based subscription contracts for multi-year periods previously provided customers the right to terminate their contract for services prior to the end of the subscription period at a significant penalty. This penalty requires the payment of a percentage of the remaining months of the then current contract term. Current cloud-based contracts do not contain such termination rights. Terminations of cloud-based subscriptions prior to the end of the subscription term have occurred infrequently and the impact has been immaterial. The allowance for subscription and non-renewal cancellations reflects an estimate of the amount of such cancellations and non-renewals based on past experience, current information and forward-looking economic considerations.

Services Revenue

We generate services revenue primarily in support of our customers' needs associated with our software and to enable them to realize the full benefit of our solutions. These software subscription-related services include configuration, data migration and implementation, and premium support and training. In addition, we generate services revenue through our managed services offering which allows customers to outsource all or a portion of their indirect tax operations to us. These services include indirect tax return preparation, filing and tax payment and notice management. We generally bill for services on a per-transaction or time and materials basis, and we recognize revenue from deliverable-based professional services as services are performed.

Fluctuations in services revenue are directly correlated to fluctuations in our subscription revenues with respect to implementation and training services as we have historically experienced an attachment rate to subscription sales for these services in excess of 60%. In addition, our managed services offering has continued to experience increased revenues associated with returns processing volume increases attributable to regulatory changes, as customers expanded their tax filings into more jurisdictions.

Cost of Revenue

Software Subscriptions

Cost of software subscriptions revenue consists of costs related to providing and supporting our software subscriptions and includes personnel and related expenses, including salaries, benefits, bonuses and stock-based compensation. In addition, cost of revenue includes direct costs associated with information technology, such as data center and software hosting costs, and tax content maintenance. Cost of software subscriptions revenue also includes amortization associated with direct labor and related expenses for capitalized internal-use software for cloud-based subscription solutions and software developed for sale for new products and enhancements to existing products, and costs associated with the amortization of certain acquired intangible assets. We plan to continue to significantly expand our infrastructure and

personnel to support our future growth and increases in transaction volumes of our cloud-based solutions, including through acquisitions. We expect growth in our business will result in an increase in cost of software subscriptions revenue in absolute dollars.

Services

Cost of services revenue consists of direct costs of software subscription-related services and our managed services offering. These costs include personnel and related expenses, including salaries, benefits, bonuses, stock-based compensation and the cost of third-party contractors and other direct expenses. We plan to continue to expand our infrastructure and personnel as necessary to support our future growth and related increases in our service revenue. We expect growth in our business will result in an increase in the cost of services revenue in absolute dollars.

Research and Development

Research and development expenses consist primarily of personnel and related expenses for our research and development activities, including salaries, benefits, bonuses and stock-based compensation, and the cost of third-party developers and other contractors. Research and development costs, other than software development expenses qualifying for capitalization, are expensed as incurred.

We devote substantial resources to developing new products and enhancing existing products, conducting quality assurance testing and improving our core technology. We believe continued investments in research and development are critical to attain our strategic objectives and expect research and development costs to increase in absolute dollars. These investments include enhancing our solution offerings to address changing customer needs to support their growth, as well as implementing changes required to keep pace with our partners' technology to ensure the continued ability of our solutions to work together and deliver value to our customers. The market for our solutions is characterized by rapid technological change, frequent new product and service introductions and enhancements, changing customer demands and evolving industry standards. As a result, although we are making significant research and development expenditures, which may be incurred and certain of which may be capitalized, there is no guarantee these solutions will be accepted by the market. This could result in increased costs or an impairment of capitalized development costs with no resulting future revenue benefit.

Selling and Marketing Expenses

Selling expenses consist primarily of personnel and related expenses in support of sales and marketing efforts. These costs include salaries, benefits, bonuses and stock-based compensation. In addition, selling expense includes costs related to advertising and promotion efforts, branding costs, partner-based commissions, costs associated with our annual customer conferences and amortization of certain acquired intangible assets. We intend to continue to invest in our sales and marketing capabilities in the future to continue to increase our brand awareness and expect these costs to increase on an absolute dollar basis as we grow our business and continue to expand our market and partner ecosystem penetration. Sales and marketing expense in absolute dollars and as a percentage of total revenue may fluctuate from period-to-period based on total revenue levels and the timing of our investments in our sales and marketing functions, as these investments will occur in advance of experiencing the benefits from such investments and may vary in scope and scale over future periods. Removal of COVID-19 travel restrictions resulted in increased travel and external marketing event expenses in 2022, which were significantly lower in 2021. These costs will increase as travel and conference attendance continues to increase, although it is uncertain whether such costs will return to historical levels experienced pre-COVID-19.

General and Administrative

General and administrative expenses consist primarily of personnel and related expenses for administrative, finance, information technology, legal, risk management, facilities and human resources staffing, including salaries, benefits, bonuses, severance, stock-based compensation, professional fees, insurance premiums, facility costs and other internal support costs.

We expect our general and administrative expenses to increase in absolute dollars as we continue to expand our operations, hire additional personnel, integrate current and future acquisitions and incur additional costs associated with becoming a publicly-listed company. As a public company, we expect to incur increased expenses related to accounting,

tax and auditing activities, legal, insurance, SEC compliance and internal control compliance, including the design, implementation and testing of increasingly formalized systems of internal control over financial reporting.

Depreciation and Amortization

Depreciation and amortization expense consists of the allocation of purchased and developed asset costs over the future periods benefitted by the use of these assets. These assets include leasehold improvements for our facilities, computers and equipment needed to support our customers and our internal infrastructure and capitalized internal-use software associated with our internal infrastructure and tools. Depreciation and amortization will fluctuate in correlation with our ongoing investment in internal infrastructure costs to support our growth.

Other Operating Expense, net

Other operating expense, net consists primarily of transactions costs associated with merger and acquisition activities, periodic remeasurement of contingent consideration associated with completed acquisitions, realized gains and losses on foreign currency fluctuations and other operating gains and losses. These amounts will fluctuate as a result of ongoing merger and acquisition activities and for changes in foreign currency rates.

Interest (Income) Expense, net

Interest (income) expense, net reflects the net amount of interest expense and interest income over the same period.

Interest expense consists primarily of interest incurred related to borrowings, bank credit facility and leases. Interest expense includes amortization of deferred financing fees over the term of the credit facility or write-downs of such costs upon redemption of debt. Interest expense will vary as a result of fluctuations in the level of debt outstanding as well as interest rates on such debt. In addition, interest expense will include adjustments to the fair value of contracts that may be entered into to hedge risks associated with currency fluctuations for cash receipts or cash payments denominated in currencies other than U.S. dollars and which do not qualify for hedge accounting. In addition, changes in the settlement value of the future payment obligation for the Systax Sistemas Fiscais Limited (“Systax”) acquisition and amortization of the discount on deferred purchase consideration associated with the LCR-Dixon acquisition will be recorded as interest expense.

Interest income reflects earnings on investments of our cash on hand, our investment securities, and on funds held for customers related to our managed outsourcing services. Interest income will vary as a result of fluctuations in the future level of funds available for investment and the rate of return available in the market on such funds.

Provision for Income Taxes

Before July 27, 2020, Vertex was taxed as an S-Corporation for U.S. federal and certain state income tax purposes resulting in net income or loss before this date being allocated to and included on the income tax returns of the S-Corporation stockholders. Vertex was taxed at the corporate level in certain states where the S-Corporation status was not recognized or the state imposed a tax on S-Corporations. Accordingly, the income tax provision or benefit for such periods was based on taxable income allocated to those states.

Effective July 27, 2020, Vertex converted to a C-Corporation, and our results are subsequently taxed at the corporate level. As such, our statutory income tax rate has increased since we are now subject to U.S. federal and state corporate income taxes.

Our subsidiaries in foreign jurisdictions are generally taxed at the corporate level, and the income tax provision or benefit is based on the income or loss sourced to these foreign jurisdictions at the tax rates applicable in those jurisdictions.

Results of Operations

You should read the following discussion and analysis of our financial condition and results of operations in conjunction with the consolidated financial statements and the notes thereto beginning on page F-1 of this Annual Report on Form 10-K. The period-to-period comparison of financial results is not necessarily indicative of financial results to be achieved in future periods. The following table sets forth our consolidated statements of comprehensive loss for the periods indicated.

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2022	2021		
Revenues:				
Software subscriptions	\$ 415,473	\$ 358,415	\$ 57,058	15.9 %
Services	76,151	67,133	9,018	13.4 %
Total revenues	491,624	425,548	66,076	15.5 %
Cost of revenues:				
Software subscriptions ⁽¹⁾	142,071	116,194	25,877	22.3 %
Services ⁽¹⁾	51,061	45,698	5,363	11.7 %
Total cost of revenues	193,132	161,892	31,240	19.3 %
Gross profit	298,492	263,656	34,836	13.2 %
Operating expenses:				
Research and development ⁽¹⁾	41,877	44,018	(2,141)	(4.9)%
Selling and marketing ⁽¹⁾	125,335	99,005	26,330	26.6 %
General and administrative ⁽¹⁾	121,651	107,009	14,642	13.7 %
Depreciation and amortization	12,440	11,678	762	6.5 %
Other operating expense, net	5,271	4,888	383	7.8 %
Total operating expenses	306,574	266,598	39,976	15.0 %
Loss from operations	(8,082)	(2,942)	(5,140)	174.7 %
Interest expense, net	2,048	984	1,064	108.1 %
Loss before income taxes	(10,130)	(3,926)	(6,204)	158.0 %
Income tax expense (benefit)	2,174	(2,447)	4,621	(188.8)%
Net loss	(12,304)	(1,479)	(10,825)	731.9 %
Other comprehensive loss:				
Foreign currency translation adjustments and revaluations, net of tax	10,219	14,370	(4,151)	(28.9)%
Unrealized loss on investments, net of tax	36	—	36	100.0 %
Total other comprehensive loss, net of tax	10,255	14,370	(4,115)	(28.6)%
Total comprehensive loss	\$ (22,559)	\$ (15,849)	\$ (6,710)	42.3 %

⁽¹⁾ Includes stock-based compensation expenses as follows in the table below.

(Dollars in thousands)	For the year ended December 31,	
	2022	2021
Stock-based compensation expense:		
Cost of revenues, software subscriptions	\$ 2,090	\$ 2,336
Cost of revenues, services	1,433	2,648
Research and development	1,798	2,620
Selling and marketing	6,284	6,371
General and administrative	8,124	12,185
Total stock-based compensation expense	\$ 19,729	\$ 26,160

The following table sets forth our results of operations as a percentage of our total revenues for the periods presented.

	For the year ended December 31,	
	2022	2021
Revenues:		
Software subscriptions	84.5 %	84.2 %
Services	15.5 %	15.8 %
Total revenues	<u>100.0 %</u>	<u>100.0 %</u>
Cost of revenues:		
Software subscriptions	28.9 %	27.3 %
Services	10.4 %	10.7 %
Total cost of revenues	<u>39.3 %</u>	<u>38.0 %</u>
Gross profit	<u>60.7 %</u>	<u>62.0 %</u>
Operating expenses:		
Research and development	8.5 %	10.3 %
Selling and marketing	25.5 %	23.3 %
General and administrative	24.7 %	25.1 %
Depreciation and amortization	2.5 %	2.7 %
Other operating expense, net	1.1 %	1.1 %
Total operating expenses	<u>62.3 %</u>	<u>62.5 %</u>
Loss from operations	(1.6)%	(0.5)%
Interest expense, net	0.4 %	0.3 %
Loss before income taxes	(2.0)%	(0.8)%
Income tax expense (benefit)	0.4 %	(0.6)%
Net loss	<u>(2.4)%</u>	<u>(0.2)%</u>
Other comprehensive loss:		
Foreign currency translation adjustments and revaluations, net of tax	2.1 %	3.4 %
Unrealized loss on investments, net of tax	— %	— %
Total other comprehensive loss, net of tax	<u>2.1 %</u>	<u>3.4 %</u>
Total comprehensive loss	<u>(4.5)%</u>	<u>(3.6)%</u>

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

Revenues

(Dollars in thousands)	For the year ended		Year-Over-Year Change	
	December 31,			
	2022	2021		
Revenues:				
Software subscriptions	\$ 415,473	\$ 358,415	\$ 57,058	15.9 %
Services	76,151	67,133	9,018	13.4 %
Total revenues	<u>\$ 491,624</u>	<u>\$ 425,548</u>	<u>\$ 66,076</u>	<u>15.5 %</u>

Revenues increased \$66.1 million, or 15.5%, to \$491.6 million in 2022 compared to \$425.5 million in 2021. The increase in software subscriptions revenues of \$57.1 million, or 15.9%, was primarily driven by an increase of \$55.5 million in revenues derived from our existing customers and a year-over-year increase of \$1.6 million in revenues derived from new customers. Software subscriptions revenues derived from new customers averaged 8.0% and 8.6% of total software subscriptions revenues in 2022 and 2021, respectively.

The \$9.0 million increase in services revenues is primarily driven by an increase of \$3.8 million in software subscription-related services associated with the growth in subscription revenues, which includes new customers implementing our solutions and upgrading existing customers to newer versions of our solutions. In addition, our managed

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services offering experienced a \$5.2 million increase in recurring services revenues over the prior year due to returns processing volume increases related to regulatory changes as customers expanded their tax filings into more jurisdictions.

Cost of Software Subscriptions Revenues

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2022	2021		
Cost of software subscriptions revenues	\$ 142,071	\$ 116,194	\$ 25,877	22.3 %

Cost of software subscriptions revenues increased \$25.9 million, or 22.3%, to \$142.1 million in 2022 compared to \$116.2 million in 2021. This included a \$13.3 million increase in costs of personnel supporting period over period growth of sales and customers and ongoing hosting and infrastructure investments to support expansion of customer transaction volumes for our cloud-based subscription customers. In addition, this included an increase in depreciation and amortization of capitalized software and acquired intangible assets of \$12.6 million associated with our ongoing investments in internal-use software for cloud-based subscription solutions, software developed for sale for new products and enhancements to existing products, and costs associated with the amortization of acquired intangible assets.

As a percentage of software subscriptions revenues, the cost of software subscriptions revenues increased to 34.2% in 2022 compared to 32.4% in 2021. After excluding stock-based compensation expense, as a percentage of software subscriptions revenues, cost of software subscriptions revenues increased to 33.7% in 2022 compared to 31.8% in 2021.

Cost of Services Revenues

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2022	2021		
Cost of services revenues	\$ 51,061	\$ 45,698	\$ 5,363	11.7 %

Cost of services revenues increased \$5.4 million, or 11.7%, to \$51.1 million in 2022 compared to \$45.7 million in 2021. This increase was primarily driven by an increase in costs of service delivery personnel to support revenue growth in software subscription related services and our managed services offering.

As a percentage of services revenues, cost of services revenues decreased to 67.1% in 2022 compared to 68.1% for the same period in 2021. After excluding stock-based compensation expense, as a percentage of services revenues, cost of services revenues increased to 65.2% in 2022 compared to 64.1% for the same period in 2021.

Research and Development

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2022	2021		
Research and development	\$ 41,877	\$ 44,018	\$ (2,141)	(4.9)%

Research and development expenses decreased \$2.1 million, or 4.9%, to \$41.9 million in 2022 compared to \$44.0 million in 2021. This decline was primarily driven by an increase in development work capitalized associated with new solutions to address end-to-end data analysis and compliance needs of our customers and continued expansion of connectors and application program interfaces (“APIs”) to customer ERP and other software platforms.

As a percentage of total revenues, research and development expenses decreased to 8.5% in 2022 compared to 10.3% in 2021. After excluding stock-based compensation, research and development expenses as a percentage of total revenue would have been 8.2% in 2022 compared to 9.7% in 2021.

Selling and Marketing

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2022	2021		
Selling and marketing	\$ 125,335	\$ 99,005	\$ 26,330	26.6 %

Selling and marketing expenses increased \$26.3 million, or 26.6%, to \$125.3 million in 2022 compared to \$99.0 million in 2021, primarily driven by an \$16.1 million increase in payroll and related expenses associated with the growth in period over period subscription sales and services revenues and expansion of our partner and channel management programs. In addition, this included an increase of \$7.2 million in advertising and promotional spending, and expanded brand awareness efforts, as well as an increase of \$3.0 million associated with amortization of acquired intangible assets associated with prior acquisitions.

As a percentage of total revenues, selling and marketing expenses increased to 25.5% in 2022 compared to 23.3% for the same period in 2021. After excluding stock-based compensation expense, as a percentage of total revenues, selling and marketing expenses increased to 24.2% in 2022 compared to 21.8% in 2021.

General and Administrative

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2022	2021		
General and administrative	\$ 121,651	\$ 107,009	\$ 14,642	13.7 %

General and administrative expenses increased \$14.6 million, or 13.7%, to \$121.7 million in 2022 compared to \$107.0 million in 2021, primarily driven by an \$18.7 million increase associated with planned strategic investments in information technology infrastructure, business process reengineering and other initiatives to drive future operating leverage, as well as investments in employees, systems and other resources in support of our growth, and public company reporting and compliance activities. This increase was offset by a decline in stock-based compensation of \$4.1 million for the year ended December 31, 2022 over the same period in 2021.

As a percentage of total revenues, general and administrative expenses were 24.7% in 2022 compared to 25.1% in 2021. After excluding stock-based compensation expense, as a percentage of total revenues general and administrative expenses increased 23.1% in 2022 compared to 22.3 % in 2021.

Depreciation and Amortization

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2022	2021		
Depreciation and amortization	\$ 12,440	\$ 11,678	\$ 762	6.5 %

Depreciation and amortization increased \$0.8 million, or 6.5%, to \$12.4 million in 2022 compared to \$11.7 million in 2021. The increase was primarily due to the impact of infrastructure and technology purchases and other capitalized infrastructure costs to support our growth which were placed in service during 2022 and 2021. As a percentage of revenues, depreciation expense decreased slightly to 2.5% in 2022 compared to 2.7% for the same period in 2021.

Other Operating Expense, Net

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2022	2021		
Other operating expense, net	\$ 5,271	\$ 4,888	\$ 383	7.8 %

Other operating expense, net, increased \$0.4 million, or 7.8%, to \$5.3 million of expense in 2022 compared to \$4.9 million in 2021. Other operating expense, net for the year ended December 31, 2022 was primarily comprised of \$2.0 million in costs related to a legal settlement, \$2.3 million of an increase to the Tellutax, LLC (“Tellutax”) contingent consideration liability, and \$0.7 million in offering costs related to the sale of shares of certain of our Class B shareholders. Other operating expense, net for the year ended December 31, 2021 was primarily comprised of \$4.7 million in transaction costs associated with 2021 acquisitions. As a percentage of total revenues, other operating expense, net remained consistent at 1.1% for 2022 and 2021.

Interest Expense, Net

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2022	2021		
Interest expense, net	\$ 2,048	\$ 984	\$ 1,064	108.1 %

Interest expense, net increased \$1.1 million, or 108.1%, to \$2.0 million in 2022 compared to \$1.0 million in 2021. This change was attributable to increases in interest expense primarily associated with: (i) a \$1.0 million increase to the settlement value of our deferred purchase commitment liability associated with the Systax acquisition which is treated as a financing cost; (ii) increased amortization related to the write-off of deferred financing costs of \$0.4 million associated with refinancing of our credit agreement; and (iii) an increase in note payable interest expense of \$1.8 million primarily due to the increased borrowings under our new credit agreement (see Note 10 to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K). Offsetting these expense increases were: (i) an increase in the value of our foreign currency contracts of \$1.1 million; and (ii) an increase in interest and dividend income of \$1.0 million, primarily due to higher yields on our investments in 2022 as compared to 2021.

Income Tax Expense (Benefit)

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year change	
	2022	2021		
Income tax expense (benefit)	\$ 2,174	\$ (2,447)	\$ 4,621	(188.8)%

Income tax expense was \$2.2 million in 2022 as compared to a benefit of \$2.5 million in 2021, resulting in a \$4.6 million, or 188.8%, change year over year. This change resulted primarily from decreases in tax benefits on exercises and vestings of stock awards and the impact of limitations on deductions of certain employees’ compensation under Internal Revenue Code Section 162(m).

Seasonality and Quarterly Trends

We have historically signed a higher percentage of software subscription agreements with new and existing customers in the fourth quarter of each year. This can be attributed to buying patterns typical in the software industry. Since most of our customer agreement terms are annual, agreements initially entered into in the fourth quarter will generally come up for renewal at that same time in subsequent years. As a result, customer agreement cancellations may have a higher concentration during the end of the year. This seasonality is reflected in our revenues, though the impact to overall annual or quarterly revenues is typically minimal since we recognize subscription revenue ratably over the term of the customer contract. Additionally, this seasonality is reflected in commission expenses to our sales personnel and our partners.

Our quarterly revenues have generally increased over the last two years primarily due to new sales to existing customers and sales to new customers. However, the pace of our revenue growth has not been consistent. Many of our customers are enterprise and large corporations and their purchase patterns can be sensitive to timing of budget decisions. Depending on such timing, these decisions can create volatility in the amount of business transacted by our sales team and

the amount of revenues recorded in each quarter. As such, certain periods may be less comparable due to the timing of our customers purchase patterns.

Quarterly fluctuations in our costs and expenses overall primarily reflect changes in our headcount, infrastructure and sales and marketing investments, and other costs related to certain technology development projects and the development and scaling of our cloud solutions. In particular, research and development expenses have fluctuated based on the timing of personnel additions, capitalized costs and related spending on product development. Increases in our selling and marketing expenses primarily reflect expansion of go-to-market and partner and channel management personnel and various promotion and branding activities, the timing of which may fluctuate from quarter to quarter. We have also actively invested in acquisitions and product innovation to expand our product portfolio. We anticipate our operating expenses will increase in future periods as we invest in the long-term growth of our business.

Historical patterns should not be considered a reliable indicator of our future performance.

Liquidity and Capital Resources

As of December 31, 2022, we had unrestricted cash and cash equivalents of \$91.8 million and retained earnings of \$12.5 million. In addition, we had \$11.2 million in investment securities with a maturity date exceeding three months as of December 31, 2022 not included in unrestricted cash and cash equivalents. Our primary sources of capital to date have been from sales of our solutions, proceeds from bank lending facilities and the Offering of our Class A common stock in July 2020.

Historical Cash Flows

Years Ended December 31, 2022 and 2021

The following table presents a summary of our cash flows for the periods indicated:

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2022	2021		
Net cash provided by operating activities	\$ 76,846	\$ 91,969	\$ (15,123)	(16.4)%
Net cash used in investing activities	(85,046)	(296,458)	211,412	71.3 %
Net cash provided by (used in) financing activities	17,094	(9,099)	26,193	287.9 %
Effect of foreign exchange rate changes	(352)	(479)	127	26.5 %
Net increase (decrease) in cash, cash equivalents and restricted cash	8,542	\$ (214,067)	\$ 222,609	

Operating Activities. Net cash provided by operating activities was \$76.8 million in 2022 compared to \$92.0 million in 2021, a decrease of \$15.1 million, which was driven primarily by impacts from our prior acquisitions, ongoing investments in our growth, and timing of the conversion of operating assets and liabilities. The decrease in cash provided by operating activities in 2022 includes decreases in the following year over year: (i) a net decrease in changes in operating assets and liabilities of \$18.8 million due primarily to timing of collections and payments activity; (ii) an increase in net loss of \$10.8 million; and (iii) a decrease in stock-based compensation of \$6.4 million. These decreases were partially offset by the following increases year over year: (i) an increase in depreciation and amortization of of \$16.4 million, which includes \$15.6 million pertaining to depreciation and amortization of capitalized software and other intangibles resulting from acquisitions and our ongoing investments in customer solutions, with the balance pertaining to depreciation associated with our ongoing infrastructure investments; and (ii) \$2.3 million pertaining to an increase in acquisition contingent consideration.

Investing Activities. Net cash used in investing activities was \$85.0 million in 2022 compared to \$296.5 million in 2021, a decrease in use of funds for investing activities of \$211.4 million. This decrease was primarily due to a net decrease in cash paid for acquisitions of \$250.9 million in 2022. Investments in property and equipment and capitalized software additions for the year ended December 31, 2022 increased \$28.4 million over 2021 related to increased investments in development of customer solutions and internal infrastructure systems and tools. During the year ended December 31,

2022, we also purchased \$16.5 million of investment securities and received \$5.4 million in proceeds from maturities of these investments.

Financing Activities. Net cash provided by financing activities was \$17.1 million in 2022 compared to net cash used in financing activities of \$9.1 million in 2021, an increase in cash provided by financing activities of \$26.2 million. Net cash provided by financing activities for the year ended December 31, 2022 of \$17.1 million, was primarily driven by cash received in connection with borrowings under the term loan of \$50.0 million (the “Term Loan”) associated with the Second Amendment to the Credit Agreement, entered into on March 8, 2022 with a banking syndicate (the “Second Amendment”), offset by \$20.0 million in payments for acquisition purchase commitment liabilities, as well as a decrease in customer funds obligations of \$11.3 million due primarily to timing differences between receipt of funds from customers and taxing jurisdiction withdrawals of these funds. Net cash used in financing activities of \$9.1 million for year ended December 31, 2021 was primarily driven by \$12.8 million in payments for taxes in connection with the exercise of stock options whereby the award holders returned shares to us to satisfy their tax obligations, and payments for acquisition purchase commitment liabilities of \$10.8 million. This was partially offset by an increase in customer funds obligations of \$14.2 million.

Sources of Credit

As of December 31, 2022, we had a \$200.0 million line of credit (the “Line of Credit”) and a \$50.0 million Term Loan in connection with the Second Amendment.

The Term Loan requires quarterly principal payments over five years, with a balloon payment due on March 8, 2027. The interest rate on the Term Loan was 5.42% at December 31, 2022 as we selected the Secured Overnight Financing Rate (“SOFR”) option (the “SOFR Option”). Outstanding borrowings under the Term Loan were \$49.1 million at December 31, 2022.

The Line of Credit expires in March 2027. We are required to pay a quarterly fee on the difference between the \$200.0 million allowed maximum borrowings and the unpaid principal balance outstanding under the line at the applicable rate. At December 31, 2022, the base rate option and the SOFR Option applicable to the Line of Credit were 7.50% and 5.40%, respectively. There were no outstanding borrowings under the Line of Credit at December 31, 2022.

The Second Amendment is collateralized by nearly all of the Company’s assets and contains financial and operating covenants with which we are in compliance as of December 31, 2022. The Second Amendment also limits the declaration or payment of certain dividends, not to exceed an aggregate of \$2.0 million.

For more information on our indebtedness see Note 10 to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K.

Material Future Cash Obligations and Commercial Commitments

Cash Requirements. We believe that our existing cash resources and our Line of Credit, will be sufficient to meet our capital requirements and fund our operations. However, if these sources are insufficient to satisfy our liquidity requirements, we may seek to sell additional equity or debt securities. If we were to raise additional funds by issuing equity securities, our stockholders would experience dilution. Debt financing, if available, may involve covenants restricting our operations or our ability to incur additional debt. Any debt financing or additional equity that we raise may contain terms that are not favorable to us or our stockholders. Additional financing may not be available at all, or in amounts or on terms unacceptable to us.

Funds Held for Customers and Customer Funds Obligations. We maintain trust accounts with financial institutions, to accumulate cash from our customers that outsource their tax remittance functions to us. We have legal ownership over the accounts utilized for this purpose. Funds held for customers represent cash and cash equivalents that, based upon our intent, are restricted solely for satisfying the obligations to remit funds relating to our tax remittance services. Funds held for customers are not commingled with our operating funds. Customer funds obligations represent our contractual obligations to remit collected funds to satisfy customer tax payments. Customer funds obligations are reported as a current liability on our consolidated balance sheets as the obligations are expected to be settled within one year. Cash flows related to changes in customer funds obligations are presented as cash flows from financing activities.

Contractual Obligations and Commitments. Our contractual obligations and commitments as of December 31, 2022 are summarized in the table below:

(In thousands)	Payments Due by Year				
	Total	Less Than 1 year	1-3 Years	3-5 Years	More Than 5 Years
Debt	\$ 49,063	\$ 2,188	\$ 5,000	\$ 41,875	\$ —
Financing lease liabilities	114	104	10	—	—
Operating lease liabilities	26,098	4,721	8,846	9,049	3,482
Deferred purchase consideration ⁽¹⁾	20,000	20,000	—	—	—
Purchase commitment liability ^{(2) (3)}	14,561	6,149	8,412	—	—
Purchase obligations	12,285	10,609	1,676	—	—
Total	\$ 122,121	\$ 43,771	\$ 23,944	\$ 50,924	\$ 3,482

- (1) The Company has a deferred purchase consideration obligation related to its acquisition of LCR-Dixon. See Note 3 to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K.
- (2) The Company has contractual purchase commitment liabilities related to certain acquisitions, primarily the 2020 acquisition of Systax in which the Company is required to acquire the remaining 35% equity interest incrementally between 2023 through 2024. See Note 3 to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K.
- (3) The Company has a contingent consideration liability related to the 2021 Acquisition of Tellutax. See Note 3 to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K.

Key Business Metrics

We regularly review the metrics identified below to evaluate growth trends, measure our performance, formulate financial projections and make strategic decisions.

Annual Recurring Revenue (“ARR”) and Average Annual Revenue Per Customer (“AARPC”).

We derive the vast majority of our revenue from recurring software subscriptions. We believe ARR provides us with visibility to our projected software subscription revenue in order to evaluate the health of our business. Because we recognize subscription revenue ratably, we believe investors can use ARR to measure our expansion of existing customer revenues, new customer activity, and as an indicator of future software subscription revenues. ARR is based on monthly recurring revenue (“MRR”) from software subscriptions for the most recent month at period end, multiplied by twelve. MRR is calculated by dividing the software subscription price, inclusive of discounts, by the number of subscription covered months. MRR only includes customers with MRR at the end of the last month of the measurement period.

AARPC represents average annual revenue per customer and is calculated by dividing ARR by the number of software subscription customers at the end of the respective period:

(Dollars in millions)	For the year ended December 31,		Year-Over-Year Change	
	2022	2021		
Annual Recurring Revenue	\$ 431.1	\$ 370.2	\$ 60.9	16.5 %

ARR increased by \$60.9 million or 16.5% in 2022 as compared to 2021. The increase was primarily driven by \$25.3 million of growth in revenues from subscriptions of our tax solutions to new customers, and \$35.6 million of growth in revenues from existing customers through their expanded use of our solutions as well as price increases.

We had 4,289 customers and AARPC was approximately \$100,500 at December 31, 2022. We had 4,272 customers and approximately \$86,700 of AARPC at December 31, 2021. The increase in customers and AARPC was due to expansion of usage by existing customers and adding new customers through organic growth.

Net Revenue Retention Rate (“NRR”).

We believe that our NRR provides insight into our ability to retain and grow revenue from our customers, as well as their potential long-term value to us. We also believe it demonstrates to investors our ability to expand existing customer

revenues, which is one of our key growth strategies. Our NRR refers to the ARR expansion during the 12 months of a reporting period for all customers who were part of our customer base at the beginning of the reporting period. Our NRR calculation takes into account any revenue lost from departing customers or customers who have downgraded or reduced usage, as well as any revenue expansion from migrations, new licenses for additional products or contractual and usage-based price changes.

	For the Year Ended December 31,	
	2022	2021
Net Revenue Retention Rate	110 %	108 %

The 200 basis point increase in NRR to 110% at December 31, 2022 from 108% for the same period in 2021 was primarily attributable to a decrease in customer downgrades and losses.

Gross Revenue Retention Rate (“GRR”).

We believe our GRR provides insight into and demonstrates to investors our ability to retain revenues from our existing customers. Our GRR refers to how much of our MRR we retain each month after reduction for the effects of revenues lost from departing customers or those who have downgraded or reduced usage. GRR does not take into account revenue expansion from migrations, new licenses for additional products or contractual and usage-based price changes. GRR does not include revenue reductions resulting from cancellations of customer subscriptions that are replaced by new subscriptions associated with customer migrations to a newer version of the related software solution.

	As of December 31,	
	2022	2021
Gross Revenue Retention Rate	96 %	95 %

Adjusted EBITDA and Adjusted EBITDA Margin.

We believe that Adjusted EBITDA is a measure widely used by securities analysts and investors to evaluate the financial performance of our company and other companies. We believe that Adjusted EBITDA and Adjusted EBITDA margin are useful as supplemental measures to evaluate our overall operating performance as they measure business performance focusing on cash related charges and because they are important metrics to lenders under our credit agreement. We define Adjusted EBITDA as net income or loss before interest, taxes, depreciation, and amortization, as adjusted to exclude charges for asset impairments, stock-based compensation expense, severance expense, acquisition contingent consideration, litigation settlements, and transaction costs which includes offering costs related to the sale of shares of certain of our Class B shareholders which are not representative of normal business operations. Adjusted EBITDA margin represents Adjusted EBITDA divided by total revenues for the same period. For purposes of comparison, our net loss was (\$12.3) million and (\$1.5) million in 2022 and 2021, respectively, while our net loss margin was (2.5)% and (0.3)% over the same periods, respectively. The following schedules reconcile Adjusted EBITDA and Adjusted EBITDA margin to net loss, the most closely directly comparable GAAP financial measure.

(Dollars in thousands)	For the Year Ended	
	December 31,	
	2022	2021
Adjusted EBITDA:		
Net loss	\$ (12,304)	\$ (1,479)
Interest expense, net	2,048	984
Income tax (benefit) expense	2,174	(2,447)
Depreciation and amortization - property and equipment	12,440	11,678
Depreciation and amortization of capitalized software and acquired intangible assets - cost of subscription revenues	44,934	32,291
Amortization of acquired intangible assets - selling and marketing expense	3,779	813
Stock-based compensation expense	19,729	26,160
Severance expense	877	5,232
Acquisition contingent consideration	2,300	—
Litigation settlements	2,000	—
Transaction costs ⁽¹⁾	696	4,748
Adjusted EBITDA	\$ 78,673	\$ 77,980
Adjusted EBITDA Margin:		
Total revenues	\$ 491,624	\$ 425,548
Adjusted EBITDA margin	16.0 %	18.3 %

⁽¹⁾ The 2022 period includes offering costs related to the sale of shares of certain of our Class B shareholders, which are not representative of normal business operations.

The increase in Adjusted EBITDA of \$0.7 million in 2022 is primarily driven by an increase of \$46.0 million in non-GAAP gross profit, offset by increases in various non-GAAP operating expense categories including \$23.5 million in non-GAAP selling and marketing expense, and \$23.1 million in non-GAAP general and administrative expense. Increased investment in selling and marketing expense is driven by increased expenses associated with the growth in period over period subscription sales and services revenue and expansion of our partner and channel management programs. In addition, there was increased advertising and promotional spending and brand awareness efforts. Increased general and administrative expense was driven by planned strategic investments in information technology infrastructure, business process reengineering and other initiatives to drive future operation leverage, as well as investments in employees, systems and resources in support of our growth.

Adjusted EBITDA margin decreased in 2022 by 230 basis points in comparison to 2021 due primarily to operating expenses increasing at a higher rate than our increases in revenues, driven by our previously noted investments to enable future growth.

Free Cash Flow and Free Cash Flow Margin.

We use free cash flow as a critical measure in the evaluation of liquidity in conjunction with related GAAP amounts. We also use this measure when considering available cash, including for decision making purposes related to dividends and discretionary investments. We consider free cash flow to be an important measure for investors because it measures the amount of cash we generate from our operations after our capital expenditures and capitalization of software development costs. In addition, we base certain of our forward-looking estimates and budgets on free cash flow and free cash flow margin. We define free cash flow as the total of net cash provided by operating activities, adjusted for the add back of cash used for the converted stock appreciation rights redeemed in connection with the Offering reflected as a reduction of cash provided by operating activities, less purchases of property and equipment and capitalized software. We define free cash flow margin as free cash flow divided by total revenues for the same period.

Our net cash provided by operating activities was \$76.8 million and \$92.0 million in 2022 and 2021, respectively, while our operating cash flow margin was 15.6% and 21.6% over the same periods, respectively. The following schedule reconciles free cash flow and free cash flow margin to net cash provided by operating activities, the most closely directly comparable GAAP financial measure.

(Dollars in thousands)	For the Year Ended December 31,	
	2022	2021
Free Cash Flow:		
Cash provided by operating activities	\$ 76,846	\$ 91,969
Property and equipment additions	(58,530)	(33,386)
Capitalized software additions	(14,888)	(11,660)
Free cash flow	<u>\$ 3,428</u>	<u>\$ 46,923</u>
Free Cash Flow Margin:		
Total revenues	\$ 491,624	\$ 425,548
Free cash flow margin	<u>0.7 %</u>	<u>11.0 %</u>

Free cash flow decreased by \$43.5 million in 2022 compared to 2021, driven primarily by a net decrease of \$15.1 million in cash provided by operating activities as well as a year-over-year increases in cash pertaining to investments in internal-use software developed of \$25.1 million reflected as increases in property and equipment additions. The increase in property and equipment additions was driven by a \$14.9 million increase in internal infrastructure and tools, including technology modernization investments, and a \$9.1 million increase in our cloud-based customer solutions. Free cash flow margin decreased in 2022 by 1030 basis points compared to 2021, primarily due to the increase in cash consumed by our investments in cloud-based customer solutions and internal infrastructure modernization efforts as well as the decrease in cash from operations noted above during a period of expansion of total revenues of \$66.1 million.

Use and Reconciliation of Non-GAAP Financial Measures

In addition to our results determined in accordance with GAAP, we have calculated Adjusted EBITDA, Adjusted EBITDA margin, free cash flow, free cash flow margin, non-GAAP cost of revenues, non-GAAP gross profit, non-GAAP gross margin, non-GAAP research and development expense, non-GAAP selling and marketing expense, non-GAAP general and administrative expense, non-GAAP operating income, and non-GAAP net income, which are each non-GAAP financial measures. We have provided tabular reconciliations of each of these non-GAAP financial measures to its most directly comparable GAAP financial measure.

We use these non-GAAP financial measures to understand and compare operating results across accounting periods, for internal budgeting and forecasting purposes, and to evaluate financial performance. We use non-GAAP financial measures of free cash flow and free cash flow margin to evaluate liquidity. Our non-GAAP financial measures are presented as supplemental disclosure as we believe they provide useful information to investors and others in understanding and evaluating our results, prospects, and liquidity period-over-period without the impact of certain items that do not directly correlate to our operating performance and that may vary significantly from period to period for reasons unrelated to our operating performance, as well as comparing our financial results to those of other companies. Our definitions of these non-GAAP financial measures may differ from similarly titled measures presented by other companies, and therefore, comparability may be limited. In addition, other companies may not publish these or similar metrics. Thus, our non-GAAP financial measures should be considered in addition to, not as a substitute for, or in isolation from, the financial information prepared in accordance with GAAP financial measures, and should be read in conjunction with the consolidated financial statements included in this Annual Report on Form 10-K.

Additional Non-GAAP Financial Measures

In addition to Adjusted EBITDA, Adjusted EBITDA margin, free cash flow, and free cash flow margin calculated and discussed in “Key Business Metrics,” the following additional non-GAAP financial measures are calculated and presented further below:

- Non-GAAP cost of revenues, software subscriptions is determined by adding back to GAAP cost of revenues, software subscriptions, the stock-based compensation expense, and depreciation and amortization of capitalized software and acquired intangible assets included in cost of subscription revenues for the respective periods.

- Non-GAAP cost of revenues, services is determined by adding back to GAAP cost of revenues, services, the stock-based compensation expense included in cost of revenues, services for the respective periods.
- Non-GAAP gross profit is determined by adding back to GAAP gross profit the stock-based compensation expense, and depreciation and amortization of capitalized software and acquired intangible assets included in cost of subscription revenues for the respective periods.
- Non-GAAP gross margin is determined by dividing non-GAAP gross profit by total revenues for the respective periods.
- Non-GAAP research and development expense is determined by adding back to GAAP research and development expense the stock-based compensation expense included in research and development expense for the respective periods.
- Non-GAAP selling and marketing expense is determined by adding back to GAAP selling and marketing expense the stock-based compensation expense and the amortization of acquired intangible assets included in selling and marketing expense for the respective periods.
- Non-GAAP general and administrative expense is determined by adding back to GAAP general and administrative expense the stock-based compensation expense and severance expense included in general and administrative expense for the respective periods.
- Non-GAAP operating income is determined by adding back to GAAP loss or income from operations the stock-based compensation expense, depreciation and amortization of capitalized software and acquired intangible assets included in cost of subscription revenues, amortization of acquired intangible assets included in selling and marketing expense, severance expense, acquisition contingent consideration, litigation settlements, and transaction costs which includes offering costs related to the sale of shares of certain of our Class B shareholders which are not representative of normal business operations, included in GAAP loss or income from operations for the respective periods.
- Non-GAAP net income is determined by adding back to GAAP net loss or income the income tax benefit or expense, stock-based compensation expense, depreciation and amortization of capitalized software and acquired intangible assets included in cost of subscription revenues, amortization of acquired intangible assets included in selling and marketing expense, severance expense, acquisition contingent consideration, litigation settlements, and transaction costs which includes offering costs related to the sale of shares of certain of our Class B shareholders which are not representative of normal business operations, included in GAAP net loss or income for the respective periods to determine non-GAAP loss or income before income taxes. Non-GAAP income or loss before income taxes is then adjusted for income taxes calculated using the respective statutory tax rates for applicable jurisdictions, which for purposes of this determination were assumed to be 25.5%.

We encourage investors and others to review our financial information in its entirety, not to rely on any single financial measure and to view these non-GAAP financial measures in conjunction with the related GAAP financial measures.

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The following schedules reflect our additional non-GAAP financial measures and reconciles our additional non-GAAP financial measures to the related GAAP financial measures.

(Dollars in thousands)	For the Year Ended December 31,	
	2022	2021
Non-GAAP cost of revenues, software subscriptions	\$ 95,047	\$ 81,567
Non-GAAP cost of revenues, services	\$ 49,628	\$ 43,050
Non-GAAP gross profit	\$ 346,949	\$ 300,931
Non-GAAP gross margin	70.6 %	70.7 %
Non-GAAP research and development expense	\$ 40,079	\$ 41,398
Non-GAAP selling and marketing expense	\$ 115,272	\$ 91,821
Non-GAAP general and administrative expense	\$ 112,650	\$ 89,592
Non-GAAP operating income	\$ 66,233	\$ 66,302
Non-GAAP net income	\$ 47,818	\$ 48,662

(Dollars in thousands)	For the Year Ended December 31,	
	2022	2021
Non-GAAP Cost of Revenues, Software Subscriptions:		
Cost of revenues, software subscriptions	\$ 142,071	\$ 116,194
Stock-based compensation expense	(2,090)	(2,336)
Depreciation and amortization of capitalized software and acquired intangible assets – cost of subscription revenues	(44,934)	(32,291)
Non-GAAP cost of revenues, software subscriptions	\$ 95,047	\$ 81,567
Non-GAAP Cost of Revenues, Services:		
Cost of revenues, services	\$ 51,061	\$ 45,698
Stock-based compensation expense	(1,433)	(2,648)
Non-GAAP cost of revenues, services	\$ 49,628	\$ 43,050
Non-GAAP Gross Profit:		
Gross profit	\$ 298,492	\$ 263,656
Stock-based compensation expense	3,523	4,984
Depreciation and amortization of capitalized software and acquired intangible assets - cost of subscription revenues	44,934	32,291
Non-GAAP gross profit	\$ 346,949	\$ 300,931
Non-GAAP Gross Margin:		
Total revenues	\$ 491,624	\$ 425,548
Non-GAAP gross margin	70.6 %	70.7 %
Non-GAAP Research and Development Expense:		
Research and development expense	\$ 41,877	\$ 44,018
Stock-based compensation expense	(1,798)	(2,620)
Non-GAAP research and development expense	\$ 40,079	\$ 41,398
Non-GAAP Selling and Marketing Expense:		
Selling and marketing expense	\$ 125,335	\$ 99,005
Stock-based compensation expense	(6,284)	(6,371)
Amortization of acquired intangible assets – selling and marketing expense	(3,779)	(813)
Non-GAAP selling and marketing expense	\$ 115,272	\$ 91,821
Non-GAAP General and Administrative Expense:		
General and administrative expense	\$ 121,651	\$ 107,009
Stock-based compensation expense	(8,124)	(12,185)
Severance expense	(877)	(5,232)
Non-GAAP general and administrative expense	\$ 112,650	\$ 89,592

	For the Year Ended	
	December 31,	
	2022	2021
(Dollars in thousands)		
Non-GAAP Operating Income:		
Loss from operations	\$ (8,082)	\$ (2,942)
Stock-based compensation expense	19,729	26,160
Depreciation and amortization of capitalized software and acquired intangible assets - cost of subscription revenues	44,934	32,291
Amortization of acquired intangible assets – selling and marketing expense	3,779	813
Severance expense	877	5,232
Acquisition contingent consideration	2,300	—
Litigation settlement	2,000	—
Transaction costs ⁽¹⁾	696	4,748
Non-GAAP operating income	\$ 66,233	\$ 66,302
Non-GAAP Net Income:		
Net Loss	\$ (12,304)	\$ (1,479)
Income tax expense (benefit)	2,174	(2,447)
Stock-based compensation expense	19,729	26,160
Depreciation and amortization of capitalized software and acquired intangible assets - cost of subscription revenues	44,934	32,291
Amortization of acquired intangible assets – selling and marketing expense	3,779	813
Severance expense	877	5,232
Acquisition contingent consideration	2,300	—
Litigation settlement	2,000	—
Transaction costs ⁽¹⁾	696	4,748
Non-GAAP income before income taxes	64,185	65,318
Income tax adjustment at statutory rate	(16,367)	(16,656)
Non-GAAP net income	\$ 47,818	\$ 48,662

⁽¹⁾ The 2022 period includes offering costs related to the sale of shares of certain of our Class B shareholders, which are not representative of normal business operations.

Critical Accounting Estimates

The preparation of these consolidated financial statements in accordance with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements, as well as the reported amounts of revenue and expenses during the reporting periods. These estimates, assumptions and judgments are necessary because future events and their effects on our consolidated financial statements cannot be determined with certainty and are made based on our historical experience and on other assumptions that we believe to be reasonable under the circumstances. These estimates may change as new events occur or additional information is obtained, and we may periodically be faced with uncertainties, the outcomes of which are not within our control and may not be known for a prolonged period of time. Because the use of estimates is inherent in the financial reporting process, actual results could materially differ from those estimates.

The estimates discussed below are considered by management to be critical to an understanding of our consolidated financial statements because their application places the most significant demands on management’s judgment. Specific risks for these critical accounting estimates are described in the following sections. For all of these estimates, we caution that future events rarely develop exactly as forecast, and such estimates routinely require adjustment. We have reviewed these critical accounting estimates and related disclosures with our Audit Committee.

Our discussion of critical accounting estimates is intended to supplement, not duplicate, our summary of significant accounting policies so that readers will have greater insight into the uncertainties involved in applying our critical accounting policies and estimates. For a summary of our significant accounting policies, see Note 1 to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K.

Revenue Recognition

We account for our revenue in accordance with Accounting Standards Codification (“ASC”) 606, *Revenue from Contracts with Customers*, which requires judgment and the use of estimates. Revenue is recognized upon transfer of control of promised goods or services to customers in an amount that reflects the consideration expected to be received in exchange for those products or services.

Identification of the Performance Obligations

We enter into contracts with customers that may include promises to transfer various combinations of software subscriptions and services. Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together may require significant judgment. Software subscriptions include the related software, consisting of both on-premise and cloud-based software, tax content updates and product support. The updates and support, which are part of the subscription agreement, are essential to the continued utility of the software. Therefore, we have determined that the software, updates and support should be combined into a single performance obligation.

Determination of the Transaction Price

The transaction price is the amount of consideration to which we expect to be entitled in exchange for transferring promised goods or services to the customer. We recognize revenue net of allowance for subscription and non-renewal cancellations. Contracts for on-premise licenses permit cancellations at the end of the license term, which is generally one year. Legacy cloud-based subscription contracts for multi-year periods previously provided customers the right to terminate their contract for services prior to the end of the subscription period at a significant penalty. This penalty requires the payment of a percentage of the remaining months of the then current contract term. Current cloud-based contracts do not contain such termination rights. Terminations of cloud-based subscriptions prior to the end of the subscription term have occurred infrequently and the impact has been immaterial. Therefore, the transaction price is adjusted for our estimate of the amount of such cancellations and non-renewals based on past experience, current information and forward-looking economic considerations.

Allocation of Transaction Price to the Performance Obligations

If the contract with the customer contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. If the contract with the customer contains multiple performance obligations, we allocate the transaction price to each performance obligation based on a relative standalone selling price.

Recognition of Revenue

We satisfy performance obligations either over time or at a point in time. Revenue is recognized as the related performance obligation is satisfied with the transfer of control of a promised good or service to a customer. On-premise software revenue associated with the combined performance obligation is recognized ratably over the license term as these subscription services are provided for the duration of the license term. Revenue recognition begins on the later of the beginning of the subscription period or the date the software is made available to the customer to download. Cloud-based subscriptions allow customers to use Company-hosted software over the contract period without taking possession of the software. Revenue from cloud-based subscriptions, including subscriptions that include related updates and support, is recognized ratably over the license term as the performance obligation is satisfied.

Prior to January 1, 2022, certain on-premise software subscription prices in the initial subscription year were higher than standard renewal prices. The excess initial year price over the renewal price is considered to be a material right. We recognized revenue associated with this material right over the estimated period of benefit to the customer, which is generally three years. Effective January 1, 2022, we changed the pricing structure for on-premise software so the initial year price and renewal prices were consistent, thus removing the material right for transactions after this date. The material right for applicable transactions prior to this pricing change will continue to be recognized over the remaining estimated period of benefit to the customer.

Revenue from deliverable-based services is recognized as services are delivered. Revenue from fixed fee services is recognized as services are performed using the percentage of completion input method.

We have elected the "right to invoice" practical expedient for revenue related to services that are billed on an hourly basis, which enables revenue to be recognized as the services are performed.

Costs Capitalized to Obtain Revenue Contracts

Costs capitalized related to obtaining revenue contracts include deferred sales commissions earned by our sales force and certain sales incentive programs and vendor referral agreements. These contract costs are amortized on a straight-line basis over a period consistent with the transfer of the associated product and services to the customer, which is generally three years. We periodically review these contract assets to determine whether events or changes in circumstances have occurred that could impact the period of benefit of these assets. There were no contract asset impairment losses recorded for the periods presented.

Business Combination Fair Value Estimates

The results of a business acquired in a business combination are included in our consolidated financial statements from the date of the acquisition. Purchase accounting results in tangible and intangible assets acquired, liabilities assumed, consideration transferred, and amounts attributed to noncontrolling interests of an acquired business being recorded at their estimated fair values on the acquisition date, which may be considered preliminary and subject to adjustment during the measurement period, which is up to one year from the acquisition date (the "Measurement Period"). Any excess consideration over the fair value of assets acquired and liabilities assumed is recorded as goodwill. Determining the fair value of these amounts requires significant judgment and estimates, including the selection of valuation methodologies, estimates of future revenue, costs and cash flows, discount rates, royalty rates, and selection of comparable companies. We continue to collect information and reevaluate these estimates and assumptions periodically and record any adjustments to preliminary estimates to goodwill, provided we are within the Measurement Period, with any adjustments to amortization of new or previously recorded assets and identifiable intangibles being recorded to the consolidated statements of comprehensive loss in the period in which they arise. In addition, if outside of the Measurement Period, any subsequent adjustments to the acquisition date fair values are reflected in the consolidated statements of comprehensive loss in the period in which they arise.

We use our best estimates, information and assumptions available at the acquisition date to assign preliminary fair values to the assets acquired, liabilities assumed, consideration transferred, and amounts attributed to noncontrolling interests. We engage the assistance of third-party valuation specialists to perform valuations of these amounts and to assist us in concluding on these fair value measurements. The resulting fair values and useful lives assigned to acquisition-related assets impact the amount and timing of future amortization expense.

These estimates are inherently uncertain and unpredictable, and if different estimates were used then the purchase price for the respective acquisition could be allocated to the acquired assets and liabilities differently from the allocation that we have made. In addition, unanticipated events and circumstances may occur which may affect the accuracy or validity of such estimates, and if such events occur, we may be required to record a charge against the value ascribed to an acquired asset, an increase in the amounts recorded for assumed liabilities, or an impairment of some or all of the goodwill.

Goodwill

Goodwill represents the excess of the purchase price over the fair value of net tangible and intangible assets acquired in a business combination. We evaluate goodwill for impairment annually at October 1 and whenever events or circumstances make it more likely than not that impairment may have occurred.

The Company has determined that its business comprises one reporting unit. We have the option to first assess qualitative factors to determine whether events or circumstances indicate it is more likely than not that the fair value of a reporting unit is greater than its carrying amount, in which case a quantitative impairment test is not required.

As provided for by Accounting Standards Update ("ASU") 2017-04, *Simplifying the Test for Goodwill Impairment*, the quantitative goodwill impairment test is performed by comparing the fair value of the reporting unit with its carrying amount, including goodwill. If the fair value of the reporting unit exceeds its carrying amount, goodwill is not impaired. An impairment loss is recognized for any excess of the carrying amount of the reporting unit's goodwill over the fair value

up to the amount of goodwill allocated to the reporting unit. Income tax effects from any tax-deductible goodwill on the carrying amount of the reporting unit are considered when measuring the goodwill impairment loss, if applicable.

Stock-Based Compensation

We apply the provisions of ASC 718, *Compensation—Stock Compensation*, for the award of equity-based instruments. The provisions of ASC 718 require a company to measure the fair value of stock-based compensation as of the grant date of the award. Stock-based compensation expense reflects the cost of employee services received in exchange for the awards.

On the effective date of the Offering, the Company adopted the 2020 Incentive Award Plan (the “2020 Plan”) and the ESPP, which provides for the award of stock options, restricted stock awards (“RSAs”), restricted stock units (“RSUs”), stock appreciation rights (“SARs”) and other cash compensation as well as the grant of rights to purchase shares of our Class A common stock at the ESPP discount.

Stock-based compensation expense for RSAs and RSUs is measured based on the grant date fair value of our common stock. Stock-based compensation expense for stock options issued under the 2020 Plan is measured based on the grant date fair value of the award and is estimated using the Black-Scholes Merton model (the “Black-Scholes model”). Stock-based compensation expense for the ESPP is measured based on the fair value of the ESPP award at the start of the ESPP offering period and is estimated using the Black-Scholes model. Compensation cost is recognized on a straight-line basis over the requisite service or performance period associated with the stock-based award. The Company has elected to recognize award forfeitures as they occur.

The use of the Black-Scholes model to estimate compensation cost for stock options granted under the 2020 Plan and the ESPP requires the input of certain assumptions including the fair value of our stock, expected term, volatility, risk-free interest rate, and dividend yield. The fair value of our common stock is based on quoted market prices on the NASDAQ Global Market exchange. The expected term is based on our analysis of the facts and circumstances underlying the stock-based award. Volatility is representative of expected stock price volatility over the stock option term or the ESPP offering period. Effective December 1, 2022, we began to apply and will use the Company’s volatility for stock options and ESPP offering periods. Prior to this, volatility was based on the historical and implied volatility of comparable publicly traded companies over a similar expected term for the stock option term or ESPP offering period. The risk-free interest rate assumption is based on the U.S. Treasury yield curve in effect at the time of grant for zero-coupon U.S. Treasury notes with maturities approximating the stock-based awards’ expected term. We assume the dividend yield is zero based on our expectation that we will not pay any dividends over the expected term.

Software Development Costs

Internal-Use Software

We follow ASC 350-40, *Goodwill and Other, Internal-Use Software*, to account for development costs incurred for the costs of computer software developed or obtained for internal use. ASC 350-40 requires such costs to be capitalized once certain criteria are met. Capitalized internal-use software costs are primarily comprised of direct labor, related expenses and initial software licenses. We begin to capitalize costs once the project is defined, funding is committed and it is confirmed the software will be used for its intended purpose. Capitalization of these costs concludes once the project is substantially complete and the software is ready for its intended use.

We review the carrying value of internal-use software, for impairment whenever events or changes in circumstances indicate that the carrying amount of such software may not be fully recoverable. Whenever such events or circumstances are present, an impairment loss equal to the excess of the asset carrying value over its fair value, if any, is recorded.

Software Developed for Sale

We capitalize the costs incurred for the development of computer software to be sold, leased or otherwise marketed in accordance with ASC 985-20, *Costs of Software to be Sold, Leased or Marketed*, when technological feasibility has been established. Technological feasibility generally occurs when all planning, design, coding and testing activities are completed that are necessary to establish that the product can be produced to meet its design specifications, including functions, features and technical performance requirements. The establishment of technological feasibility is an ongoing

assessment of judgment with respect to certain external factors, including, but not limited to, anticipated future revenues, estimated economic life and changes in technology.

We begin amortization of capitalized software development costs when the product is available for general release. We estimate the useful lives of capitalized software development costs between three to five years and provide for amortization on a product-by-product basis using the straight-line method over the related useful lives of such products. Unamortized capitalized software development costs determined to be in excess of the net realizable value of the product are expensed immediately.

We evaluate the recoverability of capitalized software costs based on an ongoing assessment of anticipated future revenues and changes in software technologies at least annually and whenever events or circumstances make it more likely than not that impairment may have occurred. In the event of impairment, unamortized capitalized software costs are compared to the net realizable value of the related product and the carrying value of the related assets are written down to the net realizable value to the extent the unamortized capitalized costs exceed such value. The net realizable value is the estimated future gross revenues from the related product reduced by the estimated future costs of completing and disposing of such product, including the costs of providing related maintenance and customer support.

Income taxes

On July 27, 2020, the Company's S-Corporation election was revoked by the Company's stockholders in connection with the Offering. As a result, the Company is now taxed at the corporate level as a C-Corporation for U.S. federal and state income tax purposes. Before July 27, 2020, as the Company was taxed as an S-Corporation for U.S. federal and most state income tax purposes, net income or loss was allocated to and included on the income tax returns of the S-Corporation stockholders. In certain states, the Company was taxed at the corporate level. Accordingly, the income tax provision or benefit was based on taxable income allocated to these states.

In foreign jurisdictions, our subsidiaries are generally taxed at the corporate level, and the income tax provision or benefit is based on income or loss sourced to these foreign jurisdictions at the tax rates applicable in those jurisdictions.

We account for income taxes using the asset and liability method resulting in the recognition of deferred tax assets and liabilities for future tax consequences of events that have been previously recognized in the Company's consolidated financial statements or tax returns. The measurement of deferred tax assets and liabilities is based on provisions of the enacted tax law and rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled, the determination of which requires management judgment and which could result in a different result should our expectations of the recovery or settlement timing differ from the actual events. The effect of a change in tax laws or rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date. The effects of future changes in tax laws or rates are not anticipated. A valuation allowance is recorded when management determines it is more likely than not that some or all of the deferred tax assets will not be realized. We record uncertain tax positions in accordance with ASC 740, *Income Taxes*, on the basis of a two-step process requiring judgment whereby: (i) we determine whether it is more likely than not that the tax positions will be sustained based on the technical merits of the position, and (ii) for those tax positions that meet the more likely than not recognition threshold, we recognize the largest amount of tax benefit that is greater than 50 percent likely to be realized upon ultimate settlement with the related tax authority. We record interest related to underpayment of income taxes as interest expense and penalties as other operating expenses in the consolidated statements of comprehensive loss.

The impact as a result of the application of ASC 740 is reflected in the consolidated financial statements. We assess our income tax positions and record tax benefits or expense based upon our evaluation of the facts, circumstances, and information available at the reporting date. Variations in the actual outcome of these future tax consequences could materially impact the consolidated financial statements.

Recent Accounting Pronouncements

A discussion of recent accounting pronouncements is included in Note 1 to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K.

JOBS Act

As a company with less than \$1.07 billion in revenue during our last fiscal year, we qualify as an “emerging growth company,” as defined in the JOBS Act. An emerging growth company may take advantage of reduced reporting requirements that are otherwise applicable to public companies. These provisions include:

- not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act;
- reduced disclosure obligations regarding executive compensation in our periodic reports, proxy statements and registration statements; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We may take advantage of these provisions until the last day of our fiscal year following the fifth anniversary of the completion of our Offering. However, if certain events occur prior to the end of such five-year period, including if we become a “large accelerated filer,” our annual gross revenues exceed \$1.07 billion, or we issue more than \$1.0 billion of non-convertible debt in any three-year period, we will cease to be an emerging growth company prior to the end of such five-year period.

We have elected to take advantage of certain of the reduced disclosure obligations in this Annual Report on Form 10-K and may elect to take advantage of other reduced reporting requirements in future filings. As a result, the information that we provide to our stockholders may be different from what you might receive from other public reporting companies in which you hold equity interests.

In addition, under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Interest Rate Risk

We had unrestricted cash and cash equivalents of \$91.8 million and \$73.3 million as of December 31, 2022 and 2021, respectively, and investments of \$11.2 million as of December 31, 2022. We maintain our cash and cash equivalents in deposit accounts, money market funds with various financial institutions, and in short duration fixed income securities. Due to the short-term nature of these instruments, we believe that we do not have any material exposure to changes in the fair value of these investments as a result of changes in interest rates. Increases or declines in interest rates would be expected to augment or reduce future interest income by an insignificant amount.

We are exposed to risk related to changes in interest rates on our outstanding borrowings. Borrowings under the Second Amendment bear interest at rates that are variable. Increases in the bank prime or SOFR rates would increase the interest rate on any future outstanding borrowings. Any debt we incur in the future may also bear interest at variable rates. For each 100 basis point increase in the bank prime or SOFR rates, this would be expected to result in a projected increase in interest expense of \$0.5 million annually.

Foreign Currency Exchange Rate Risk

Our revenues and expenses are primarily denominated in U.S. dollars. For our foreign operations, the majority of our revenues and expenses are denominated in other currencies, such as the Canadian Dollar, Euro, British Pound, Swedish Krona, Indian Rupee and Brazilian Real. Decreases in the relative value of the U.S. dollar as compared to these currencies may negatively affect our revenues and other operating results as expressed in U.S. dollars. For the years ended December 31, 2022, 2021 and 2020, approximately 3%, 4% and 2% of our revenues were generated in currencies other than U.S. dollars in each respective period.

We have experienced and will continue to experience fluctuations in our net income (loss) as a result of transaction gains or losses related to revaluing certain current asset and current liability balances that are denominated in currencies other than the functional currency of the entities in which they are recorded. We have historically recognized immaterial amounts of foreign currency gains and losses in each of the periods presented. We may in the future hedge selected significant transactions denominated in currencies other than the U.S. dollar as we expand our international operations and our risk grows. For example, our acquisition of the controlling interest in Systax in January 2020 and the future purchase commitments associated with this acquisition are expected to increase our exposure to fluctuations of the Brazilian Real over time. In May 2020, we entered into a series of foreign currency forward contracts to hedge a portion of our exposure to adverse fluctuations in the Brazilian Real associated with these future purchase commitments. Fluctuations in the value of these forward contracts are reflected in interest expense, net in the consolidated statements of comprehensive loss. At December 31, 2022, outstanding foreign currency forward contracts provide a hedge of approximately 50% of our future purchase commitment liability.

Inflation

In the ordinary course of business we increase our product and services selling prices to offset the inflationary pressures we have or may experience in the future in many of our expense items, including internal labor and third-party costs. If our product costs became subject to significant future inflationary pressures, then we may not be able to fully offset these higher costs through price increases. Our inability or failure to do so could adversely affect our business, financial condition, and results of operations. To date, we do not believe that inflation has had a material effect on our business, financial condition, or results of operations.

Item 8. Financial Statements and Supplementary Data

The information required by this item is presented at the end of this report beginning on page F-1.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Limitations on Effectiveness of Controls and Procedures

In designing and evaluating our disclosure controls and procedures, we recognize that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect that there are resource constraints and that we are required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our principal executive officer and principal financial officer, evaluated the effectiveness of our disclosure controls and procedures as defined in Rule 13a-15(e) under the Exchange Act as of December 31, 2022.

Disclosure controls and procedures are designed to ensure that information required to be disclosed in our reports filed or submitted 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 those designed to ensure that such information required to be disclosed in the reports that we file or submit under the Exchange Act is accumulated and communicated to management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Based on the evaluation of our disclosure controls and procedures, our principal executive officer and principal financial officer concluded that, as of December 31, 2022, our disclosure controls and procedures were effective at a reasonable assurance level.

Management's Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) under the Exchange Act. Our internal control over financial reporting is a process designed under the supervision of our principal executive officer and principal financial officer 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. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements on a timely basis. 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 policies and procedures may deteriorate.

Our management, under the supervision and with the participation of our principal executive officer and principal financial officer, conducted an assessment of the effectiveness of our internal control over financial reporting as of December 31, 2022 based on the framework and criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management concluded that, as of December 31, 2022, our internal control over financial reporting was effective.

This Annual Report on Form 10-K does not include an attestation report of our independent registered public accounting firm on internal control over financial reporting due to an exemption established by the JOBS Act for emerging growth companies.

Changes in Internal Control over Financial Reporting

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

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item is incorporated by reference to the relevant information from our definitive Proxy Statement for our 2023 Annual Meeting of Shareholders, which will be filed not later than 120 days after the end of the fiscal year ended December 31, 2022.

Item 11. Executive Compensation

The information required by this item is incorporated by reference to the relevant information from our definitive Proxy Statement for our 2023 Annual Meeting of Shareholders, which will be filed not later than 120 days after the end of the fiscal 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 the relevant information from our definitive Proxy Statement for our 2023 Annual Meeting of Shareholders, which will be filed not later than 120 days after the end of the fiscal 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 the relevant information from our definitive Proxy Statement for our 2023 Annual Meeting of Shareholders, which will be filed not later than 120 days after the end of the fiscal year ended December 31, 2022.

Item 14. Principal Accountant Fees and Services

The information required by this item is incorporated by reference to the relevant information from our definitive Proxy Statement for our 2023 Annual Meeting of Shareholders, which will be filed not later than 120 days after the end of the fiscal year ended December 31, 2022.

PART IV

Item 15. Exhibits, Financial Statement Schedules

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

(1) Consolidated Financial Statements

The financial statements filed as part of this Annual Report on Form 10-K are listed in the “Index to Consolidated Financial Statements” beginning on page F-1 of this Annual Report on Form 10-K.

(2) Financial Statement Schedules

All schedules are omitted because the information required to be set forth therein is not applicable or is presented in the consolidated financial statements or notes thereto beginning on page F-1 of this Annual Report on Form 10-K.

(3) Exhibits

The documents listed in the Index to Exhibits beginning on page E-1 of this Annual Report on Form 10-K are incorporated by reference or are filed with this Annual Report on Form 10-K, in each case as indicated therein (numbered in accordance with Item 601 of Regulation S-K).

Item 16. Form 10-K Summary

None.

INDEX TO EXHIBITS

The following exhibits are filed as part of this Annual Report on Form 10-K.

Exhibit Number	Exhibit Description	Form	File No.	Exhibit	Filing Date	Filed Herewith	Furnished Herewith
3.1	Form of Amended and Restated Certificate of Incorporation of Vertex, Inc.	S-1/A	333-239644	3.1	07/20/20		
3.2	Form of Amended and Restated Bylaws of Vertex, Inc.	S-1/A	333-239644	3.2	07/20/20		
4.1	Specimen Stock Certificate evidencing the shares of Class A common stock.	S-1/A	333-239644	4.1	07/24/20		
4.2	Form of Third Amended and Restated Stockholders' Agreement.	S-1/A	333-239644	4.2	07/24/20		
4.3	Description of Capital Stock	10-K	333-239644	4.3	03/15/21		
10.1	Second Amendment to the Credit Agreement by and among Vertex, Inc., the guarantors party thereto, PNC Bank, National Association, and the lenders party thereto, dated as of March 8, 2022.	8-K	001-39413	10.1	03/09/22		
10.3#	Form of Indemnification Agreement between Vertex, Inc. and each of its Executive Officers and Directors.	S-1/A	333-239644	10.3	07/20/20		
10.4	2007 Stock Appreciation Plan.	S-1	333-239644	10.4	07/02/20		
10.5#	Form of Executive Employment Agreement, as amended and restated, by and between Vertex, Inc. and Lisa Butler.	S-1/A	333-239644	10.5	07/20/20		
10.6#	Executive Employment Agreement, as amended and restated, by and between Vertex, Inc. and David DeStefano.	S-1/A	333-239644	10.6	07/20/20		
10.7#	Form of Executive Employment Agreement, as amended and restated, by and between Vertex, Inc. and Bryan Rowland.	S-1/A	333-239644	10.7	07/20/20		
10.8#	Form of Executive Employment Agreement, as amended and restated, by and between Vertex, Inc. and John Schwab.	S-1/A	333-239644	10.8	07/20/20		
10.9	Form of S Corporation Termination and Tax Sharing Agreement.	S-1/A	333-239644	10.9	07/20/20		
10.10#	Vertex Inc. & Subsidiaries 2010 Long-Term Rewards Plan.	S-1/A	333-239644	10.10	07/20/20		
10.11#	Vertex Inc. & Subsidiaries 2018 Long-Term Rewards Plan.	S-1/A	333-239644	10.11	07/20/20		
10.12#	Form of Stock Option Amendment Agreement.	S-1/A	333-239644	10.12	07/20/20		
10.13#	Form of Option Award Agreement under 2020 Incentive Award Plan for Amended Options.	S-1/A	333-239644	10.13	07/20/20		
10.14#	Form of Option Award Agreement under 2020 Incentive Award Plan for Amended Stock Appreciation Rights.	S-1/A	333-239644	10.14	07/20/20		
10.15#	Vertex, Inc. 2020 Incentive Award Plan.	S-1/A	333-239644	10.15	07/20/20		
10.16#	Form of Option Award Agreement under 2020 Incentive Award Plan.	S-1/A	333-239644	10.16	07/20/20		

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<u>Exhibit Number</u>	<u>Exhibit Description</u>	<u>Form</u>	<u>File No.</u>	<u>Exhibit</u>	<u>Filing Date</u>	<u>Filed Herewith</u>	<u>Furnished Herewith</u>
10.17#	Form of Restricted Stock Award Agreement under 2020 Incentive Award Plan.	S-1/A	333-239644	10.17	07/20/20		
10.18#	Form of Restricted Stock Unit Award Agreement under 2020 Incentive Award Plan.	S-1/A	333-239644	10.18	07/20/20		
10.19#	Form of Stock Award Agreement under 2020 Incentive Award Plan.	S-1/A	333-239644	10.19	07/20/20		
21.1	List of Subsidiaries	S-1/A	333-239644	21.1	07/20/20		
23.1	Consent of Crowe LLP					X	
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					X	
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					X	
32.1	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002						X
32.2	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002						X
101.INS	Inline XBRL Instance Document						X
101.SCH	Inline XBRL Taxonomy Extension Schema Document						X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document						X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document						X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document						X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document						X
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)						X

Indicates a management contract or compensatory plan.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Vertex, Inc.

Date: March 10, 2023

By: /s/ DAVID DESTEFANO
David DeStefano
*President, Chief Executive Officer
and Chairperson*

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u> /s/ DAVID DESTEFANO </u> David DeStefano	President, Chief Executive Officer and Chairperson (Principal Executive Officer)	March 10, 2023
<u> /s/ JOHN SCHWAB </u> John Schwab	Chief Financial Officer (Principal Financial Officer)	March 10, 2023
<u> /s/ LISA BUTLER </u> Lisa Butler	Chief Accounting Officer (Principal Accounting Officer)	March 10, 2023
<u> /s/ ERIC ANDERSEN </u> Eric Andersen	Director	March 10, 2023
<u> /s/ PHILIP SAUNDERS </u> Philip Saunders	Director	March 10, 2023
<u> /s/ KEVIN ROBERT </u> Kevin Robert	Director	March 10, 2023
<u> /s/ J. RICHARD STAMM </u> J. Richard Stamm	Director	March 10, 2023
<u> /s/ AMANDA WESTPHAL RADCLIFFE </u> Amanda Westphal Radcliffe	Director	March 10, 2023
<u> /s/ STEFANIE WESTPHAL THOMPSON </u> Stefanie Westphal Thompson	Director	March 10, 2023
<u> /s/ BRADLEY GAYTON </u> Bradley Gayton	Director	March 10, 2023

VERTEX, INC. AND SUBSIDIARIES

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	<u>Page</u>
Audited Consolidated Financial Statements as of December 31, 2022 and 2021 and for each of the three years in the period ended December 31, 2022:	
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Consolidated Statements of Changes in Equity (Deficit)	F-5
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Report of Independent Registered Public Accounting Firm

Shareholders and the Board of Directors of Vertex, Inc.
King of Prussia, Pennsylvania

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Vertex, Inc. (the "Company") as of December 31, 2022 and 2021, the related consolidated statements of comprehensive loss, changes in equity (deficit), 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 "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Crowe LLP

We have served as the Company's auditor since 2019.

New York, New York
March 10, 2023

Vertex, Inc. and Subsidiaries
Consolidated Balance Sheets
(Amounts in thousands, except per share data)

	December 31,	
	2022	2021
Assets		
Current assets:		
Cash and cash equivalents	\$ 91,803	\$ 73,333
Funds held for customers	14,945	24,873
Accounts receivable, net of allowance of \$9,554 and \$9,151, respectively	102,885	76,929
Prepaid expenses and other current assets	20,383	20,536
Investment securities available-for-sale, current, at fair value (amortized cost of \$11,220 at December 31, 2022)	11,173	—
Total current assets	241,189	195,671
Property and equipment, net of accumulated depreciation	115,768	98,390
Capitalized software, net of accumulated amortization	39,012	33,442
Goodwill and other intangible assets	257,023	272,702
Deferred commissions	15,463	12,555
Deferred income tax asset	30,938	35,298
Operating lease right-of-use assets	17,187	20,249
Other assets	2,612	1,900
Total assets	\$ 719,192	\$ 670,207
Liabilities and Stockholders' Equity		
Current liabilities:		
Current portion of long-term debt	\$ 2,188	\$ —
Accounts payable	14,329	13,000
Accrued expenses	38,234	22,966
Tax sharing agreement distributions payable	—	536
Customer funds obligations	12,121	23,461
Accrued salaries and benefits	10,790	16,671
Accrued variable compensation	23,729	26,462
Deferred compensation, current	2,809	4,202
Deferred revenue, current	268,847	237,344
Current portion of operating lease liabilities	4,086	3,933
Current portion of finance lease liabilities	103	284
Deferred purchase consideration, current	19,824	19,805
Purchase commitment and contingent consideration liabilities, current	6,149	468
Total current liabilities	403,209	369,132
Deferred compensation, net of current portion	—	1,963
Deferred revenue, net of current portion	10,289	11,666
Debt, net of current portion	46,709	—
Operating lease liabilities, net of current portion	20,421	24,320
Finance lease liabilities, net of current portion	10	68
Deferred purchase consideration, net of current portion	—	19,419
Purchase commitment and contingent consideration liabilities, net of current portion	8,412	10,829
Deferred other liabilities	417	2,726
Total liabilities	489,467	440,123
Commitments and contingencies (Note 15)		
Stockholders' equity:		
Preferred shares, \$0.001 par value, 30,000 shares authorized; no shares issued and outstanding	—	—
Class A voting common stock, \$0.001 par value, 300,000 shares authorized; 50,014 and 42,286 shares issued and outstanding, respectively	50	42
Class B voting common stock, \$0.001 par value, 150,000 shares authorized; 100,307 and 106,807 shares issued and outstanding, respectively	100	107
Additional paid in capital	244,820	222,621
Retained earnings	12,507	24,811
Accumulated other comprehensive loss	(27,752)	(17,497)
Total stockholders' equity	229,725	230,084
Total liabilities and stockholders' equity	\$ 719,192	\$ 670,207

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

Vertex, Inc. and Subsidiaries
Consolidated Statements of Comprehensive Loss
(Amounts in thousands, except per share data)

	For the year ended December 31,		
	2022	2021	2020
Revenues:			
Software subscriptions	\$ 415,473	\$ 358,415	\$ 316,763
Services	76,151	67,133	57,902
Total revenues	<u>491,624</u>	<u>425,548</u>	<u>374,665</u>
Cost of revenues:			
Software subscriptions	142,071	116,194	105,676
Services	51,061	45,698	59,711
Total cost of revenues	<u>193,132</u>	<u>161,892</u>	<u>165,387</u>
Gross profit	<u>298,492</u>	<u>263,656</u>	<u>209,278</u>
Operating expenses:			
Research and development	41,877	44,018	54,340
Selling and marketing	125,335	99,005	99,418
General and administrative	121,651	107,009	149,057
Depreciation and amortization	12,440	11,678	11,018
Other operating expense, net	5,271	4,888	203
Total operating expenses	<u>306,574</u>	<u>266,598</u>	<u>314,036</u>
Loss from operations	<u>(8,082)</u>	<u>(2,942)</u>	<u>(104,758)</u>
Interest expense, net	2,048	984	3,111
Loss before income taxes	<u>(10,130)</u>	<u>(3,926)</u>	<u>(107,869)</u>
Income tax expense (benefit)	2,174	(2,447)	(32,788)
Net loss	<u>(12,304)</u>	<u>(1,479)</u>	<u>(75,081)</u>
Other comprehensive loss:			
Foreign currency translation adjustments and revaluations, net of tax	10,219	14,370	2,636
Unrealized loss on investments, net of tax	36	—	—
Total other comprehensive loss, net of tax	<u>10,255</u>	<u>14,370</u>	<u>2,636</u>
Total comprehensive loss	<u>\$ (22,559)</u>	<u>\$ (15,849)</u>	<u>\$ (77,717)</u>
Net loss attributable to Class A stockholders, basic	<u>\$ (3,771)</u>	<u>\$ (357)</u>	<u>\$ (6,335)</u>
Net loss per Class A share, basic	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>	<u>\$ (0.57)</u>
Weighted average Class A common stock, basic	<u>45,864</u>	<u>35,647</u>	<u>11,096</u>
Net loss attributable to Class A stockholders, diluted	<u>\$ (3,771)</u>	<u>\$ (357)</u>	<u>\$ (6,335)</u>
Net loss per Class A share, diluted	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>	<u>\$ (0.57)</u>
Weighted average Class A common stock, diluted	<u>45,864</u>	<u>35,647</u>	<u>11,096</u>
Net loss attributable to Class B stockholders, basic	<u>\$ (8,533)</u>	<u>\$ (1,122)</u>	<u>\$ (68,746)</u>
Net loss per Class B share, basic	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>	<u>\$ (0.57)</u>
Weighted average Class B common stock, basic	<u>103,781</u>	<u>112,133</u>	<u>120,415</u>
Net loss attributable to Class B stockholders, diluted	<u>\$ (8,533)</u>	<u>\$ (1,122)</u>	<u>\$ (68,746)</u>
Net loss per Class B share, diluted	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>	<u>\$ (0.57)</u>
Weighted average Class B common stock, diluted	<u>103,781</u>	<u>112,133</u>	<u>120,415</u>

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

Vertex, Inc. and Subsidiaries
Consolidated Statements of Changes in Equity (Deficit)
(Amounts in thousands)

	Before Recapitalization			After Recapitalization				Additional Paid-in Capital	Retained Earnings (Accumulated Deficit)	Accumulated Other Comprehensive Loss	Treasury Shares Issued	Treasury Stock	Total Stockholders' Equity (Deficit)	Options for Redeemable Shares
	Outstanding Class A Shares	Outstanding Class B Shares	Class B Common Stock	Outstanding Class A Shares	Class A Common Stock	Outstanding Class B Shares	Class B Common Stock							
January 1, 2020	147	120,270	\$ 54	—	\$ —	—	\$ —	\$ —	\$ (90,701)	\$ (491)	41,910	\$(38,638)	\$ (129,776)	\$ 17,344
Distributions declared	—	—	—	—	—	—	—	—	(132,901)	—	—	—	(132,901)	—
Exercise of stock options prior to Offering	—	173	—	—	—	—	—	—	53	—	—	—	53	—
Reclassification of accumulated S Corporation earnings	—	—	—	—	—	—	—	(354,291)	354,291	—	—	—	—	—
Remeasurement of options for redeemable shares	—	—	—	—	—	—	—	(21,954)	(29,879)	—	—	—	(51,833)	51,833
Reclassification of options for redeemable shares	—	—	—	—	—	—	—	69,177	—	—	—	—	69,177	(69,177)
Recapitalization prior to Offering	(147)	(120,443)	(54)	173	—	120,417	120	(38,704)	—	—	(41,910)	38,638	—	—
Reclassification of SAR liability to equity in connection with Offering	—	—	—	—	—	—	—	143,519	—	—	—	—	143,519	—
Auto-exercised options in connection with Offering	—	—	—	564	1	—	—	(13,809)	—	—	—	—	(13,808)	—
Shares issued in connection with Offering, net of Offering costs	—	—	—	23,812	24	—	—	416,778	—	—	—	—	416,802	—
Exercise of stock options in connection with the Offering	—	—	—	510	—	—	—	(7,023)	—	—	—	—	(7,023)	—
Vested restricted stock issued in connection with Offering	—	—	—	19	—	—	—	361	—	—	—	—	361	—
Exercise of stock options, net	—	—	—	890	1	—	—	1,687	—	—	—	—	1,688	—
Shares issued in connection with ESPP	—	—	—	59	—	—	—	957	—	—	—	—	957	—
Stock-based compensation expense from equity-classified awards under the 2020 Plan	—	—	—	—	—	—	—	12,576	—	—	—	—	12,576	—
Distributions paid or payable in connection with Tax Sharing Agreement	—	—	—	—	—	—	—	(2,733)	—	—	—	—	(2,733)	—
Class B shares exchanged for Class A shares	—	—	—	300	—	(300)	—	—	—	—	—	—	—	—
Foreign currency translation adjustments and revaluations, net of tax	—	—	—	—	—	—	—	—	—	(2,636)	—	—	(2,636)	—
Net loss	—	—	—	—	—	—	—	—	(75,081)	—	—	—	(75,081)	—
Balance, December 31, 2020	—	—	—	26,327	26	120,117	120	206,541	25,782	(3,127)	—	—	229,342	—
ASC 842 transition adjustment	—	—	—	—	—	—	—	—	508	—	—	—	508	—
Exercise of stock options, net	—	—	—	2,157	3	—	—	(10,611)	—	—	—	—	(10,608)	—
Shares issued upon vesting of RSUs, net	—	—	—	12	—	—	—	(78)	—	—	—	—	(78)	—
Shares issued upon vesting of RSAs, net	—	—	—	352	—	—	—	(213)	—	—	—	—	(213)	—
Shares issued in connection with ESPP	—	—	—	128	—	—	—	2,060	—	—	—	—	2,060	—
Stock-based compensation expense	—	—	—	—	—	—	—	25,458	—	—	—	—	25,458	—
Distributions payable in connection with tax sharing agreement	—	—	—	—	—	—	—	(536)	—	—	—	—	(536)	—
Class B shares exchanged for Class A shares	—	—	—	13,310	13	(13,310)	(13)	—	—	—	—	—	—	—
Foreign currency translation adjustments and revaluations, net of tax	—	—	—	—	—	—	—	—	—	(14,370)	—	—	(14,370)	—
Net loss	—	—	—	—	—	—	—	—	(1,479)	—	—	—	(1,479)	—
Balance, December 31, 2021	—	—	—	42,286	42	106,807	107	222,621	24,811	(17,497)	—	—	230,084	—
Exercise of stock options, net	—	—	—	800	1	—	—	1,164	—	—	—	—	1,165	—
Shares issued upon vesting of RSUs, net	—	—	—	48	—	—	—	(283)	—	—	—	—	(283)	—
Shares issued upon vesting of RSAs, net	—	—	—	173	—	—	—	(164)	—	—	—	—	(164)	—
Shares issued in connection with ESPP	—	—	—	207	—	—	—	1,951	—	—	—	—	1,951	—
Stock-based compensation expense	—	—	—	—	—	—	—	19,531	—	—	—	—	19,531	—
Class B shares exchanged for Class A shares	—	—	—	6,500	7	(6,500)	(7)	—	—	—	—	—	—	—
Foreign currency translation adjustments and revaluations, net of tax	—	—	—	—	—	—	—	—	—	(10,219)	—	—	(10,219)	—
Unrealized loss from available-for-sale investments, net of tax	—	—	—	—	—	—	—	—	—	(36)	—	—	(36)	—
Net loss	—	—	—	—	—	—	—	—	(12,304)	—	—	—	(12,304)	—
Balance,	—	—	\$ —	50,014	\$ 50	100,307	\$ 100	\$ 244,820	\$ 12,507	\$ (27,752)	\$ —	\$ —	\$ 229,725	\$ —

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

Vertex, Inc. and Subsidiaries
Consolidated Statements of Cash Flows
(Amounts in thousands)

	For the Year Ended December 31,		
	2022	2021	2020
Cash flows from operating activities:			
Net loss	\$ (12,304)	\$ (1,479)	\$ (75,081)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Depreciation and amortization	61,153	44,782	32,215
Provision for subscription cancellations and non-renewals, net of deferred allowance	(196)	466	259
Amortization of deferred financing costs	245	211	373
Write-off of deferred financing costs	370	—	1,387
Stock-based compensation expense	19,729	26,160	147,904
Deferred income tax benefit	(1,345)	(3,116)	(33,499)
Redemption of Converted SARs	—	—	(22,889)
Non-cash operating lease costs	3,357	3,825	—
Other	4,052	510	107
Changes in operating assets and liabilities:			
Accounts receivable	(25,665)	2,962	(6,762)
Prepaid expenses and other current assets	(214)	(5,192)	(1,541)
Deferred commissions	(2,908)	(812)	(547)
Accounts payable	1,369	3,847	(1,842)
Accrued expenses	15,064	3,210	4,568
Accrued and deferred compensation	(12,005)	(3,735)	(632)
Deferred revenue	30,768	24,691	17,557
Operating lease liabilities	(4,041)	(4,697)	—
Other	(583)	336	(2,034)
Net cash provided by operating activities	<u>76,846</u>	<u>91,969</u>	<u>59,543</u>
Cash flows from investing activities:			
Acquisition of business, net of cash acquired	(474)	(251,412)	(11,570)
Property and equipment additions	(58,530)	(33,386)	(20,955)
Capitalized software additions	(14,888)	(11,660)	(11,850)
Purchase of investment securities, available-for-sale	(16,518)	—	—
Proceeds from maturities of investment securities, available-for-sale	5,364	—	—
Net cash used in investing activities	<u>(85,046)</u>	<u>(296,458)</u>	<u>(44,375)</u>
Cash flows from financing activities:			
Net increase (decrease) in customer funds obligations	(11,340)	14,226	1,681
Proceeds from line of credit	—	—	12,500
Principal payments on line of credit	—	—	(12,500)
Proceeds from term loan	50,000	—	175,000
Principal payments on long-term debt	(938)	—	(226,251)
Payments for deferred financing costs	(983)	—	(2,436)
Proceeds from issuance of shares in connection with Offering	—	—	423,024
Payments for Offering costs	—	—	(6,222)
Payments for taxes on exercised stock options	—	—	(14,813)
Proceeds from purchases of stock under ESPP	1,951	2,060	957
Payments for taxes related to net share settlement of stock-based awards	(1,104)	(12,758)	—
Proceeds from exercise of stock options	1,821	1,859	8,808
Distributions to stockholders	—	—	(146,116)
Distributions under Tax Sharing Agreement	(536)	(2,700)	—
Payments for purchase commitment liabilities	(423)	(10,822)	—
Payments of finance lease liabilities	(1,354)	(964)	—
Payments for deferred purchase commitments	(20,000)	—	—
Net cash provided by (used in) financing activities	<u>17,094</u>	<u>(9,099)</u>	<u>213,632</u>
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(352)	(479)	(22)
Net increase (decrease) in cash, cash equivalents and restricted cash	<u>8,542</u>	<u>(214,067)</u>	<u>228,778</u>
Cash, cash equivalents and restricted cash, beginning of period	98,206	312,273	83,495
Cash, cash equivalents and restricted cash, end of period	<u>\$ 106,748</u>	<u>\$ 98,206</u>	<u>\$ 312,273</u>
Reconciliation of cash, cash equivalents and restricted cash to the Consolidated Balance Sheets, end of period:			
Cash and cash equivalents	\$ 91,803	\$ 73,333	\$ 303,051
Restricted cash—funds held for customers	14,945	24,873	9,222
Total cash, cash equivalents and restricted cash, end of period	<u>\$ 106,748</u>	<u>\$ 98,206</u>	<u>\$ 312,273</u>

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

Vertex, Inc. and Subsidiaries
Notes to Consolidated Financial Statements
(Amounts in thousands, except per share data)

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Nature of Business

Vertex, Inc. (“Vertex”) and its consolidated subsidiaries and variable interest entities (“VIE”) (collectively, the “Company”) operate as solutions providers of state, local and value added tax calculation, compliance and analytics, offering software products which are sold through software license and software as a service (“cloud”) subscriptions. The Company also provides implementation and training services in connection with its software license and cloud subscriptions, transaction tax returns outsourcing, and other tax-related services. The Company sells to customers located throughout the United States of America (“U.S.”) and internationally.

Basis of Consolidation

The consolidated financial statements are prepared in accordance with accounting principles generally accepted in the U.S. (“U.S. GAAP”) and include the accounts of the Company. All intercompany transactions have been eliminated in consolidation.

The Company has a 65% controlling equity interest in Systax Sistemas Fiscais LTDA (“Systax”), a provider of Brazilian transaction tax content and software. Systax was determined to be a VIE and the accounts are included in the consolidated financial statements. Vertex does not have full decision-making authority over Systax; however, Vertex is the entity that most significantly participates in the variability of the fair value of Systax’s net assets and is considered the entity most closely associated to Systax. As such, Vertex is deemed the primary beneficiary of Systax and consolidates Systax into its consolidated financial statements.

Registration of Company Stock and Initial Public Offering

On July 28, 2020, the Company filed its amended and restated certificate of incorporation with the Delaware Secretary of State to: (i) effect a three-for-one forward stock split (the “Stock Split”); (ii) establish a new capital structure for the Company (the “New Capital Structure”); and (iii) effect a share exchange (the “Share Exchange”) (collectively, the “Recapitalization”). The Stock Split resulted in each one share owned by a stockholder being exchanged for three shares of common stock, and the number of shares of the Company’s common stock issued and outstanding being increased proportionately based on the Stock Split. After the Stock Split, the Share Exchange occurred, resulting in stockholders of record exchanging their existing Class A and Class B common stock (“former Class A” and “former Class B”, respectively) for newly created shares of Class A and Class B common stock (“Class A” and “Class B”, respectively) issued in connection with the New Capital Structure. The effect of the Stock Split and the Share Exchange are recognized retrospectively in the consolidated financial statements.

The Company’s Registration Statement on Form S-1 with the Securities and Exchange Commission (“SEC”) was declared effective on July 28, 2020, resulting in the Class A shares being registered and available for trading on the NASDAQ Global Market exchange (the “Offering”).

On July 31, 2020, the Company received \$423,024 in proceeds from the sale of 23,812 shares of Class A at a public offering price of \$19.00 per share, net of underwriting fees, and used a portion of the proceeds to pay off \$175,000 in outstanding debt. The net proceeds remaining after payment of Offering costs are being used for working capital and other corporate purposes.

Segments

The Company operates its business as one operating segment. Operating segments are defined as components of an enterprise about which separate financial information is evaluated regularly by the chief operating decision maker

Vertex, Inc. and Subsidiaries
Notes to Consolidated Financial Statements (continued)

(Amounts in thousands, except per share data)

(“CODM”), the Company’s Chief Executive Officer, in deciding how to allocate resources and assess performance. The Company’s CODM allocates resources and assesses performance based upon discrete financial information at the consolidated level.

For the years ended December 31, 2022, 2021 and 2020 approximately 8%, 7% and 5%, respectively, of the Company’s revenues were generated outside of the U.S. As of December 31, 2022 and 2021, \$827 and \$699, respectively, of the Company’s property and equipment assets were held outside of the U.S.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to credit risk consist principally of cash and cash equivalents, which includes highly liquid investment securities, available-for-sale securities, funds held for customers and accounts receivable.

The Company maintains the majority of its cash and cash equivalent balances and funds held for customers in four banks. These amounts exceed federally insured (“FDIC”) limits. The Company periodically evaluates the creditworthiness of the banks. The Company has not experienced any losses in these accounts and believes they are not exposed to significant credit risk on such accounts.

The Company does not require collateral from its customers. Allowances are maintained for credit losses. Credit risk related to accounts receivable is limited due to the industry and geographic diversity within the Company's customer base. No single customer accounted for more than 10% of revenues for the years ended December 31, 2022, 2021 and 2020.

Fair Value Measurement

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at a measurement date. A three-level fair value hierarchy (the “Fair Value Hierarchy”) prioritizes the inputs used to measure fair value. The Fair Value Hierarchy requires the Company to maximize the use of observable inputs and minimize the use of unobservable inputs. Classification in the Fair Value Hierarchy is based on the lowest of the following levels that is significant to the measurement:

Level 1: Inputs are unadjusted quoted prices in active markets for identical assets or liabilities.

Level 2: Inputs are quoted prices for similar assets and liabilities in active markets or quoted prices for identical or similar instruments in markets that are not active and model-derived valuations in which all significant inputs and significant value drivers are observable in active markets.

Level 3: Inputs are unobservable inputs based on the Company’s assumptions and valuation techniques used to measure assets and liabilities at fair value. The inputs require significant management judgment or estimation.

The Company’s assessment of the significance of an input to a fair value measurement requires judgment, which may affect the determination of fair value and the measurement’s classification within the Fair Value Hierarchy.

Use of Estimates

The preparation of consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, equity, revenues and expenses during the reporting period. Significant estimates used in preparing these consolidated financial statements include: (i) the estimated allowance for subscription cancellations, (ii) expected credit losses associated with the allowance for doubtful accounts; (iii) allowance for credit

Vertex, Inc. and Subsidiaries
Notes to Consolidated Financial Statements (continued)

(Amounts in thousands, except per share data)

losses on available-for-sale debt securities; (iv) the reserve for self-insurance, (v) assumptions related to achievement of technological feasibility for software developed for sale, (vi) product life cycles, (vii) estimated useful lives and potential impairment of long-lived assets and intangible assets, (viii) potential impairment of goodwill, (ix) determination of the fair value of tangible and intangible assets acquired, liabilities assumed and consideration transferred in acquisitions, (x) amortization period of material rights and deferred commissions (xi) Black-Scholes-Merton option pricing model (“Black-Scholes model”) input assumptions used to determine the fair value of certain stock-based compensation awards, and Employer Stock Purchase Plan (“ESPP”) purchase rights (xii) measurement of future purchase commitment, contingent consideration liabilities and deferred purchase consideration liabilities associated with acquisitions, and (xiii) the potential outcome of future tax consequences of events that have been recognized in the consolidated financial statements or tax returns. Actual results may differ from these estimates.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with an initial maturity date of three months or less to be cash equivalents. Funds held as investments in money market funds are included within cash and cash equivalents.

In accordance with Accounting Standards Update (“ASU”) No. 2016-18, *Restricted Cash*, the Company presents changes in restricted cash in the cash flow statement.

Funds Held for Customers

Funds held for customers in the consolidated balance sheets represents customer funds advanced for transaction tax returns outsourcing. Funds held for customers are restricted for the sole purpose of remitting such funds to satisfy obligations on behalf of such customers and are deposited at FDIC-insured institutions. Customer obligations are included in current liabilities in the consolidated balance sheets, as the obligations are expected to be settled within one year.

Property and Equipment

Property and equipment are stated at cost or fair value when acquired and presented net of accumulated depreciation. Normal maintenance and repairs are charged to expense, while major renewals and betterments are capitalized. Assets under finance leases are recorded at the present value of future lease payments. Assets under capital leases are recorded at the lower of the present value of the minimum lease payments or the fair value of the assets and are depreciated over the shorter of the asset’s useful life or lease term.

Depreciation and amortization are computed straight-line over the estimated useful lives of the assets, as follows:

Leasehold improvements	1 - 12 years
Internal-use software developed	3 - 5 years
Computer software purchased	3 - 7 years
Equipment	3 - 10 years
Furniture and fixtures	7 - 10 years

Software Development Costs

Internal-Use Software

The Company follows Accounting Standards Codification (“ASC”) 350-40, *Goodwill and Other, Internal-Use Software*, to account for development costs incurred for the costs of computer software developed or obtained for internal use. ASC 350-40 requires such costs to be capitalized once certain criteria are met. Capitalized internal-use software costs

Vertex, Inc. and Subsidiaries
Notes to Consolidated Financial Statements (continued)

(Amounts in thousands, except per share data)

are primarily comprised of direct labor, related expenses and initial software licenses. ASC 350-40 includes specific guidance on costs not to be capitalized, such as overhead, general and administrative and training costs. Internal-use software includes software utilized for cloud-based solutions as well as software for internal systems and tools. Costs are capitalized once the project is defined, funding is committed and it is confirmed the software will be used for its intended use. Capitalization of these costs concludes once the project is substantially complete and the software is ready for its intended purpose. Post-configuration training and maintenance costs are expensed as incurred. Internal-use software is included in internal-use software developed in property and equipment in the consolidated balance sheets once available for its intended use. Depreciation expense for internal-use software utilized for cloud-based customer solutions and for software for internal systems and tools is included in cost of revenues, software subscriptions and depreciation and amortization, respectively, in the consolidated statements of comprehensive loss.

Software Developed for Sale

The costs incurred for the development of computer software to be sold, leased, or otherwise marketed are capitalized in accordance with ASC 985-20, *Costs of Software to be Sold, Leased or Marketed*, when technological feasibility has been established. Technological feasibility generally occurs when all planning, design, coding and testing activities are completed that are necessary to establish that the product can be produced to meet its design specifications, including functions, features and technical performance requirements. The establishment of technological feasibility is an ongoing assessment of judgment by management with respect to certain external factors, including, but not limited to, anticipated future revenues, estimated economic life and changes in technology. Capitalized software includes direct labor and related expenses for software development for new products and enhancements to existing products and acquired software.

Amortization of capitalized software development costs begins when the product is available for general release. Amortization is provided on a product-by-product basis using the straight-line method over periods between three to five years. Unamortized capitalized software development costs determined to be in excess of the net realizable value of the product are expensed immediately.

Capitalized software costs are subject to an ongoing assessment of recoverability based on anticipated future revenues and changes in software technologies at each balance sheet date. In the event of impairment, unamortized capitalized software costs are compared to the net realizable value of the related product and the carrying value of the related assets are written down to the net realizable value to the extent the unamortized capitalized costs exceed such value. The net realizable value is the estimated future gross revenues from the related product reduced by the estimated future costs of completing and disposing of such product, including the costs of providing related maintenance and customer support.

Assessment of Long-Lived Assets

The Company reviews the carrying value of long-lived assets, including internal-use software, for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be fully recoverable. Whenever such events or circumstances are present, an impairment loss equal to the excess of the asset carrying value over its fair value, if any, is recorded.

Business Combinations

Upon acquisition of a company, the Company determines if the transaction is a business combination, which is accounted for using the acquisition method of accounting. Under the acquisition method, once control is obtained of a business, the assets acquired, liabilities assumed, consideration transferred and amounts attributed to noncontrolling interests, are recorded at fair value. The Company uses its best estimates and assumptions to assign fair value to the tangible and intangible assets acquired, liabilities assumed, consideration transferred, and amounts attributed to noncontrolling interests at the acquisition date. One of the most significant estimates relates to the determination of the fair value of these amounts. The determination of the fair values is based on estimates and judgments made by management. The Company's

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estimates of fair value are based upon assumptions it believes to be reasonable, but which are inherently uncertain and unpredictable. Measurement period adjustments to these values as of the acquisition date are reflected at the time identified, up through the conclusion of the measurement period, which is the time at which all information for determination of the values of assets acquired, liabilities assumed, consideration transferred and noncontrolling interests is received, and is not to exceed one year from the acquisition date (the “Measurement Period”). Thus, the Company may record adjustments to the fair value of these tangible and intangible assets acquired, liabilities assumed, consideration transferred and noncontrolling interests, with the corresponding offset to goodwill during this Measurement Period. Additionally, uncertain tax positions and tax-related valuation allowances are initially recorded in connection with a business combination as of the acquisition date. The Company continues to collect information and reevaluate these estimates and assumptions periodically and record any adjustments to preliminary estimates to goodwill, provided the Company is within the Measurement Period, with any adjustments to amortization of new or previously recorded identifiable intangibles being recorded to the consolidated statements of comprehensive loss in the period in which they arise. In addition, if outside of the Measurement Period, any subsequent adjustments to the acquisition date fair values are reflected in the consolidated statements of comprehensive loss in the period in which they arise.

Goodwill

Goodwill represents the excess of the purchase price over the fair value of net tangible and intangible assets acquired in a business combination. The Company evaluates goodwill for impairment annually at October 1 and whenever events or circumstances make it more likely than not that impairment may have occurred.

The Company has determined that its business comprises one reporting unit. The Company has the option to first assess qualitative factors to determine whether events or circumstances indicate it is more likely than not that the fair value of a reporting unit is greater than its carrying amount, in which case a quantitative impairment test is not required.

As provided for by ASU 2017-04, *Simplifying the Test for Goodwill Impairment*, the quantitative goodwill impairment test is performed by comparing the fair value of the reporting unit with its carrying amount, including goodwill. If the fair value of the reporting unit exceeds its carrying amount, goodwill is not impaired. An impairment loss is recognized for any excess of the carrying amount of the reporting unit over its fair value up to the amount of goodwill allocated to the reporting unit. Income tax effects from any tax-deductible goodwill on the carrying amount of the reporting unit are considered when measuring the goodwill impairment loss, if applicable.

Deferred Financing Costs

The Company capitalizes costs related to obtaining, renewing or extending loan agreements and amortizes these costs on a straight-line basis, which approximates the effective interest method, over the life of the loan. Deferred financing costs related to undrawn debt are reflected in other assets in the consolidated balance sheets in accordance with ASC 835-30, *Interest—Imputation of Interest*.

Stock-Based Compensation

On the effective date of the Offering, the Company adopted the 2020 Incentive Award Plan (the “2020 Plan”) and the ESPP, which provide for the award of stock appreciation rights (“SARs”), stock options (“options”), restricted stock awards (“RSAs”), restricted stock units (“RSUs”), and participation in the ESPP (collectively, the “awards”).

The awards are subject to, and the Company applies, the guidance set forth in ASC 718, *Compensation—Stock Compensation*, for the award of equity-based instruments.

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Notes to Consolidated Financial Statements (continued)
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The provisions of ASC 718 require a company to measure the fair value of stock-based compensation as of the grant date of the award. Stock-based compensation expense reflects the cost of employee services received in exchange for the awards.

SARs are accounted for as liabilities under ASC 718 and, as such, the Company recognizes stock-based compensation expense by remeasuring the value of the SARs at the end of each reporting period and accruing the portion of the requisite service rendered at that date. Prior to the date management determined the Company was considered to have become a public entity, the Company measured SARs at their intrinsic value. After such date, management remeasured outstanding SARs using the fair value-based method under ASC 718.

Stock-based compensation expense for stock options issued under the 2020 Plan after the Offering is measured based on the grant date fair value of the award and is estimated using the Black-Scholes model. Compensation cost is recognized on a straight-line basis over the requisite service or performance period associated with the award.

Stock-based compensation expense for RSAs and RSUs is based on the fair value of the Company's underlying common stock on the date of grant. Compensation cost is recognized on a straight-line basis over the requisite service or performance period associated with the award. Stock-based compensation expense for awards subject to performance-based measurement criteria is recognized when achievement of performance targets is deemed probable.

The ESPP permits participants to purchase Class A common stock through payroll deductions, up to a specified percentage of their eligible compensation, or for the initial offering period ended November 30, 2020, a lump sum contribution. The plan is a compensatory plan as it allows participants to purchase stock at a 15% discount from the lower of the fair value of the Class A common on the first or last day of the ESPP offering period (the "ESPP Discount"). The ESPP is accounted for as an equity classified award. Stock-based compensation expense for the ESPP is measured based on the fair value of the ESPP award at the start of the offering period. The fair value is comprised of the value of the ESPP Discount and the value associated with the variability in the Class A common stock price during the offering period (the "Call/Put"), which is estimated using the Black-Scholes model. Compensation cost is recognized on a straight-line basis over the respective offering period.

The Company has elected to recognize award forfeitures as they occur.

Leases

Effective January 1, 2021, the Company adopted ASU No. 2016-02, *Leases* ("ASC 842"). In accordance with ASC 842, the Company determines if an arrangement is or contains a lease at its inception. The Company has elected not to recognize on the balance sheet leases with terms of one year or less as a practical expedient.

For leases with terms greater than 12 months, the Company records an operating lease right-of-use asset or finance lease asset and related lease liability at the present value of lease payments over the lease term. The implicit rate for individual leases is generally not readily determinable; therefore, the Company uses its incremental borrowing rate at lease commencement to determine the present value of lease payments. Leases with an option to extend the related lease term or terminate early are reflected in the lease term when it is reasonably certain that the Company will exercise such options. The Company recognizes expense for operating leases on a straight-line basis over the lease term plus any variable lease costs.

The Company does not recognize a right-of-use asset or lease liability for leases with an initial term equal to or less than 12 months ("short-term leases") on its consolidated balance sheets. The Company recognizes expense on short-term leases in the consolidated statements of comprehensive loss on a straight-line basis over the lease term.

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For periods prior to the adoption of ASC 842, the Company recorded rent expense for operating leases on a straight-line basis over the term of the related lease. The difference between the straight-line rent expense and the payments made in accordance with the operating lease agreements were recognized as a deferred rent liability within other liabilities on the consolidated balance sheets.

Self-insurance

The Company is self-insured for the majority of its health insurance costs, including medical claims subject to certain stop-loss provisions. Management periodically reviews the adequacy of the Company's stop-loss insurance coverage. The Company records an estimate of claims incurred but not reported, based on management's judgment and historical experience. Self-insurance accruals are \$2,219 and \$1,922 at December 31, 2022 and 2021, respectively, and are reflected in accrued salaries and benefits in the consolidated balance sheets. Material differences may result in the amount and timing of insurance expense if actual experience differs significantly from management's estimates.

Revenue Recognition

Revenue from contracts with customers

The Company recognizes revenue in accordance with ASC 606, *Revenue from Contracts with Customers*, ("ASC 606"). Revenue is recognized upon transfer of control of promised products or services to customers in an amount that reflects the consideration expected to be received in exchange for those products or services. The Company enters into contracts that can include various combinations of products and services, which are generally capable of being distinct, and accounted for as separate performance obligations. Revenue is recognized net of allowance for subscription and non-renewal cancellations and any taxes collected from customers, which are subsequently remitted to governmental authorities.

Nature of goods and services

Licenses for on-premise software subscriptions, which are generally one year, provide the customer with a right to use the software as it exists when made available to the customer. Customers purchase a subscription to these licenses, which includes the related software and tax content updates and product support. The updates and support, which are part of the subscription agreement, are essential to the continued utility of the software; therefore, the Company has determined the software and the related updates and support to be a single performance obligation. Accordingly, when on-premise software is licensed, the revenue associated with this combined performance obligation is recognized ratably over the license term as these subscriptions are provided for the duration of the license term. Revenue recognition begins on the later of the beginning of the subscription period or the date the software is made available to the customer to download. Prior to January 1, 2022, certain on-premise software subscription prices in the initial subscription year were higher than standard renewal prices. The excess initial year price over the renewal price is a material right that provides customers with the right to this reduced renewal price. The Company recognizes revenue associated with this material right over the estimated period of benefit to the customer, which is generally three years. Effective January 1, 2022, the Company changed the pricing structure for on-premise software so the initial year price and renewal prices were consistent, thus removing the material right for transactions after this date. The material right for applicable transactions prior to this pricing change will continue to be recognized over the remaining estimated period of benefit to the customer.

Cloud-based subscriptions allow customers to use Company-hosted software over the contract period without taking possession of the software. The cloud-based offerings also include related updates and support. Revenue recognition begins on the later of the beginning of the subscription period or the date the customer is provided access to the cloud-based solutions. Cloud-based contracts consistently provide a benefit to the customer during the subscription period; thus, the associated revenue is recognized ratably over the related subscription period.

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Revenue from deliverable-based services is recognized as services are delivered. Revenue from fixed fee services is recognized as services are performed using the percentage of completion input method.

The Company has elected the “right to invoice” practical expedient for revenue related to services that are billed on an hourly basis, which enables revenue to be recognized as the services are performed.

The Company has determined that the methods applied to measuring its progress toward complete satisfaction of performance obligations recognized over time are a faithful depiction of the transfer of control of software subscriptions and services to customers.

Significant Judgments

Contracts with customers often include promises to transfer multiple products and services to a customer. Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together may require significant judgment. Identification of the amortization periods of material rights and contract costs requires significant judgment by management.

Payment terms

Payment terms and conditions vary by contract, although the Company’s terms generally include a requirement of payment within 30-60 days. In instances where the timing of revenue recognition differs from the timing of payment, the Company has determined that its contracts do not include a significant financing component. The primary purpose of invoicing terms is to provide customers with simplified and predictable ways of purchasing products and services, not to receive financing from customers or to provide customers with financing.

Cost of Revenues

Cost of revenues, software subscriptions include the direct cost to develop, host and distribute software products, the direct cost to provide customer support, and amortization of costs capitalized for software developed for sale, for internal-use software utilized for cloud-based subscriptions and for certain acquired intangible assets. Cost of revenues, services include the direct costs of implementation, training, transaction tax returns outsourcing and other tax-related services.

Reimbursable Costs

Reimbursable costs passed through and invoiced to customers of the Company are recorded as services revenues with the associated expenses recorded as cost of revenues, services in the consolidated statements of comprehensive loss. These amounts were \$133, \$14, and \$199 for the years ended December 31, 2022, 2021 and 2020, respectively.

Research and Development

Research and development costs consist primarily of personnel and related expenses for research and development activities including salaries, benefits and other compensation. Research and development costs are expensed as incurred in accordance with ASC 730, *Research and Development*, and are included in the consolidated statements of comprehensive loss.

Advertising

Advertising expense is recorded as incurred and is reflected in selling and marketing expense in the consolidated statements of comprehensive loss. Total advertising expense was \$26,529, \$20,386, and \$11,069 for the years ended December 31, 2022, 2021, and 2020, respectively.

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Foreign Currency

The Company transacts business in various foreign currencies. Management has concluded that the local country's currency is the functional currency of its foreign operations. Consequently, operating activities outside the U.S. are translated into U.S. dollars using average exchange rates, while assets and liabilities of operations outside the U.S. are translated into U.S. dollars using exchange rates at the balance sheet date. The effects of foreign currency translation adjustments are included in total stockholders' equity as a component of accumulated other comprehensive loss in the consolidated balance sheets. Related periodic movements in exchange rates are included in other comprehensive income (loss) in the consolidated statements of comprehensive loss. Other operating expense, net in the consolidated statements of comprehensive loss includes net foreign exchange transaction gains (losses) of (\$38), \$183, and (\$155) for the years ended December 31, 2022, 2021 and 2020, respectively.

Investments

The Company's investment securities portfolio consists of the following: money market mutual funds invested in high quality, short-term money market instruments which are issued and payable in U.S. dollars ("Money Market Funds"), bank and corporate issued commercial paper ("Commercial Paper"), corporate bonds ("Corporate Bonds"), and U.S. treasury securities ("Treasury Securities"). The Money Market Funds and a portion of the Commercial Paper are considered cash and cash equivalents due to their short maturity dates. These securities are carried at fair value, with the realized holding gains and (losses), net of tax, reported in the interest expense, net line of the consolidated statements of comprehensive loss. Realized holding gains and (losses), net of tax, were not material. The Money Market Funds qualify as equity securities per ASC 321, *Investments - Equity Securities*. The Commercial Paper, Corporate Bonds, and U.S. Treasury Securities qualify as debt securities per ASC 320, *Investments - Debt Securities*, and have been classified as available-for-sale as they may be liquidated and used for general corporate purposes. These securities are carried at fair value, with the unrealized holding gains and (losses), net of tax, reported in other comprehensive income (loss) and do not affect earnings until realized. None of the Company's debt securities are classified as trading or held-to-maturity.

Income Taxes

The Company accounts for income taxes using the asset and liability method, which recognizes deferred tax assets and liabilities for future tax consequences of events that have been previously recognized in the Company's consolidated financial statements or tax returns. The measurement of deferred tax assets and liabilities is based on provisions of the enacted tax law and rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect of a change in tax laws or rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date. The effects of future changes in tax laws or rates are not anticipated. A valuation allowance is recorded when it is more likely than not that some or all of the deferred tax assets will not be realized. The Company records uncertain tax positions in accordance with ASC 740, *Income Taxes*, on the basis of a two-step process whereby: (i) management determines whether it is more likely than not that the tax positions will be sustained based on the technical merits of the position, and (ii) for those tax positions that meet the more likely than not recognition threshold, management recognizes the largest amount of tax benefit that is greater than 50 percent likely to be realized upon ultimate settlement with the related tax authority. The Company records interest related to underpayment of income taxes as interest expense and penalties as other operating expenses in the consolidated statements of comprehensive loss.

The impact as a result of the application of ASC 740 is reflected in the consolidated financial statements. The Company assesses its income tax positions and records tax benefits or expense based upon management's evaluation of the facts, circumstances, and information available at the reporting date. Variations in the actual outcome of these future tax consequences could materially impact the consolidated financial statements.

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Effective July 27, 2020, Vertex is taxed as a C-Corporation for U.S. federal and state income tax purposes upon revocation of the Company's S-Corporation election (the "S Election") in connection with the Offering. Before July 27, 2020, Vertex was taxed as an S-Corporation for U.S. federal and most state income tax purposes resulting in net income or loss before this date being allocated to and included on the income tax returns of the S-Corporation stockholders. Historically the Company distributed amounts to the stockholders to satisfy their tax liabilities resulting from allocated net income or loss. In certain states, Vertex was taxed at the corporate level. Accordingly, the income tax provision or benefit was based on taxable income allocated to these states. In foreign jurisdictions, Vertex subsidiaries are generally taxed at the corporate level, and the income tax provision or benefit is based on income or loss sourced to these foreign jurisdictions at the tax rates applicable in those jurisdictions.

In connection with the S Election revocation, the Company entered into an agreement with the S-Corporation stockholders pursuant to which the Company indemnified them for unpaid income tax liabilities and may be required to make future payments in material amounts to them attributable to incremental income taxes resulting from an adjustment to S-Corporation related taxable income that arises after the effective date of the S Election revocation (the "Tax Sharing Agreement"). In addition, the Tax Sharing Agreement indemnifies the S-Corporation stockholders for any interest, penalties, losses, costs or expenses arising out of any claim under the agreement. Correspondingly, the S-Corporation stockholders indemnified the Company with respect to unpaid tax liabilities (including interest and penalties) to the extent that such unpaid tax liabilities are attributable to a decrease in S-Corporation stockholders' taxable income for any period and a corresponding increase in our taxable income for any period.

The Company recorded a deferred tax asset during the year ended December 31, 2020 as a result of the conversion from an S-Corporation to a C-Corporation. The deferred tax asset is primarily due to future stock-based compensation deductions for tax purposes resulting from SARs that were previously issued by the Company, converted to options and immediately exercised upon the effective date of the Offering. The exercise of these options resulted in a net operating loss for the C-Corporation short tax year beginning July 27, 2020 and ending December 31, 2020.

Total Comprehensive Income (Loss)

Total comprehensive income (loss) consists of net income (loss) and other comprehensive income (loss). Other comprehensive income (loss) refers to revenues, expenses, gains and losses that under U.S. GAAP are recorded as elements of stockholders' equity but are excluded from net income (loss). Other comprehensive income (loss) is comprised of foreign currency translation adjustments and revaluations, and unrealized gains (losses) on available-for-sale debt securities.

Earnings Per Share ("EPS")

The Company has two classes of common stock outstanding and thus calculates EPS following the two-class method. This method allocates earnings for the respective periods between the two classes of common stock in proportion to the weighted average shares outstanding for each class of common stock as a percentage of total weighted average shares of both classes of common stock outstanding. Neither the Class A nor Class B common stock has any liquidity or dividend preferences and are both considered to be participating securities. Basic and diluted net income (loss) per share attributable to common stockholders is calculated using the treasury stock method. The basic net income (loss) per share attributable to Class A common stockholders includes RSAs, RSUs and ESPP shares once vesting or purchase contingencies are resolved, and the related shares are deemed to be outstanding. The diluted net income (loss) per share attributable to Class A common stockholders is computed by giving effect to all potential dilutive common stock equivalents outstanding for the period. For purposes of this calculation, all options to purchase shares of Class A common stock, nonvested RSAs and RSUs are considered common stock equivalents. Additionally, the portion of ESPP shares for which the Company has received payments but for which the related shares are not yet issuable are also considered potential common stock equivalents. In periods of net loss available to common stockholders, diluted calculations are equal to basic calculations because the inclusion of potential common stock equivalents would be anti-dilutive.

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In accordance with ASC 260, *Earnings Per Share*, the historical EPS was retrospectively restated similar to the treatment of a stock split to reflect the Share Exchange for all periods presented prior to the Offering as management concluded that there was no economic value attributable to the exchange of shares in connection with the Recapitalization. Class A common stock issued in connection with the Offering are reflected in the weighted average share calculation from their issuance date.

Supplemental Balance Sheet Information

Supplemental balance sheet disclosures are as follows for the respective periods:

	For the Year Ended December 31,	
	2022	2021
Prepaid expenses and other current assets:		
Prepaid expenses	\$ 5,875	\$ 8,903
Prepaid insurance	2,291	3,348
Prepaid licenses and support	12,217	8,285
Prepaid expenses and other current assets	<u>\$ 20,383</u>	<u>\$ 20,536</u>
Accrued expenses:		
Accrued general expenses	\$ 18,485	\$ 10,771
Accrued contract labor and professional fees	17,421	9,688
Accrued income and other taxes	2,328	2,507
Accrued expenses	<u>\$ 38,234</u>	<u>\$ 22,966</u>

Supplemental Cash Flow Disclosures

Supplemental cash flow disclosures are as follows for the respective periods:

	For the Year ended December 31,		
	2022	2021	2020
Cash paid for:			
Interest	\$ 2,221	\$ 223	\$ 2,461
Income taxes, net of refunds	3,059	1,287	588
Cash paid included in the measurement of lease liabilities:			
Operating cash flows from operating leases	4,240	4,692	—
Non-cash investing and financing activities:			
Change in settlement value of deferred purchase commitment liability	990	—	—
Change in fair value of contingent consideration liability	2,300	300	—
Estimated distributions payable under Tax Sharing Agreement	—	536	2,700
Purchase commitment and contingent consideration liabilities	—	12,736	12,592
Deferred purchase consideration	—	39,024	—
Remeasurement of options for redeemable shares	—	—	51,833
Conversion of SARs in connection with the Offering	—	—	129,710
Exchange of Amended Options in connection with the Offering	—	—	69,177
Leased assets obtained in exchange for new finance lease liabilities	1,069	173	—
Equipment acquired through capital leases	—	—	646

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Recently Issued Accounting Pronouncements

As an "emerging growth company," the Jumpstart Our Business Startups Act (the "JOBS Act") allows the Company to delay adoption of new or revised accounting pronouncements applicable to public companies until such pronouncements are made applicable to private companies. The Company has elected to delay adoption of certain new or revised accounting standards. As a result, the Company's consolidated financial statements may not be comparable to the financial statements of issuers who are required to comply with the effective date for new or revised accounting standards that are applicable to public companies.

Deferred Revenue

In October 2021, the Financial Accounting Standard Board issued ASU No. 2021-08, *Business Combinations* ("ASU 2021-08"). ASU 2021-08 provides specific guidance on how to recognize and measure contract assets and contract liabilities related to revenue contracts with customers acquired in a business combination. This will align the accounting for these acquired contracts to the accounting for revenue contracts originated by the acquirer and will provide more comparable information to investors and other financial statement users seeking to better understand the financial impact of these acquisitions. ASU 2021-08 will be effective for public entities with fiscal years beginning after December 15, 2022, and for all other entities with fiscal years beginning after December 15, 2023, with early adoption permitted. The Company will adopt this standard effective January 1, 2023 on a prospective basis for business combinations occurring on or after this date. Although this standard will not have a material impact on the Company's current consolidated financial statements, adoption could have a material impact on the accounting for future acquisitions reflected in the Company's consolidated financial statements.

Risks and Uncertainties

In March 2020, the World Health Organization declared the outbreak of coronavirus disease 2019 ("COVID-19") to be a pandemic. The COVID-19 pandemic had, and continues to have, a significant impact around the world, prompting governments and businesses to take unprecedented measures, such as restrictions on travel and business operations, temporary closures of businesses, and quarantine and shelter-in-place orders. The COVID-19 pandemic has at times significantly curtailed global economic activity and caused significant volatility and disruption in global financial markets.

The Company did not experience any significant reductions in sales, revenues or collections through December 31, 2022 as a result of COVID-19. The Company believes it has ample liquidity and capital resources to continue to meet its operating needs and to service debt and other financial obligations.

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2. REVENUE RECOGNITION

Disaggregation of revenue

The table reflects revenue by major source for the following periods:

	For the Year ended December 31,		
	<u>2022</u>	<u>2021</u>	<u>2020</u>
Software subscriptions:			
Software licenses	\$ 246,577	\$ 231,371	\$ 229,744
Cloud subscriptions	168,896	127,044	87,019
Software subscriptions	<u>415,473</u>	<u>358,415</u>	<u>316,763</u>
Services	76,151	67,133	57,902
Total revenues	<u>\$ 491,624</u>	<u>\$ 425,548</u>	<u>\$ 374,665</u>

Contract balances

Timing of revenue recognition may differ from the timing of invoicing customers. A receivable is recorded in the consolidated balance sheets when customers are billed related to revenue to be collected and recognized for subscription agreements as there is an unconditional right to invoice and receive payment in the future related to these subscriptions. A receivable and related revenue may also be recorded in advance of billings to the extent services have been performed and the Company has a right under the contract to bill and collect for such performance. Subscription-based customers are generally invoiced annually at the beginning of each annual subscription period. The Company's payment terms typically range from 30-60 days. Accounts receivable is presented net of an allowance for potentially uncollectible accounts and estimated cancellations of software license and cloud-based subscriptions (the "allowance") of \$9,554 and \$9,151 at December 31, 2022 and 2021, respectively. The allowance is adjusted for expected credit losses based on management's assessment of collectability after considering factors including the age of each outstanding invoice, collection history of customers, current and forecasted economic conditions as well as estimated cancellations.

The beginning and ending balances of accounts receivable, net of allowance, are as follows:

	<u>2022</u>	<u>2021</u>
Balance, beginning of period	\$ 76,929	\$ 77,159
Balance, end of period	102,885	76,929
Increase (decrease), net	<u>\$ 25,956</u>	<u>\$ (230)</u>

A contract liability is recorded as deferred revenue on the consolidated balance sheets when customers are billed in advance of performance obligations being satisfied, and revenue is recognized after invoicing ratably over the subscription period or over the amortization period of material rights. Deferred revenue is reflected net of a related deferred allowance for subscription cancellations (the "deferred allowance") of \$7,133 and \$6,537 at December 31, 2022 and 2021, respectively. The deferred allowance represents the portion of the allowance for subscription cancellations associated with deferred revenue.

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The beginning and ending balances of and changes to the allowance and the deferred allowance are as follows:

	For the year ended December 31,					
	2022		2021		2020	
	Balance	Net Change	Balance	Net Change	Balance	Net Change
Allowance balance, January 1,	\$ (9,151)		\$ (8,592)		\$ (7,515)	
Allowance balance, December 31,	(9,554)		(9,151)		(8,592)	
Change in allowance		\$ 403		\$ 559		\$ 1,077
Deferred allowance balance, January 1,	6,537		6,432		5,614	
Deferred allowance balance, December 31,	7,133		6,537		6,432	
Change in deferred allowance		(596)		(105)		(818)
Net amount charged to revenues		\$ (193)		\$ 454		\$ 259

The amount of revenue recognized during the years ended December 31, 2022, 2021 and 2020 that was included in the opening deferred revenue balance of the same fiscal year was \$237,344, \$207,560, and \$191,745, respectively.

The portion of deferred revenue expected to be recognized in revenue beyond one year is included in deferred revenue, net of current portion in the consolidated balance sheets. The tables provide information about the balances of and changes to deferred revenue for the following periods:

	As of December 31,	
	2022	2021
Balances:		
Deferred revenue, current	\$ 268,847	\$ 237,344
Deferred revenue, non-current	10,289	11,666
Total deferred revenue	\$ 279,136	\$ 249,010

	For the year ended December 31,		
	2022	2021	2020
Changes to deferred revenue:			
Beginning balance	\$ 249,010	\$ 222,262	\$ 205,791
Additional amounts deferred	521,750	452,296	391,136
Revenues recognized	(491,624)	(425,548)	(374,665)
Ending balance	\$ 279,136	\$ 249,010	\$ 222,262

Deferred revenue at December 31, 2022 will be recognized as follows for all future years:

Year Ending December 31,	
2023	\$ 268,847
2024	9,928
2025	361
Total	\$ 279,136

Contract costs

Deferred sales commissions earned by the Company's sales force and certain sales incentive programs and vendor referral agreements are considered incremental and recoverable costs of obtaining a contract with a customer. An asset is recognized for these incremental contract costs and reflected as deferred commissions in the consolidated balance sheets. These contract costs are amortized on a straight-line basis over a period consistent with the transfer of the associated product and services to the customer, which is generally three years. Amortization of these costs are included in selling

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and marketing expense in the consolidated statements of comprehensive loss. The Company periodically reviews these contract assets to determine whether events or changes in circumstances have occurred that could impact the period of benefit of these assets. There were no impairment losses recorded for the periods presented.

The changes to contract cost balances as of and for the following periods are:

	For the year ended December 31,		
	2022	2021	2020
Deferred commissions:			
Beginning balance	\$ 12,555	\$ 11,743	\$ 11,196
Additions	13,913	10,018	8,291
Amortization	(11,005)	(9,206)	(7,744)
Ending balance	<u>\$ 15,463</u>	<u>\$ 12,555</u>	<u>\$ 11,743</u>

3. BUSINESS COMBINATIONS

LCR-Dixon

On September 22, 2021, the Company executed a stock purchase agreement to acquire 100% of the stock of LCR-Dixon Corporation (“LCR-Dixon”), a provider of SAP technologies and tax intelligence solutions. LCR-Dixon’s solutions were specifically developed to improve functionality and performance for SAP indirect tax processes and are integrated with the Company’s tax determination software. The LCR-Dixon acquisition was accounted for as a business combination. The transaction costs associated with the acquisition were not significant.

The purchase price was \$99,062 as of the acquisition date consisting of (i) \$59,720 of cash paid at closing, partially offset by \$1,899 of LCR-Dixon cash received in the acquisition, resulting in net cash consideration at closing of \$57,821, (ii) \$474 cash paid related to the final determination of LCR-Dixon’s cash and net working capital as of the acquisition date (the “Post-closing Adjustment”) paid in January 2022, (iii) non-interest bearing deferred payments aggregating \$40,000 to be paid in four equal installments of \$10,000 every six-months beginning March 2022 and ending September 2023, net of a discount of \$976 (the “deferred purchase consideration”), and (iv) other adjustments associated with income tax amounts that exceed the estimated amount calculated at closing of \$156. Cash paid was funded from available cash on hand. The discount recorded as a reduction of the deferred purchase consideration will be recorded as interest expense over the payment period using the effective interest method. The deferred purchase consideration, net of discount, at December 31, 2022 is \$19,824, and is included in current liabilities in the consolidated balance sheet. The deferred purchase consideration, net of discount, at December 31, 2021 of \$19,805 and \$19,419, is included in current liabilities and long-term liabilities, respectively, in the consolidated balance sheets.

The following table summarizes the purchase price for LCR-Dixon:

	As of Acquisition Date
Cash consideration	\$ 60,038
Fair value of deferred purchase consideration	39,024
Total	<u>\$ 99,062</u>

The purchase price was allocated to the net assets acquired based on management’s determination of their estimated fair values using available information as of the acquisition date. The excess of purchase consideration over the net assets acquired is recorded as goodwill, which primarily reflects the existence of intangible assets not recognized under U.S. GAAP such as the value of expected future synergies, the value of the assembled workforce and other market factors. Goodwill associated with the LCR-Dixon acquisition is not deductible for tax purposes. The fair values of these amounts on the acquisition date, which are reflected in the table below, were finalized during the second quarter of 2022 and include

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Measurement Period adjustments resulting in an increase to capitalized software of \$7,700, an increase to other intangibles of \$6,500 and various other adjustments resulting in a net reduction to goodwill of \$11,178. Any subsequent adjustments to these values will be recorded in the consolidated statements of comprehensive loss in the period in which the adjustment is identified.

The Company and LCR-Dixon had a pre-existing relationship in the form of a royalty agreement at the acquisition date. The Company owed LCR-Dixon royalties in connection with licenses sold by the Company to end users when collected by the Company from end users (the “Royalty Agreement”). The Royalty Agreement terminated upon consummation of the acquisition and the Company wrote-off \$252 of royalties payable to LCR-Dixon with an offset to goodwill.

The following table presents the allocation of the purchase price to the assets acquired and liabilities assumed as recorded in the Company’s consolidated balance sheet as of the acquisition date:

	<u>As of Acquisition Date</u>
Cash and cash equivalents	\$ 1,899
Accounts receivable	1,586
Prepaid expenses and other current assets	150
Property and equipment	4
Capitalized software	7,700
Goodwill	86,639
Other intangibles	6,500
Accounts payable	(19)
Accrued expenses	(202)
Accrued compensation	(1,746)
Deferred income tax liability	(3,630)
Deferred revenue	(71)
Total	<u>\$ 98,810</u>

The fair value, valuation methodologies, estimated useful lives, and significant assumptions of the identifiable intangibles acquired in the LCR-Dixon acquisition are summarized in the table below:

<u>LCR-Dixon Identifiable Intangibles</u>	<u>Balance Sheet Location</u>	<u>September 22, 2021</u>			
		<u>Fair Value</u>	<u>Valuation Methodology</u>	<u>Estimated Useful Life</u>	<u>Discount Rate</u>
Trade name	Goodwill and other intangible assets (Note 9)	\$ 200	Relief from royalty method - income approach	6 months	20.0 %
Customer relationships	Goodwill and other intangible assets (Note 9)	\$ 6,300	Excess earnings method - income approach	3 years	20.0 %
Developed technology	Property and equipment, net (Note 6)	\$ 7,700	Relief from royalty method - income approach	3 years	20.0 %

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Taxamo

On May 12, 2021, the Company acquired 95% of the outstanding equity of EVAT Solutions Limited (“EVAT”) and its wholly owned subsidiaries (collectively “Taxamo”), a cloud-based provider of tax and payment automation for global eCommerce and marketplaces. This acquisition supports the Company’s growth strategies across eCommerce platforms and marketplaces in Europe and North America. Included in the acquisition agreement is an option to purchase from and an option for the remaining shareholder to sell the remaining 5% of the outstanding equity of EVAT (the “Option”) at a fixed amount between August and December 2021 for an estimated fair value of \$10,034.

The purchase price for the Taxamo acquisition was \$200,689, consisting of (i) \$190,153 of cash paid at closing, partially offset by \$2,662 of acquired cash, including \$221 of restricted cash, received in the acquisition resulting in net cash consideration at closing of \$187,491, (ii) an acquisition holdback with an estimated fair value upon acquisition of \$502, and (iii) the Option. The Company recorded the estimated fair value of the Option payment amount in purchase commitment and contingent consideration liabilities, current, on the consolidated balance sheet as of the acquisition date. Cash consideration was funded from available cash on hand.

The following table summarizes the purchase price for Taxamo:

	May 12, 2021
Cash paid at closing	\$ 190,153
Fair value of acquisition holdback	502
Fair value of the Option	10,034
Total	\$ 200,689

On August 19, 2021, the Company acquired the remaining 5% equity interest of EVAT for \$10,034 through exercise of the Option, giving the Company 100% of the outstanding equity interest of EVAT. The acquisition holdback was fixed in Euros and approximated \$468, which amount was included in purchase commitment and contingent consideration liabilities, current in the consolidated balance sheet as of December 31, 2021, and was paid during 2022.

The Taxamo acquisition was accounted for as a business combination. The purchase price was allocated to the net assets acquired based on management’s determination of their estimated fair values using available information as of the acquisition date. The excess of purchase consideration over the net assets acquired was recorded as goodwill, which reflects the value of intangible assets not recognized under U.S. GAAP such as the value of expected future synergies, the value of the assembled workforce and other market factors. The Company expects that goodwill associated with the Taxamo acquisition will not be deductible for tax purposes. Taxamo’s business and product offerings are being integrated into the Company’s one operating segment.

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Notes to Consolidated Financial Statements (continued)
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The following table presents the allocation of the purchase price to the assets acquired and liabilities assumed as recorded in the Company’s consolidated balance sheet as of the acquisition date:

	May 12, 2021
Cash and cash equivalents	\$ 2,441
Funds held for customers	221
Accounts receivable	2,657
Prepaid expenses and other current assets	908
Property and equipment	40,792
Goodwill	164,199
Other intangibles	1,581
Accounts payable	(304)
Accrued expenses	(1,395)
Accrued compensation	(3,939)
Deferred revenue	(2,196)
Deferred other income	—
Deferred other liabilities	(4,276)
Total	<u>\$ 200,689</u>

The fair value, valuation methodologies, estimated useful lives, and significant assumptions of the identifiable intangibles acquired in the Taxamo acquisition are summarized in the table below:

Taxamo Identifiable Intangibles	Balance Sheet Location	May 12, 2021			
		Fair Value	Valuation Methodology	Estimated Useful Life	Discount Rate
Developed technology	Property and equipment, net (Note 6)	\$ 40,746	Multi-period excess earnings method - income approach	3 years	16.5 %
Trade name	Goodwill and other intangible assets (Note 9)	\$ 608	Relief from royalty method - income approach	2 years	16.5 %
Customer relationships	Goodwill and other intangible assets (Note 9)	\$ 973	Distributor method - income approach	2 years	16.5 %

The Company has included the financial results of Taxamo in the consolidated statement of comprehensive income (loss) from the date of acquisition. The transaction costs associated with the acquisition were \$4,269 and are recorded in other operating expense, net, for the year ended December 31, 2021.

The Company assumed certain liabilities in the acquisition of Taxamo, including deferred revenue with a fair value of \$2,196, using a cost-plus profit approach. The Company is amortizing the acquired deferred revenue at its fair value over the period for which it is incurring costs to support the assumed customer obligations.

Tellutax

On January 25, 2021, the Company executed an Asset Purchase Agreement with Tellutax LLC, a Portland, Oregon based edge computing technology startup (“Tellutax”), to acquire substantially all of Tellutax’s assets (the “Tellutax acquisition”). Cash consideration paid for the acquisition was \$6,100, funded through cash on hand, and serves to strengthen the Company’s technology roadmap and hybrid cloud strategy enabling it to better serve customers in an

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increasingly hyper-connected environment. The Tellutax acquisition entitles the sellers to contingent consideration if sales targets are met during a period of time following the acquisition.

The Tellutax acquisition was accounted for as a business combination. The total purchase price was allocated to the net assets acquired based on management's determination of their estimated fair values using available information as of the acquisition date. The excess of purchase consideration over the net assets acquired is recorded as goodwill, which primarily reflects the value of expected future synergies, the existence of intangible assets not recognized under U.S. GAAP such as the value of the assembled workforce and other market factors. The Company expects that goodwill associated with the Tellutax acquisition will be deductible for tax purposes. The fair values of these amounts on the acquisition date, which are reflected in the table below, have been finalized. Any subsequent adjustments to these values will be recorded in the consolidated statements of comprehensive income (loss) in the period in which the adjustment is identified.

The purchase price for the Tellutax acquisition included cash paid at closing plus an estimated fair value of contingent consideration of \$2,200 (the "Tellutax Contingent Consideration") as of January 25, 2021. The following table presents the final purchase price allocation recorded in the consolidated balance sheet as of the acquisition date:

	January 25, 2021
Capitalized software - developed technology	\$ 3,600
Goodwill	4,700
Total	<u>\$ 8,300</u>

The Company has included the financial results of Tellutax in the consolidated statement of comprehensive income (loss) from the date of acquisition.

The fair value of developed technology was valued using the multi-period excess earnings method, which is a variation of the income approach. This method estimates an intangible asset's value based on the present value of the incremental after-tax cash flows attributable to the intangible asset. The significant assumptions used in the developed technology valuation included an estimated linear obsolescence factor of 20% per year and a discount rate of 28.5%.

The fair value of Tellutax Contingent Consideration is estimated using a Monte Carlo Simulation to compute the expected cash flows from earnout payments specified in the purchase agreement. The Tellutax Contingent Consideration is based on three potential earn-out payments determined by periodic revenue achievements over a thirty-month period. Earnout payments have no maximum limit, but if certain targets are not met, there will be no earn-out payment for the applicable measurement period. The estimated fair value of the Tellutax Contingent Consideration recorded as of the acquisition date was \$2,200. See Note 5 for information on recurring fair value adjustments after the acquisition date.

Systax

On January 7, 2020, the Company acquired a 60% controlling interest in Systax, a provider of Brazilian transaction tax content and software. Cash consideration for the purchase was \$12,374, which was funded through borrowings under a revolving line of credit. This acquisition provided the Company with full access to a sizeable database of Brazilian tax content that is critical to supporting its global multi-national customers' business expansion into Brazil.

On the acquisition date, the Company had a contractual purchase commitment to acquire the remaining 40% equity interest from the original Systax Quotaholders incrementally between 2021 through 2024. This contractual purchase commitment was deemed to be a forward contract, for which the Company was required to estimate and record a future purchase commitment liability (the "Purchase Commitment Liability"). The Purchase Commitment Liability was recorded at the acquisition date fair value of \$12,592. Subsequent adjustments will be recorded based on settlement value. This amount will fluctuate as a result of changes in foreign currency exchange rates and is reflected in Purchase Commitment

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Liability in the consolidated balance sheet at December 31, 2022 and 2021. Adjustments to the settlement value that arise as a result of remeasurement at future balance sheet dates will be recorded as interest expense related to financing costs in the consolidated statements of comprehensive income (loss) in the period the change is identified. During 2022, the Company recorded an increase in interest expense of \$990 associated with recording an increase in the settlement value.

The acquisition was accounted for as a business combination and the total purchase price was allocated to the assets acquired and liabilities assumed based on their estimated fair values on the acquisition date, with the excess being recorded as goodwill. The fair values of assets acquired and liabilities assumed as of the acquisition date are reflected in the tables below. Any adjustments to these values will be recorded in the consolidated statements of comprehensive income (loss) in the period the change is identified.

The following table reflects the purchase price for Systax:

	<u>January 7, 2020</u>
Cash paid to Systax Quotaholders at closing	\$ 11,626
Cash held in escrow for benefit of Systax Quotaholders	748
Initial cash consideration	12,374
Purchase Commitment Liability	12,592
Total	<u>\$ 24,966</u>

The following table presents the allocation of the purchase price to the assets acquired and liabilities assumed as recorded in the Company's consolidated balance sheet as of the acquisition date:

	<u>January 7, 2020</u>
Cash	\$ 56
Accounts receivable	495
Property and equipment	112
Other current assets	14
Goodwill	21,089
Other intangible assets	3,650
Accounts payable	(358)
Accrued expenses	(92)
Total	<u>\$ 24,966</u>

The excess of the purchase consideration over the net assets acquired is recorded as goodwill and primarily reflects the value of expected future synergies, the existence of intangible assets not recognized under U.S. GAAP such as the value of the assembled workforce and other market factors. Goodwill is deductible for tax purposes.

The Company has included the financial results of Systax in the consolidated statement of comprehensive income (loss) from the date of acquisition in accordance with ASC 810 due to the Company having a controlling financial interest in Systax.

The Company acquired an additional 5% equity interest of Systax in April 2021 for \$788, increasing the Company's equity interest in Systax to 65%. The Purchase Commitment Liability included in purchase commitment and contingent consideration liabilities, current portion in the consolidated balance sheet on December 31, 2022, was \$4,749. The Purchase Commitment Liability included in purchase commitment and contingent consideration liabilities, net of current portion in the consolidated balance sheets on December 31, 2022 and 2021, was \$5,012 and \$8,329, respectively.

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Unaudited Pro Forma Financial Information

Unaudited proforma financial information has not been presented, as the information from the acquired companies would not have had a material impact individually or in the aggregate for the current and prior year periods.

4. INVESTMENTS

No net gains or losses were recognized on sales of equity securities during the year, and no unrealized gains or losses were recognized on equity securities held as of December 31, 2022 or as of December 31, 2021.

As of December 31, 2022, the Company's debt securities portfolio had unaccreted discounts of \$139 and no remaining unamortized premiums.

The table below presents the amortized cost, gross unrealized gains and losses, allowance for credit losses, and fair value aggregated by major security type as of December 31, 2022. Accrued interest receivable of \$24 as of December 31, 2022, is not included in the table.

	As of December 31, 2022				
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Allowance For Credit Losses	Fair Value
Investment securities available-for-sale:					
Commercial Paper	\$ 9,662	\$ —	\$ (2)	\$ —	\$ 9,660
U.S. Treasury Securities	5,249	—	(46)	—	5,203
Total investment securities available-for-sale	\$ 14,911	\$ —	\$ (48)	\$ —	\$ 14,863

Investment Securities in a Gross Unrealized Loss Position

The table below provides the gross unrealized losses and fair value of securities available-for-sale aggregated by major security type and the length of time that individual securities have been in a continuous unrealized loss position as of December 31, 2022. The amounts include securities available-for-sale without an allowance for credit losses. As of December 31, 2022, the Company's available-for-sale investment securities consisted of 52 securities, 39 of which are in an immaterial unrealized loss position of \$31. As a result, there is no allowance for credit losses recorded for available-for-sale debt securities as of December 31, 2022.

	As of December 31, 2022					
	Less than 12 Months		12 Months or Longer		Total	
	Fair Value	Gross Unrealized Loss	Fair Value	Gross Unrealized Loss	Fair Value	Gross Unrealized Loss
Investment securities available-for-sale without an allowance for credit losses:						
Commercial Paper	\$ 6,464	\$ (4)	\$ —	\$ —	\$ 6,464	\$ (4)
U.S. Treasury Securities	3,746	(27)	1,457	(19)	5,203	(46)
Total investment securities available-for-sale	\$ 10,210	\$ (31)	\$ 1,457	\$ (19)	\$ 11,667	\$ (50)

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Maturities of Investment Securities

The table below summarizes, as of December 31, 2022, the fair value of investment securities by major security type and contractual maturity as well as the total fair value, and amortized cost of investment securities by contractual maturity. Because borrowers may have the right to call or prepay certain obligations, the expected maturities of securities are likely to differ from the scheduled contractual maturities presented below.

	<u>As of December 31, 2022</u>				<u>Total</u>
	<u>Due in 1 Year or Less</u>	<u>Due > 1 Year through 5 Years</u>	<u>Due > 5 Years through 10 Years</u>	<u>Due > 10 Years</u>	
Fair value of investment securities available-for-sale:					
Commercial Paper	\$ 9,660	\$ —	\$ —	\$ —	\$ 9,660
U.S. Treasury Securities	3,746	1,457	—	—	5,203
Total investment securities available-for-sale	<u>\$ 13,406</u>	<u>\$ 1,457</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 14,863</u>
Amortized cost of investment securities available-for-sale	<u>\$ 13,434</u>	<u>\$ 1,477</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 14,911</u>

Net Securities Gains or Losses and Securities Pledged

During the year ended December 31, 2022, the Company had no sales of debt securities categorized as available-for-sale, resulting in no realized gains or losses, and no securities were pledged.

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5. FINANCIAL INSTRUMENTS AND FAIR VALUE MEASUREMENTS

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The following table summarizes the Company's Fair Value Hierarchy for its financial assets and liabilities measured at fair value on a recurring basis:

	Fair Value Measurements Using			
	Fair Value	Prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
As of December 31, 2022				
Money market funds	\$ 67,430	\$ 67,430	\$ —	\$ —
Commercial Paper	9,660	—	9,660	—
U.S. Treasury Securities	5,203	—	5,203	—
Tellutax Contingent Consideration	4,800	—	—	4,800
Foreign currency forward contracts	569	—	569	—
	Fair Value Measurements Using			
	Fair Value	Prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
As of December 31, 2021				
Money market funds	\$ 10,703	\$ 10,703	\$ —	\$ —
Tellutax Contingent Consideration	2,500	—	—	2,500
Foreign currency forward contracts	(62)	—	(62)	—

The Company has investments in Money Market Funds, which are included in cash and cash equivalents on the consolidated balance sheets. Fair value inputs for these investments are considered Level 1 measurements within the Fair Value Hierarchy since Money Market Fund fair values are known and observable through daily published floating net asset values. Securities classified as available-for-sale are reported at fair value using Level 2 inputs. For the Commercial Paper, Corporate Bonds and U.S. Treasury Securities, the Company believes that Level 2 designation is appropriate under ASC 820-10, as these securities are fixed income securities, none are exchange traded, and all are priced by correlation to observed market data. For these securities the Company obtains fair value measurements from an independent pricing service. The fair value measurements consider observable data that may include dealer quotes, market spreads, cash flows, U.S. government and agency yield curves, live trading levels, trade execution data, market consensus prepayment speeds, credit information, and the security's terms and conditions, among other factors.

Tellutax Contingent Consideration

The Tellutax acquisition entitled the sellers to contingent consideration if sales targets are met during a period of time following the acquisition. The estimated fair value of the Tellutax Contingent Consideration as of the acquisition date of January 25, 2021 was \$2,200.

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The Tellutax Contingent Consideration is based on three potential earn-out payments determined by periodic revenue achievements over a thirty-month period. Such estimate represents a recurring fair value measurement with significant unobservable inputs, which management considers to be Level 3 measurements under the Fair Value Hierarchy. The significant assumptions used in these calculations included forecasted results and the estimated likelihood for each performance scenario. The fair value of Tellutax Contingent Consideration is estimated using a Monte Carlo Simulation to compute the expected cash flows from earn-out payments specified in the purchase agreement. The Tellutax Contingent Consideration is based on three potential earn-out payments determined by periodic revenue achievements over a thirty-month period. Earn-out payments have no maximum limit, but if certain targets are not met, there will be no earn-out payment for the applicable measurement period.

An adjustment to the Tellutax Contingent Consideration fair value of \$2,300 and \$300 was recorded in other operating expense, net for the years ended December 31, 2022 and 2021, respectively. At December 31, 2022, the Tellutax Contingent Consideration of \$1,400 and \$3,400 is included in purchase commitment and contingent consideration liabilities, current, and purchase commitment and contingent consideration liabilities, net of current portion, respectively, in the consolidated balance sheets. At December 31, 2021, the Tellutax Contingent Consideration of \$2,500 is included in purchase commitment and contingent consideration liabilities, net of current portion in the consolidated balance sheets.

Tellutax Contingent Consideration fair value and unobservable inputs used for the Monte Carlo Simulation valuation were as follows:

Liability	December 31, 2022			
	Fair Value	Valuation Technique	Unobservable Inputs	
Tellutax Contingent Consideration	\$ 4,800	Monte Carlo Simulation	Revenue volatility	75.0 %
			Revenue discount rate	22.4 %
			Term (in years)	2.4

Liability	December 31, 2021			
	Fair Value	Valuation Technique	Unobservable Inputs	
Tellutax Contingent Consideration	\$ 2,500	Monte Carlo Simulation	Revenue volatility	95.0 %
			Revenue discount rate	20.0 %
			Term (in years)	3.6

Beginning and ending balances in fair value of Tellutax Contingent Consideration were as follows:

	Tellutax Contingent Consideration
Balance, January 1, 2021	\$ —
Acquisition of Tellutax	2,200
Fair value adjustments	300
Balance, December 31, 2021	\$ 2,500
Fair value adjustments	2,300
Balance, December 31, 2022	\$ 4,800

Assets and Liabilities for Which Fair Value is Only Disclosed

The carrying amounts of cash and cash equivalents and the carrying amount of funds held for customers were the same as their respective fair values and are considered Level 1 measurements.

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The carrying amount of our bank debt approximates fair value as the variable rates on the debt approximate those commercially available in the market, and is considered a Level 3 measurement.

Non-recurring Fair Value Measurements

The LCR-Dixon acquisition on September 22, 2021, the Taxamo acquisition on May 12, 2021, the Tellutax acquisition on January 25, 2021, and the Systax acquisition on January 10, 2020, were accounted for as business combinations and the total purchase price for each acquisition was allocated to the net assets acquired and liabilities assumed based on their estimated fair values.

The LCR-Dixon deferred purchase consideration of \$19,824 (See Note 3) and the Purchase Commitment Liability of \$9,761 (See Note 3) are recorded in the consolidated balance sheet at December 31, 2022. The carrying amounts of both approximated their respective fair values at December 31, 2022 and are considered Level 3 non-recurring fair value measurements.

The Company's obligation with respect to future purchase commitments to the original Systax Quotaholders was determined to be a forward contract necessitating initial recognition based on fair value. We estimated the initial fair value of our Purchase Commitment Liability using a Monte Carlo Simulation, which we consider to be a Level 3 measurement. The significant assumptions used in the Monte Carlo Simulation include, among other variables, forecasted cash flow projections consistent with those used to support the overall purchase price, selection of comparable companies, asset volatility and discount rate determinations and the total number of simulations to compute. Subsequent remeasurements of the Purchase Commitment Liability, as and if required, are not expected to be based on fair value.

Derivative Instruments

We may periodically enter into derivative contracts to reduce our exposure to foreign currency exchange rates. Historically we have not designated derivative contracts as hedges. The derivative contracts are typically designed to manage specific risks according to our strategies, which may change from time to time.

In May 2020, we entered into a series of foreign currency forward contracts to reduce our exposure to adverse fluctuations in the Brazilian Real associated with a portion of our Purchase Commitment Liability. Such forward contracts, have not been designated as a hedge, do not qualify for hedge accounting and are not material to our consolidated financial statements. We remeasure these forward contracts at fair value on a recurring basis and include them in other assets in our consolidated balance sheets with changes in their estimated fair value recognized as interest expense in our consolidated statements of comprehensive loss. Our fair value determinations are based on foreign currency exchange rates in active markets, which we consider to be Level 2 measurements within the Fair Value Hierarchy.

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6. PROPERTY AND EQUIPMENT

The major components of property and equipment are as follows:

	As of December 31,	
	2022	2021
Leasehold improvements	\$ 20,929	\$ 20,956
Equipment	39,238	41,937
Computer software purchased	11,892	11,792
Internal-use software developed:		
Cloud-based customer solutions	142,980	114,872
Internal systems and tools	42,035	32,408
Furniture and fixtures	7,665	7,675
In-process internal-use software	32,878	16,965
Property and equipment	297,617	246,605
Less accumulated depreciation and amortization	(181,849)	(148,215)
Property and equipment, net	<u>\$ 115,768</u>	<u>\$ 98,390</u>

Depreciation expense for property and equipment, excluding all internal-use software developed and finance leases, was \$6,445, \$7,425 and \$7,833 for the years ended December 31, 2022, 2021 and 2020, respectively. Depreciation for property and equipment, excluding internal-use software developed for cloud-based customer solutions, is reflected in depreciation and amortization in the consolidated statements of comprehensive loss.

Finance lease amortization was \$1,082 and \$931 for the years ended December 31, 2022 and 2021, respectively. Depreciation expense for assets held under capital leases was \$743 for the year ended December 31, 2020. Finance lease amortization and depreciation expense for assets held under capital leases are included in depreciation and amortization in the consolidated statements of comprehensive loss.

Assets under finance leases of \$1,461 and \$1,533, net of accumulated amortization of \$861 and \$931, at December 31, 2022 and 2021, respectively, are included in property and equipment in the consolidated balance sheets.

The major components of internal-use software developed are as follows:

	As of December 31,	
	2022	2021
Internal-use software developed	\$ 185,015	\$ 147,280
Less accumulated depreciation	(119,603)	(87,281)
Internal-use software developed, net of accumulated depreciation	65,412	59,999
In-process internal-use software	32,878	16,965
Internal-use software developed, net	<u>\$ 98,290</u>	<u>\$ 76,964</u>

Amounts included in property and equipment additions related to capitalized internal-use software on the consolidated statements of cash flows are as follows:

	For the year ended December 31,		
	2022	2021	2020
Cloud-based customer solutions	\$ 28,918	\$ 19,837	\$ 14,710
Internal systems and tools	26,354	11,491	3,176
Total	<u>\$ 55,272</u>	<u>\$ 31,328</u>	<u>\$ 17,886</u>

Vertex, Inc. and Subsidiaries
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In-process internal-use software developed is not depreciated until it is available for its intended use. Depreciation expense for internal-use software developed for cloud-based customer solutions for the years ended December 31, 2022, 2021 and 2020, was \$27,682, \$19,076 and \$8,818, respectively, and is included in cost of revenues, software subscriptions in the consolidated statements of comprehensive loss. Developed technology with an acquisition date fair value of \$40,746 was recorded in connection with the Taxamo acquisition and is reflected in property and equipment, net, in the consolidated balance sheets at December 31, 2022 and 2021. Depreciation expense for the years ended December 31, 2022 and 2021 associated with this developed technology was \$11,770 and \$8,123, respectively, and is reflected in cost of revenues - software subscriptions in the consolidated statement of comprehensive loss.

Depreciation expense for internal-use software developed for internal systems and tools for the years ended December 31, 2022, 2021 and 2020 was \$4,913, \$3,322 and \$2,442, respectively, and is included in depreciation and amortization in the consolidated statements of comprehensive loss.

Amortization expense of internal-use software developed, excluding in-process internal-use software not yet available for its intended use, at December 31, 2022 is as follows for all future years:

<u>Year Ending December 31,</u>	<u>Internal Systems and Tools</u>	<u>Cloud-Based Customer Solutions</u>
2023	\$ 6,040	29,200
2024	5,197	16,930
2025	3,003	4,920
2026	122	—
2027	—	—
Total	<u>\$ 14,362</u>	<u>\$ 51,050</u>

7. CAPITALIZED SOFTWARE

Capitalized software includes acquired software and direct labor and related expenses for software developed for sale for new products and enhancements to existing products.

The major components of capitalized software are as follows:

	<u>As of December 31,</u>	
	<u>2022</u>	<u>2021</u>
Capitalized software	\$ 96,577	\$ 72,512
Less accumulated amortization	(62,197)	(45,179)
Capitalized software, net of accumulated depreciation	34,380	27,333
In-process capitalized software	4,632	6,109
Capitalized software, net	<u>\$ 39,012</u>	<u>\$ 33,442</u>

Software development costs capitalized for the years ended December 31, 2022, 2021 and 2020, excluding acquisitions were \$14,888, \$11,660 and \$11,850, respectively. Capitalized software includes developed technology with an acquisition date fair value of \$7,700, in connection with finalizing our purchase price acquisition allocation of the LCR-Dixon acquisition and was recorded during the year ended December 31, 2022.

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Capitalized software amortization expense, including amortization of acquired technology for the years ended December 31, 2022, 2021 and 2020 was \$17,018, \$12,962 and \$11,936, respectively, and is included in cost of revenues, software subscriptions in the consolidated statements of comprehensive loss. Amortization expense associated with the acquired LCR-Dixon developed technology from the acquisition date through December 31, 2022 was \$3,208 and is included in the capitalized software amortization expense for the year ended December 31, 2022. Included in this amount is \$642 that would have been recorded during the year ended December 31, 2021 had the fair value of acquired LCR-Dixon developed technology been available on the acquisition date.

In-process capitalized software at December 31, 2022 was not available for general release to customers as of the balance sheet date and therefore not included in the table below. Amortization expense of capitalized software available for general release to customers as of December 31, 2022 is as follows for all future years:

<u>Year Ending December 31,</u>	
2023	\$ 16,281
2024	12,927
2025	4,506
2026	637
2027	29
Total	<u>\$ 34,380</u>

8. LEASES

The Company leases office space, IT equipment and office equipment. The Company's leases have remaining terms of up to 7 years.

The following table sets forth the Company's lease assets and liabilities and their balance sheet location as follows:

	<u>Balance Sheet Location</u>	<u>As of December 31,</u>	
		<u>2022</u>	<u>2021</u>
Lease assets:			
Operating lease right-of-use assets	Operating lease right-of-use assets	\$ 17,187	\$ 20,249
Finance lease assets	Property and equipment, net (Note 6)	600	602
Total lease assets		<u>\$ 17,787</u>	<u>\$ 20,851</u>
Lease liabilities:			
Current:			
Operating lease liabilities	Current portion of operating lease liabilities	\$ 4,086	\$ 3,933
Finance lease liabilities	Current portion of finance lease liabilities	103	284
Total current lease liabilities		<u>\$ 4,189</u>	<u>4,217</u>
Non-current:			
Operating lease liabilities	Operating lease liabilities, net of current portion	\$ 20,421	\$ 24,320
Finance lease liabilities	Finance lease liabilities, net of current portion	10	68
Total non-current lease liabilities		<u>20,431</u>	<u>24,388</u>
Total lease liabilities		<u>\$ 24,620</u>	<u>\$ 28,605</u>

Vertex, Inc. and Subsidiaries
Notes to Consolidated Financial Statements (continued)
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The major components of lease cost are as follows:

	For the year ended December 31,	
	2022	2021
Operating lease cost	\$ 3,714	\$ 4,774
Finance lease cost:		
Amortization of lease assets	1,275	931
Interest on lease liabilities	18	16
Total lease cost	<u>\$ 5,007</u>	<u>\$ 5,721</u>

The weighted-average term and discount rate for leases are as follows:

	As of December 31,	
	2022	2021
Weighted-average remaining lease term (years):		
Operating leases	5.7	6.6
Finance leases	0.5	1.2
Weighted-average discount rate:		
Operating leases	2.3 %	2.3 %
Finance leases	2.3 %	2.3 %

Lease liability maturities for the next five years and thereafter are as follows as of December 31, 2022:

	Operating Leases	Finance Leases
2023	\$ 4,721	\$ 104
2024	4,464	10
2025	4,382	—
2026	4,477	—
2027	4,572	—
Thereafter	3,482	—
Total lease payments	<u>26,098</u>	<u>114</u>
Less: Imputed interest	(1,591)	(1)
Present value of lease liabilities	<u>\$ 24,507</u>	<u>\$ 113</u>

9. GOODWILL AND OTHER INTANGIBLE ASSETS

Goodwill and other intangible assets are as follows for the periods presented:

	As of December 31,	
	2022	2021
Goodwill	\$ 251,842	\$ 270,041
Other intangible assets, net	5,181	2,661
Total	<u>\$ 257,023</u>	<u>\$ 272,702</u>

Vertex, Inc. and Subsidiaries
Notes to Consolidated Financial Statements (continued)
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The changes in the carrying amount of goodwill are as follows for the periods presented:

	As of December 31,	
	2022	2021
Balance, January 1	\$ 270,041	\$ 16,329
Acquisitions	—	265,867
Measurement period adjustments	(10,329)	—
Foreign currency translation adjustments	(7,870)	(12,155)
Balance, December 31, gross	251,842	270,041
Accumulated impairment losses	—	—
Balance, December 31, net	<u>\$ 251,842</u>	<u>\$ 270,041</u>

The Company recognized various amortizable other intangible assets in connection with acquisitions, including customer relationships, technology and tradenames. The following tables provide additional information for our other intangible assets, which are individually not material to the consolidated financial statements:

	As of December 31,	
	2022	2021
Weighted average amortization period (years)	3.5	4.2

	As of December 31, 2022		As of December 31, 2021	
	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Customer relationships	\$ 8,225	\$ 3,855	\$ 1,922	\$ 623
Trademarks and tradenames	1,240	887	1,047	337
Developed technology	1,202	744	1,141	489
Total	<u>\$ 10,667</u>	<u>\$ 5,486</u>	<u>\$ 4,110</u>	<u>\$ 1,449</u>

For the year ended December 31,	Cost of Revenues, Software Subscriptions	Selling and Marketing Expense	Total Expense
2022	\$ 234	\$ 3,779	\$ 4,013
2021	253	813	1,066
2020	267	176	443

The following table presents estimated future amortization of intangible assets:

Year Ending December 31,	
2023	\$ 2,852
2024	2,066
2025	263
Total	<u>\$ 5,181</u>

The Company recorded other intangible assets of \$6,500 during the year ended December 31, 2022 in connection with finalization of the LCR-Dixon acquisition opening balance sheet. The Company recorded amortization expense of \$2,825 for the year ended December 31, 2022, which is included in cost of revenues, software subscriptions and selling and marketing expense. Included in this amount is \$625 that would have been recorded during the year ended December 31, 2021 had the fair value of the acquired LCR-Dixon other intangible assets been available on the acquisition date.

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Notes to Consolidated Financial Statements (continued)
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10. DEBT

Credit Agreement

On March 8, 2022, the Company entered into the Second Amendment to Credit Agreement (the “Second Amendment”), with a banking syndicate, which amended the previous credit agreement entered into in March 2020 (the “Previous Credit Agreement”), providing for, among other modifications, (i) a new term loan in the aggregate amount of \$50,000 (the “Term Loan”); (ii) an extension of the maturity date of the revolving facility (“the Line of Credit”) from March 2025 to March 2027; (iii) an increase in the Line of Credit commitment from \$100,000 to \$200,000 (iv) the Company’s option to select an applicable interest rate at either the bank base rate plus an applicable margin (the “New Base Rate Option”) or Secured Overnight Financing Rate (“SOFR”) plus an applicable margin (the “SOFR Option”); (v) modifications to the financial covenant performance levels which determine applicable margins; and (vi) modifications to certain covenants and events of default. Net proceeds from the Term Loan shall be used to fund ongoing working capital, capital expenditures, permitted distributions, permitted acquisitions and general corporate purposes of the Company and its subsidiaries.

The Company paid \$983 in financing costs in connection with the Second Amendment, which will be amortized over the term of the loan. The Company wrote off \$370 in deferred financing fees pertaining to the Previous Credit Agreement associated with a bank exiting the Second Amendment. The remaining balance of deferred financing costs pertaining to the remaining bank associated with the Previous Credit Agreement of \$277 will be amortized over the term of the Second Amendment. The portion of the deferred financing costs associated with the Line of Credit and the Term Loan are reflected in other assets and as a reduction of the Term Loan, respectively, in the consolidated balance sheet at December 31, 2022.

The Second Amendment is collateralized by nearly all of the assets of the Company and contains financial and operating covenants. The Company was in compliance with these covenants at December 31, 2022. The Second Amendment limits the declaration or payment of certain dividends, not to exceed an aggregate of \$2,000.

Term Loan

The Term Loan requires quarterly principal payments over five years, with a balloon payment due on March 8, 2027. The interest rate on the Term Loan was 5.42% at December 31, 2022 as the Company selected the SOFR Option. Term Loan outstanding amounts are reported in the current portion of long-term debt and long-term debt, net of current portion, in the consolidated balance sheets. Outstanding borrowings under the Term Loan were \$49,063 at December 31, 2022.

Line of Credit

The Line of Credit expires in March 2027. The Company is required to pay a quarterly fee on the difference between the \$200,000 allowed maximum borrowings and the unpaid principal balance outstanding under the line at the applicable rate. At December 31, 2022, the New Base Rate Option and SOFR Option applicable to the Line of Credit borrowings were 7.50% and 5.40%, respectively. There were no outstanding borrowings under the Line of Credit at December 31, 2022.

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Notes to Consolidated Financial Statements (continued)
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Debt maturities under the Second Amendment for the next five years and thereafter are as follows as of December 31, 2022:

2023	\$	2,188
2024		2,500
2025		2,500
2026		3,437
2027 and thereafter		38,438
Total Debt	\$	<u>49,063</u>

Previous Credit Agreement

On March 31, 2020, the Company entered into the Previous Credit Agreement with a bank consisting of a \$175,000 term loan (the “Previous Term Loan”) and a \$100,000 committed line of credit (the “Previous Line of Credit”).

Net proceeds from the Previous Term Loan, after payment of financing fees of \$2,904 and repayment of aggregate amounts outstanding under a previous credit agreement of \$61,656, were used to fund a portion of the \$123,185 distribution made to the stockholders on May 29, 2020 (see Note 11).

A portion of the Offering proceeds was used to repay the \$175,000 Previous Term Loan in full on July 31, 2020. The Company received a refund of \$468 of financing fees as a result of repayment of the Previous Term Loan within 90 days of execution of the Previous Credit Agreement, which was recorded as a reduction of deferred financing costs associated with the Previous Term Loan. The Company wrote off the remaining balance of deferred financing costs associated with the Previous Term Loan of \$1,174, which was recorded as interest expense in the consolidated statement of comprehensive loss for the year ended December 31, 2020.

The Previous Line of Credit had no outstanding borrowings at either December 31, 2021 or 2020. The Company had the option to select an applicable interest rate at either the bank base rate plus an applicable margin (the “Base Rate Option”) or the LIBOR plus an applicable margin (the “LIBOR Option”). The applicable margins were determined by certain financial covenant performance as defined in the Previous Credit Agreement. At December 31, 2021, the Base Rate Option and LIBOR Option applicable to Previous Line of Credit borrowings were 3.25% and 2.00%, respectively.

The Previous Credit Agreement was collateralized by nearly all of the assets of the Company and contains financial and operating covenants. The Company was in compliance with all financial covenants at December 31, 2021.

11. STOCKHOLDERS’ EQUITY

Termination of S-Corporation status

In connection with termination of the Company’s S-Corporation election effective July 27, 2020, the Company had an accumulated deficit of \$354,291 pertaining to the S-Corporation shareholders which was reclassified to additional paid in capital upon such termination.

Recapitalization

In connection with the Recapitalization, the Company: (i) effected the three-for-one Stock Split, which is reflected retrospectively in the consolidated financial statements; (ii) established the New Capital Structure; and (iii) effected the Share Exchange. In connection with the Recapitalization, repurchased shares (“Treasury Stock”) of 41,910 were retired and amounts associated with the Treasury Stock were reclassified to additional paid in capital.

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Notes to Consolidated Financial Statements (continued)

(Amounts in thousands, except per share data)

Prior to the Share Exchange, the Company had 147 shares of former Class A common stock and 120,443 shares of former Class B common stock outstanding. Members of a family (the “Family”) owned 99.9% of all outstanding shares of both former classes of common stock, which was comprised of 100% of the former Class A common stock and 120,270 shares of the former Class B common stock. The remaining 173 shares of former Class B common stock were owned by non-Family members. There were no dividend or liquidation preference differences between the former Class A and former Class B shares.

In connection with establishing the New Capital Structure, the shareholders authorized 450,000 shares of common stock, par value \$0.001 per share, and 30,000 shares of preferred stock, par value \$0.001 per share. Common stock is divided into two classes, Class A with one vote per share, and Class B with ten votes per share. The rights of the holders of Class A and Class B are identical, except with respect to voting and conversion rights. Upon the transfer of Class B shares, such shares will automatically convert to an equivalent number of Class A shares with the respective voting rights attributable to such new shares. Authorized Class A and Class B shares are 300,000 and 150,000 shares, respectively. There are no dividend or liquidation preference differences between Class A and Class B.

In connection with the Share Exchange, the Family members exchanged each share of former Class A and former Class B for the equivalent number of Class B shares established as part of the New Capital Structure. In addition, the non-Family members exchanged their former Class B shares for an equivalent number of Class A shares established as part of the New Capital Structure. No funds were exchanged in connection with the Share Exchange and the aggregate number of shares outstanding both immediately prior to and after the Share Exchange remained the same at 120,590. In addition, common stock equivalents, all of which were held by non-Family members and which were previously exercisable into former Class B shares, became exercisable into Class A shares established as part of the New Capital Structure.

Common Stock

During 2022, the Company issued 800 shares of Class A related to the exercise of options, net of 91 shares returned to the Company in lieu of payment of the exercise price and taxes due on these exercises. The Company issued 48 shares of Class A in 2022 in connection with the vesting of RSUs, net of 20 shares returned to the Company in lieu of payment of taxes due on the vesting of these awards. The Company issued 173 shares of Class A in 2022 in connection with the vesting of RSAs, net of 15 shares returned to the Company in lieu of payment of taxes due on the vesting of these awards. The Company also issued 207 shares in connection with the ESPP Plan in 2022. During 2022, stockholders exchanged 6,500 shares of Class B for an equivalent number of shares of Class A.

During 2021, the Company issued 2,157 shares of Class A related to the exercise of options, net of 706 shares returned to the Company in lieu of payment of the exercise price and taxes due on these exercises. The Company issued 12 shares of Class A in 2021 in connection with the vesting of RSUs net of 3 shares returned to the Company in lieu of payment of taxes due on the vesting of these awards. The Company issued 352 shares of Class A in 2021 in connection with the vesting of RSAs, net of 11 shares returned to the Company in lieu of payment of taxes due on the vesting of these awards. The Company also issued 128 shares in connection with the ESPP Plan in 2021. During 2021, a stockholder exchanged 13,310 shares of Class B for an equivalent number of shares of Class A.

In April 2020, the Company issues 173 shares of former Class B common stock in connection with the exercise of options for cash of \$53. These shares were exchanged for Class A common stock in connection with the Offering. On July 28, 2020, the Company sold 23,812 shares of Class A in connection with the Offering for \$423,024, net of underwriting fees. Offering costs paid from these proceeds aggregated \$6,222 and are reflected as a reduction of additional paid in capital in stockholders’ equity. In connection with the Offering, the Company also issued an aggregate 564 shares of Class A related to the conversion of SARs into options and the immediate exercise of these options into shares, net of 860 shares returned to the Company in lieu of payment of the exercise price and taxes due on these exercises. In addition, in 2020 the Company issued 510 shares of Class A in connection with the exercise of stock options by option holders, net of 381 shares returned to the Company in lieu of payment of the exercise price and taxes due on these exercises. The Company

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also issued 890 Class A shares in connection with the exercise of outstanding options and 19 Class A shares in connection with RSAs granted at the Offering, which vested immediately. The Company also issued 59 shares in connection with the ESPP Plan in 2020. A stockholder exchanged 300 shares of Class B common stock for an equivalent number of shares of Class A common stock during the year ended December 31, 2020.

Distributions

The board of directors (the “Board”) declared aggregate distributions of \$132,901 (\$1.10 per share) through July 25, 2020, pro rata to stockholders of the former Class A and Class B common stock.

Tax Sharing Agreement Payments

In connection with revocation of the Company’s S-Corporation election effective July 27, 2020, the Company entered into a Tax Sharing Agreement with the former S-Corporation shareholders. See Note 1. All obligations of the Company under the Tax Sharing Agreement are satisfied by adjustments of additional paid in capital.

Through the year ended December 31, 2021, the Company distributed \$2,733 to the former S-Corporation shareholders under the Tax Sharing Agreement. On March 15, 2022, the Company distributed \$536 to the former S-Corporation shareholders under the Tax Sharing Agreement to settle the Company’s obligation for income taxes related to the allocation of taxable income to the S-Corporation short tax period ended July 26, 2020.

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12. EARNINGS PER SHARE

The tables below illustrate the calculation of basic and diluted net loss per common share for the Class A common and Class B common for the periods reflected below. The weighted average shares outstanding have been retrospectively restated to reflect the Share Exchange for all periods prior to the Offering, resulting in the Class A shares representing non-Family-owned shares and Class B representing Family-owned shares for all periods presented prior to the Offering. See Note 11 for further information on the Share Exchange.

Class A common stock:	For the year ended December 31,		
	2022	2021	2020
Numerator, basic:			
Net loss attributable to all stockholders	\$ (12,304)	\$ (1,479)	\$ (75,081)
Class A common stock as a percentage of total shares outstanding, basic	30.65 %	24.12 %	8.44 %
Net loss attributable to Class A stockholders, basic	<u>\$ (3,771)</u>	<u>\$ (357)</u>	<u>\$ (6,335)</u>
Numerator, diluted:			
Net loss attributable to all stockholders	\$ (12,304)	\$ (1,479)	\$ (75,081)
Class A common stock as a percentage of total shares outstanding, diluted	30.65 %	24.12 %	8.44 %
Net loss attributable to Class A stockholders, diluted	<u>\$ (3,771)</u>	<u>\$ (357)</u>	<u>\$ (6,335)</u>
Denominator, basic and diluted:			
Weighted average Class A common stock, basic	45,864	35,647	11,096
Dilutive effect of common stock equivalents ⁽¹⁾⁽²⁾⁽³⁾	—	—	—
Weighted average Class A common stock, diluted	<u>45,864</u>	<u>35,647</u>	<u>11,096</u>
Net loss per Class A share, basic	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>	<u>\$ (0.57)</u>
Net loss per Class A share, diluted	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>	<u>\$ (0.57)</u>

¹⁾ For the year ended December 31, 2022, the following weighted-average outstanding shares of common stock equivalents by award type were excluded from the computation of diluted net loss per share attributable to Class A stockholders because the impact of including them would have been anti-dilutive: 8,982 options (including 760 out-of-the-money options), 285 RSA's, 2,254 RSU's and 52 shares under the ESPP.

²⁾ For the year ended December 31, 2021, the following weighted-average outstanding shares of common stock equivalents by award type were excluded from the computation of diluted net loss per share attributable to Class A stockholders because the impact of including them would have been anti-dilutive: 10,422 options (including 294 out-of-the-money options), 490 RSA's, 387 RSU's and 29 shares under the ESPP.

³⁾ For the year ended December 31, 2020, the following weighted-average outstanding shares of common stock equivalents by award type were excluded from the computation of diluted net loss per share attributable to Class A stockholders because the impact of including them would have been anti-dilutive: 7,398 options, 289 RSA's and 27 RSU's.

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Class B common stock:	For the year ended December 31,		
	2022	2021	2020
Numerator, basic:			
Net loss attributable to all stockholders	\$ (12,304)	\$ (1,479)	\$ (75,081)
Class B common stock as a percentage of total shares outstanding, basic	69.35 %	75.88 %	91.56 %
Net loss attributable to Class B stockholders, basic	<u>\$ (8,533)</u>	<u>\$ (1,122)</u>	<u>\$ (68,746)</u>
Numerator, diluted:			
Net loss attributable to all stockholders	\$ (12,304)	\$ (1,479)	\$ (75,081)
Class B common stock as a percentage of total shares outstanding, diluted	69.35 %	75.88 %	91.56 %
Net loss attributable to Class B stockholders, diluted	<u>\$ (8,533)</u>	<u>\$ (1,122)</u>	<u>\$ (68,746)</u>
Denominator, basic and diluted:			
Weighted average Class B common stock, basic	103,781	112,133	120,415
Dilutive effect of common stock equivalents	—	—	—
Weighted average Class B common stock, diluted	<u>103,781</u>	<u>112,133</u>	<u>120,415</u>
Net loss per Class B share, basic	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>	<u>\$ (0.57)</u>
Net loss per Class B share, diluted	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>	<u>\$ (0.57)</u>

13. EMPLOYEE BENEFIT AND DEFERRED COMPENSATION PLANS

The Company maintains a 401(k) plan that covers eligible employees. For the years ended December 31, 2021 and 2020, the Company matched up to to 3% of eligible compensation during the period in which an eligible participant contributed to the plan and the Board approved a discretionary profit-sharing contribution of 3% of eligible compensation for eligible employees. Effective January 1, 2022, discretionary profit-sharing contributions were eliminated and the Company now matches up to 6% of eligible compensation during the period in which an eligible participant contributes to the plan. Matching contributions were \$10,056, \$4,062 and \$4,011 for the years ended December 31, 2022, 2021 and 2020, respectively. In addition, the discretionary profit-sharing contributions aggregated \$3,994 and \$4,035 for the years ended December 31, 2021 and 2020, respectively.

Long-Term Rewards Plan

The Company had a long-term reward (“LTR”) compensation plan for certain key employees related to growth in certain financial measures over a three-year measurement period (the “Reward Performance Period”), subject to the terms of the plan. After December 31, 2020, no new awards were granted under the LTR plan as future long-term awards will only be made under the 2020 Plan.

Eligible LTR plan participants received an individual target award opportunity (“Award Opportunity”) for a new three-year Reward Performance Period (i.e., target award grant made in 2019 is for years 2019 through 2021). Compensation earned for growth in the financial measures over each Reward Performance Period is paid in cash in the year following the end of the respective Reward Performance Period, assuming the minimum net income target was achieved in the final year of the Reward Performance Period. Estimated compensation is recorded during each year of a Reward Performance Period (“accrued LTR Award Opportunities”). At December 31, 2022, the Company has one open Reward Performance Period eligible for payment in 2023.

Compensation expense associated with LTR plan was \$892, \$3,059, and \$3,027 for the years ended December 31, 2022, 2021 and 2020, respectively. Amounts paid in 2022 and 2021 for the LTR plan was \$4,023 and \$1,981, respectively.

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The amount estimated to be paid in 2023 for the LTR plan is \$2,706, and is reflected in deferred compensation, current in the consolidated balance sheet as of December 31, 2022.

Stock-Based Award Plans

On the effective date of the Offering, the Company adopted the 2020 Plan and the ESPP.

The 2020 Plan provides the ability to grant cash and equity-based incentive awards to eligible employees, directors and service providers in order to attract, retain and motivate those that make important contributions to the Company. The 2020 Plan provides for the award of stock options, RSAs, RSUs, SARs and other cash compensation. The ESPP provides eligible employees with rights during each six-month ESPP offering period to purchase shares of the Company's Class A common at the ESPP discount through payroll deductions, or through lump sum payments during the initial offering period only (July 28 to November 30, 2020). Amounts withheld or received from participants are reflected in accrued salaries and benefits in the consolidated balance sheets until such shares are purchased. Amounts withheld from participants for the offering periods ending May 31, 2023 and 2022 aggregated \$311 and \$281 as of December 31, 2022 and 2021, respectively.

Prior to the adoption of the 2020 Plan, the Company had a SAR plan for the purpose of providing incentives to key members of management and consultants to contribute to the growth and financial success of the Company. As a result of the Offering, SAR participants were offered the option to either redeem their SARs upon the occurrence of the Offering or amend their SARs pursuant to which, upon effectiveness of the 2020 Plan, such SARs would become options to purchase shares of Class A common stock under the 2020 Plan (the "SAR Exchange Offer"). All SAR participants eligible to receive the SAR Exchange Offer accepted and had their outstanding SARs, which aggregated 12,038, converted to options with equivalent terms under the 2020 Plan at the Offering effective date (the "Converted SARs"). This was considered a modification of these SAR awards. The SAR plan was retired ("Retired SAR Plan") and any future SARs will be granted under the 2020 Plan.

Prior to the adoption of the 2020 Plan, the Company had options outstanding to purchase 3,676 shares of former Class B common stock. Upon the effectiveness of the Offering, these options were amended and exchanged for options to purchase an equivalent number of Class A shares at the same exercise price and vesting, subject to the terms of the 2020 Plan except with regard to certain terms of the original option agreements primarily with respect to expiration in connection with a Triggering Event (the "Amended Options").

2020 Plan

Upon commencement of the 2020 Plan, an aggregate of 16,500 shares of our Class A common stock were available for issuance. The number of shares available for issuance will be increased annually on January 1 of each calendar year beginning in 2021 and ending in and including 2030, equal to the lesser of (i) 4% of the shares of Class A and Class B common stock outstanding on the final day of the immediately preceding calendar year and (ii) a smaller number of shares as determined by the Board. No more than 3,000 shares of Class A common may be issued under the 2020 Plan upon the exercise of incentive stock options. Shares available under the 2020 Plan may consist of authorized but unissued shares, shares purchased on the open market, or treasury shares. If an award under the 2020 Plan expires, lapses or is terminated, exchanged for cash, surrendered, repurchased, or canceled without having been fully exercised or forfeited, any unused shares subject to the award will again be available for new grants under the 2020 Plan. Awards granted under the 2020 Plan in substitution for any options or other stock or stock-based awards granted by an entity before the entity's merger or consolidation with or acquisition by the Company of the entity's property or stock will not reduce the shares available for grant under the 2020 Plan but will count against the maximum number of shares that may be issued upon the exercise of incentive stock options.

Vertex, Inc. and Subsidiaries
Notes to Consolidated Financial Statements (continued)
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As of December 31, 2022, 10,595 shares of our Class A common were available for issuance under the 2020 Plan. No incentive stock options that would be subject to the 3,000 Class A share limit were issued or outstanding under the 2020 Plan at December 31, 2022.

Awards issued under the 2020 Plan vest based on service criteria established by the Board. The Company has elected to account for forfeitures as they occur rather than estimate forfeitures at date of grant.

Retired SAR Plan

The Retired SAR Plan enabled the Company to grant awards (“SAR Awards”) as a fixed number of shares of former Class B common stock (“SAR Units”). SAR Units outstanding aggregated 12,276 at December 31, 2019. SAR Units were issued at the equivalent of the fair value of the equivalent number of shares of the Company’s former Class B common stock on the grant date (“Base Value”), as determined by the Board with assistance from management and an independent third-party valuation provider, and compensation recorded based upon the appreciation of the SAR Units in excess of the Base Value over the requisite service period. SAR Awards were exercisable upon 50% vesting or upon the occurrence of a triggering event. SAR Awards were settled in cash only, not through the issuance of shares.

The SAR Exchange Offer resulted in eligible SAR participants amending their SAR Units pursuant to which, upon effectiveness of the Company’s 2020 Plan, such SAR Units were exchanged for options under the 2020 Plan. Effective July 13, 2020, the SAR Exchange Offer period ended and all SAR participants eligible to receive the offer accepted and had their outstanding SAR Units converted to options with equivalent terms under the 2020 Plan on the effective date of the plan upon the Offering. This was considered an accounting modification of these SAR Awards.

Converted SARs with either no expiration date or that expired during calendar year 2020 were converted to options and automatically exercised into shares (the “Auto Exercise New Options”) on the effective date of the Offering. Shares issued in connection with the Auto Exercise New Options were net of the number of shares of common stock necessary to satisfy the aggregate exercise price and the tax withholding obligation of such options of \$13,835. The Auto Exercise New Option participants also had the ability to require the Company to repurchase all or a portion of these on the Offering effective date for cash based on the Offering price of \$19.00 per share, which aggregated \$9,054. The aggregate of these amounts of \$22,889 is reflected as a reduction of cash provided by operating activities as these payment requirements arose when the original SARs were liability-classified prior to their conversion and exercise.

Management continued to record changes in the intrinsic value of the SAR Units in 2020 up to the date on which management determined the Company was considered to have become a public entity. Management measured the change in accounting policy of \$2,422 in accordance with ASC 718 during the year ended December 31, 2021, which included \$1,299 of vested Converted SARs that were recognized as compensation expense during this period, with the remaining \$1,122 of unvested Converted SARs being recognized as compensation expense over the remaining service period of one to five years through 2025. The additional incremental increase in fair value of the Converted SARs after the date on which management was considered to have become a public entity and up to the time of the exchange on the Offering effective date resulting from the modification was recorded as compensation expense. The fair value of the Converted SARs, estimated using the Black-Scholes model, was \$197,708, of which \$153,366 was vested as of the Offering date. Management recorded additional compensation expense of \$57,079 for vested Converted SARs from July 1 to the Offering effective date, which included the \$1,299 impact of the change in accounting of vested Converted SARs. The remaining \$44,342 of unvested Converted SAR liability, which includes the \$1,122 of unvested Converted SARs in connection with the change in accounting policy, will be recognized as compensation expense over the remaining service period of one to five years through 2025. Upon modification, the Converted SARs are no longer being recorded as a liability under ASC 718 and the accumulated liability balance, net of amounts for payment of tax withholding and redemption, was reclassified to stockholders’ equity. No incremental compensation expense arose in connection with the SAR modification.

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The assumptions used in the Black-Scholes model to determine the fair value of the Converted SARs on the modification date are as follows:

Fair market value of common stock	\$	19.00
Volatility		36.7 %
Expected term (years)		6.5
Expected dividend yield		— %
Risk-free interest rate		0.4 %

As of the modification date, the Company lacked sufficient historical data on the volatility of its stock price. Selected volatility is representative of expected future volatility and was based on the historical and implied volatility of comparable publicly traded companies over a similar expected term. The expected term represents the term of the Converted SARs, which ranges from within one year to ten years. The Company does not expect to pay dividends after the Offering. The risk-free interest rate was based on the rate for a U.S. Treasury zero-coupon issue with a term that closely approximates the expected term of the SAR grants.

Prior to the Offering, the fair value of the common stock underlying the SAR Awards was determined by the Board with assistance from management and an independent third-party valuation firm. The determination of value used the market and income approaches, with an adjustment for marketability discount pertinent to private company entities in arriving at the per share fair value (the “valuation methodology”). Under the market approach, the guideline public company method is used, which estimates the fair value of the Company based on market prices of stock of guideline public companies. The income approach involves projecting the future benefits of owning an asset and estimating the present value of those future benefits by discounting them based upon the time value of money and the investment risks associated with ownership. At the end of 2019, due to the consideration by the Board of pursuing the Offering, the valuation methodology began to consider the impact of such an event on the value of the Company’s common stock underlying the awards. As the Company approached the Offering effective date, this resulted in increases in the value of the SAR Awards which resulted in corresponding increases to compensation expense for the year ended December 31, 2020 which exceeded historical results.

The below table represents SAR activity for the following periods:

	Units			Range of Grant Values
	Vested	Nonvested	Total	
Outstanding at December 31, 2019	6,207	6,069	12,276	\$0.92–\$3.73
Granted	21	681	702	\$ 4.70
Exercised	(877)	—	(877)	\$1.31–\$2.50
Forfeited	—	(63)	(63)	\$ 2.50
Vested	1,410	(1,410)	—	
Converted	(6,761)	(5,277)	(12,038)	\$0.92–\$4.70
Outstanding at December 31, 2020	—	—	—	

Prior to the Offering, the weighted average grant date intrinsic value of the SARs on grant date was zero as the Company’s Board granted all awards at a price per share not less than the per share fair value of the Company’s former Class B common stock underlying such awards on the date of grant.

At the Offering effective date, the liability for total recognized compensation for vested SAR Awards of \$143,519 was reclassified to additional paid in capital as these awards were reclassified to equity-based awards on this date subject to the terms of the 2020 Plan. Unrecognized compensation for unvested SAR awards of \$44,342 will be recognized as compensation expense under the 2020 Plan over the respective service periods of one to five years.

Vertex, Inc. and Subsidiaries
Notes to Consolidated Financial Statements (continued)
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Amended Options

On July 20, 2020, the Amended Options resulted from the Board amending the outstanding options to provide for their exchange for options to purchase an equivalent number of Class A shares available under the 2020 Plan at the same exercise price, vesting and term. The amendment of the options was deemed an accounting modification. No incremental compensation was recorded in connection with this modification as it was determined that the value of the Amended Options was the same both before and after the modification. The Amended Options remain exercisable upon: (i) the option holder no longer serving as an employee of the Company or a member of the Board; (ii) the Grantee’s death or disability; (iii) the occurrence of a Partial Triggering Event (as defined below); or (iv) the occurrence of a Triggering Event (as defined below). Prior to being amended, the option agreements provided employee option holders with the ability to exercise a portion of their options between April 15 and April 30 of each year based upon the fair value of the Class B common stock as of December 31 of the prior calendar year, provided that certain Company performance is achieved. Upon amendment, the options are instead now subject to restrictions on trading during certain periods (“blackout dates”). Option holders are permitted to satisfy tax withholding obligations incurred in connection with the exercise by exchanging exercised options in lieu of payment of income taxes paid by the Company on their behalf.

In the event of the sale of at least 50% of the Company’s stock or all the assets of the Company (“Triggering Event”) in a single or multiple transactions, the option holders have the right to exercise their options and sell their related shares in connection with the transactions. Unexercised options expire after a Triggering Event. In the event of a sale of at least 25% of the Company’s assets to an unrelated third-party in a single or multiple transactions (“Partial Triggering Event”), the option holders have the right to exercise a portion of their options pro rata based on the sales price and sell their related shares in connection with the transaction. Unexercised options remaining after a Partial Triggering Event remain outstanding. In addition, in the event stockholders owning at least 51% of the outstanding stock of the Company (the “selling stockholders”) sell a portion of their stock to an unrelated third-party, the option holders have the right to exercise and sell an amount of options in the same proportion as the selling stockholders (a “tag-along right”). The option holders may also be required to exercise all their outstanding options and sell all related shares in the event the selling stockholders sell at least 51% of their ownership to an unrelated third-party (a “drag-along right”).

Prior to the amendment, the options permitted holders to put their exercised shares back to the Company, thus the options were classified as temporary equity and included in “Options for Redeemable Shares” on the consolidated balance sheets. The Company recorded increases in the value of Options for Redeemable Shares of \$51,833 and \$2,763 during the years ended December 31, 2020 and 2019, respectively. The option holders’ ability to put the exercised Amended Option shares to the Company in order to attain liquidity was exchanged for the right by the holders to exercise these options and sell the related shares on the NASDAQ Global Market exchange. As a result of this put right no longer being applicable, the options were no longer considered temporary equity and were reclassified to stockholders’ equity in the amount of \$69,177 during the year ended December 31, 2020.

The following table summarizes activity for the Amended Options for the periods presented:

<u>Amended Option Activity</u>	<u>Units</u>	<u>Weighted Average Exercise Price</u>	<u>Weighted Average Remaining Contractual Life (Years)</u>	<u>Aggregate Intrinsic Value</u>
Outstanding at December 31, 2019	3,849	\$ 0.19	*	\$ 17,344
Exercised through June 30	(173)	\$ 0.30		\$ 759
Amendment and exchange of options	(3,676)	\$ 0.19	*	\$ 69,177
Outstanding at December 31, 2020	—			

*Options have indefinite contractual lives

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Options under 2020 Plan

The following table summarizes activity for options outstanding under the 2020 Plan for the periods presented:

<u>2020 Plan Option Activity</u>	<u>Units</u>	<u>Weighted Average Exercise Price</u>	<u>Weighted Average Remaining Contractual Life (Years)</u>	<u>Aggregate Intrinsic Value</u>
Outstanding at January 1, 2020	—	—		
Issued in connection with Converted SARs	12,038	\$ 2.76		
Issued in connection with Amended Options	3,676	\$ 0.19	*	
Total options granted	15,714	\$ 2.16		
Forfeited	(156)	\$ 3.29		
Exercised	(3,682)	\$ 1.21		
Outstanding at December 31, 2020	11,876	\$ 2.44	5.3	\$ 384,883
Granted	779	\$ 23.06		
Forfeited	(292)	\$ 4.06		
Exercised	(2,863)	\$ 2.04		
Outstanding at December 31, 2021	9,500	\$ 4.20	5.2	\$ 110,843
Forfeited	(100)	\$ 5.31		
Expired	(1)	\$ 32.16		
Exercised	(891)	\$ 2.70		
2020 Plan options outstanding at December 31, 2022	<u>8,508</u>	\$ 4.34	4.3	\$ 86,514
2020 Plan options exercisable at December 31, 2022	<u>6,125</u>	\$ 2.95	3.4	\$ 70,785

*Amended Options have indefinite contractual lives

The detail of options outstanding, vested and exercisable under the 2020 Plan as of December 31, 2022 is as follows:

<u>Exercise Prices</u>	<u>Options Outstanding</u>		<u>Options Vested and Exercisable</u>	
	<u>Units</u>	<u>Weighted Average Life (Years)</u>	<u>Units</u>	<u>Weighted Average Life (Years)</u>
\$0.15 to \$0.71	1,698	—	1,698	—
\$2.15	326	2.1	326	2.1
\$2.50	2,156	3.5	2,156	3.5
\$2.67	409	4.2	409	4.2
\$3.17	988	5.3	237	5.4
\$3.73	1,514	6.8	737	6.8
\$4.70	658	7.1	316	7.1
\$18.47	213	8.9	53	8.9
\$18.96	235	8.6	105	8.6
\$19.00	66	8.7	17	8.7
\$32.16	245	8.2	71	7.4
	<u>8,508</u>		<u>6,125</u>	

The Board intends all options granted to be exercisable at a price per share not less than the per share fair market value of the Company's Class A common stock underlying the options on the date of grant. Compensation expense for new option awards issued subsequent to the Offering to participants under the 2020 Plan are measured based on the grant date

Vertex, Inc. and Subsidiaries
Notes to Consolidated Financial Statements (continued)
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fair value of the awards and recognized in the consolidated statements of comprehensive loss over the period during which the participant is required to perform the requisite services. The vesting period is generally one to four years.

The Company issued 779 options under the 2020 Plan during various quarters in 2021. No options were issued during 2022. The assumptions used in the Black-Scholes models to determine the value of the options issued during these periods are as follows:

	Option Valuation Period				
	Q4 2021	Q3 2021	Q3 2021	Q2 2021	Q1 2021
Fair market value of common stock	\$ 18.47	\$ 18.96	\$ 19.00	\$ 17.66	\$ 32.16
Volatility	37.4 %	37.1 %	37.1 %	36.8 %	36.8 %
Expected term (years)	5.0	5.0	5.0	6.0	6.0
Expected dividend yield	— %	— %	— %	— %	— %
Risk-free interest rate	1.3 %	0.8 %	0.9 %	0.4 %	0.4 %

The fair market value of common stock reflects the market closing price on the NASDAQ Global Market exchange on the respective option grant date. As of the valuation dates, the Company lacked sufficient historical data on the volatility of its stock price. Selected volatility is representative of expected future volatility and was based on the historical and implied volatility of comparable publicly traded companies over a similar expected term. The expected term represents the term the options are expected to be exercised over, which differs from the term of the option grants which is ten years. The Company does not expect to pay dividends. The risk-free interest rate was based on the rate for a U.S. Treasury zero-coupon issue with a term that closely approximates the expected term of the option grants.

At December 31, 2022, \$10,352 of unrecognized compensation expense associated with the options and Converted SARs is expected to be recognized over a weighted average period of approximately 2.0 years.

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Restricted Stock Units

The following table summarizes RSU activity for the periods presented:

	Units		Weighted Average Grant Date Fair Value Per Share
Outstanding at January 1, 2020	—		
Granted	101	\$	23.80
Outstanding at December 31, 2020	101		23.80
Granted	478		27.07
Vested	(15)		29.67
Forfeited	(34)		25.18
Outstanding at December 31, 2021	530	\$	26.49
Granted	2,240		13.55
Vested	(68)		21.96
Forfeited	(140)		15.59
Outstanding at December 31, 2022	<u>2,562</u>	\$	15.90

Stock-based compensation cost for RSUs is measured based on the fair value of the Company's underlying common stock on the date of grant. Compensation cost will be recognized on a straight-line basis in the consolidated statements of comprehensive loss over the period during which the participant is required to perform services in exchange for the award, which is generally one to four years. At December 31, 2022, \$29,614 of unrecognized compensation cost for RSUs is expected to be recognized over a weighted average period of approximately 2.9 years.

In connection with the Taxamo acquisition, certain continuing employees of Taxamo received RSUs with service and performance conditions. At December 31, 2022, there are 895 shares of our Class A common stock ("PSUs") with an aggregate grant date fair value of \$15,803 that will be accounted for as post-acquisition compensation expense over the vesting period if targets are achieved. The performance-based condition will be satisfied upon meeting certain performance targets for the year ended 2023. As of December 31, 2022, it is not probable that these targets will be met, thus no compensation expense has been recorded to date related to these PSUs.

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Restricted Stock Awards

The following table summarizes RSA activity for the periods presented:

	Units	Weighted Average Grant Date Fair Value Per Share
Outstanding at January 1, 2020	—	
Granted	694	\$ 19.00
Vested	(21)	19.00
Forfeited	(3)	19.00
Outstanding at December 31, 2020	670	19.00
Granted	59	17.66
Vested	(363)	19.00
Forfeited	(40)	19.00
Outstanding at December 31, 2021	326	\$ 18.76
Granted	106	9.92
Vested	(188)	18.58
Forfeited	(9)	19.00
Outstanding at December 31, 2022	235	\$ 14.91

Stock-based compensation cost for RSAs is measured based on the fair value of the Company's underlying common stock on the date of grant. Compensation cost will be recognized on a straight-line basis in the consolidated statements of comprehensive loss over the period during which the participants are required to perform services in exchange for the award, which is generally one to four years. At December 31, 2022, \$2,116 of unrecognized compensation cost for RSAs is expected to be recognized over a weighted average period of approximately 1.0 year.

Employee Stock Purchase Plan

The ESPP permits participants to purchase Class A common stock primarily through payroll deductions of up to a specified percentage of their eligible compensation. The maximum number of shares that may be purchased by a participant during any offering period is determined by the plan administrator in advance of each offering period.

A total of 1,000 shares of Class A common were initially reserved for issuance under the ESPP. The number of shares available for issuance under the ESPP increases annually on January 1 of each calendar year beginning in 2021 and ending in and including 2030, by an amount equal to the lesser of (i) 1% of the shares of Class A and Class B common stock outstanding on the final day of the immediately preceding calendar year and (ii) such smaller number of shares as is determined by the Board, provided that no more than 16,000 shares of Class A common stock may be issued. The ESPP is administered by a committee of the Board. As of December 31, 2022, there were 3,562 shares available for issuance under the ESPP.

On the first trading day of each offering period, each participant will automatically be granted an option to purchase shares of Class A common. The option will expire at the end of the applicable offering period and will be exercised at that time to the extent of the payroll deductions accumulated or contributions made during such offering period. The purchase price of the shares, in the absence of a contrary designation, is 85% of the lower of the fair value of the Class A common on the first or last day of the ESPP offering period. Participants may voluntarily end their participation in the plan at any time during a specified period prior to the end of the applicable offering period and will be paid their accrued payroll deductions and related contributions, if applicable, that have not yet been used to purchase shares of Class A common. If

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a participant withdraws from the plan during an offering period, the participant cannot rejoin until the next offering period. Participation ends automatically upon a participant's termination of employment.

As of December 31, 2022 and 2021 there was approximately \$324 and \$233, respectively, of unrecognized ESPP stock-based compensation cost that is expected to be recognized on a straight-line basis over the remaining term of the offering periods ending on May 31 2023 and 2022, respectively.

The fair value of ESPP purchase rights for the offering periods is comprised of the value of the 15% ESPP discount and the value associated with the call or put over the respective ESPP offering period. The value of the call or put was estimated using the Black-Scholes model with the following assumptions:

	Offering Period Ending				
	5/31/2023	11/30/2022	5/31/2022	11/30/2021	5/31/2021
Fair market value of common stock	\$ 17.21	\$ 11.16	\$ 17.38	\$ 19.89	\$ 25.83
Volatility	46.4 %	35.4 %	37.3 %	35.1 %	35.1 %
Expected term (years)	0.5	0.5	0.5	0.5	0.5
Expected dividend yield	-	-	-	-	-
Risk-free interest rate	4.7 %	1.6 %	0.1 %	0.1 %	0.1 %

Volatility is representative of expected stock price volatility over the offering period. Effective with the offering period beginning December 1, 2022, the Company's volatility was applied and will be applied to future offering periods. Prior to this offering period, volatility was based on the historical and implied volatility of comparable publicly traded companies over a similar expected term for the respective offering periods. The expected term represents the term of the ESPP offering period, which is generally six months except for the initial offering period which was from July 28 to November 30, 2020. The Company does not expect to pay dividends after the Offering. The risk-free interest rate was based on the rate for a U.S. Treasury zero-coupon issue with a term that closely approximates the expected term of the award at the date nearest the offering term.

Stock-Based Compensation

The Company recognized total stock-based compensation cost related to incentive awards, net of forfeitures, as follows:

	For the year ended December 31,		
	2022	2021	2020
Stock-based compensation expense:			
Stock options	\$ 7,081	\$ 17,533	\$ 143,123
RSUs	9,286	2,964	171
RSAs	2,768	5,126	4,284
ESPP	594	537	326
Total stock-based compensation expense	\$ 19,729	\$ 26,160	\$ 147,904

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The Company recognized stock-based compensation cost in the consolidated statements of comprehensive loss as follows:

	<u>For the year ended December 31,</u>		
	<u>2022</u>	<u>2021</u>	<u>2020</u>
Stock-based compensation expense:			
Cost of revenues, software subscriptions	\$ 2,090	\$ 2,336	\$ 14,663
Cost of revenues, services	1,433	2,648	21,472
Research and development	1,798	2,620	14,694
Selling and marketing	6,284	6,371	29,551
General and administrative	8,124	12,185	67,524
Total stock-based compensation expense	<u>\$ 19,729</u>	<u>\$ 26,160</u>	<u>\$ 147,904</u>

The total recognized tax benefit related to the stock-based compensation expense for the years ended December 31, 2022, 2021 and 2020 was \$3,324, \$14,683 and \$19,853, respectively. The tax benefit from stock options exercised during the years ended December 31, 2022, 2021, and 2020 was \$2,710, \$14,159, and \$18,220, respectively.

14. RELATED PARTIES

In connection with the termination of the Company's S-corporation status and establishment of the New Capital Structure, the Company entered into the Third Amended and Restated Stockholders' Agreement (the "Stockholders' Agreement") with the Class B common shareholders. The Stockholders' Agreement entitles these individuals to require the Company to register shares held by them for sale (the "Selling Shareholder Registrations"). The Stockholders' Agreement requires the Company to pay the expenses relating to Selling Shareholder Registrations and to indemnify the parties participating in these offerings against liabilities that may arise from the offering process. For the year ended December 31, 2022, the Company incurred \$688 in offering costs related to the sale of shares associated with the Selling Shareholder Registration.

15. COMMITMENTS AND CONTINGENCIES

In January 2022, the Company filed a complaint against a competitor alleging claims of unfair competition, intentional interference with contractual relations, and trade secret misappropriation. The outcome of the case is subject to a number of uncertainties, therefore the Company has not recognized any potential impact to the consolidated financial statements.

The Company may become involved in various lawsuits and legal proceedings, which arise, in the ordinary course of business. However, litigation is subject to inherent uncertainties, and an adverse result in these or other matters may arise from time to time that may harm the Company's business. The Company is not aware of any such legal proceedings or claims that management believes will have a material adverse effect on its business, financial condition, or operating results.

16. INCOME TAXES

Before revocation of the S Election on July 27, 2020, the Company had historically been taxed as an S-Corporation for U.S. federal and most state income tax purposes. This resulted in income not being subject to U.S. federal income taxes or state income taxes in those states where the S-Corporation status was recognized. Therefore, before July 27, 2020, no provision or liability for federal or state income tax had been provided in the consolidated financial statements except for those states where the S-Corporation status was not recognized or that imposed a tax on S-Corporations. The provision for income tax in the historical periods prior to the Offering consisted of these state taxes and taxes from certain foreign jurisdictions where the Company was subject to tax.

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The revocation of the S Election was treated as a change in tax status resulting in the recording of the deferred tax effects of such change to income from continuing operations on the date of such revocation. The termination of the S Election had a material impact on the Company's 2020 results of operations and financial condition. As such, the Company's income tax provision for periods subsequent to the C-Corporation conversion will not be comparable to periods prior to such conversion.

For U.S. corporate income tax purposes, the Company apportioned its 2020 results between the S-Corporation and C-Corporation periods. This allocation effectively resulted in a blended income tax rate for the 2020 year, as only the C-Corporation net losses were subject to both U.S. federal and state corporate income tax, while the S-Corporation earnings were only subject to tax in those states that tax S-Corporations or do not recognize S-Corporation status.

The components of net income (loss) before income taxes, by geography, are as follows:

	For the Year Ended December 31,		
	2022	2021	2020
U.S.	\$ 5,827	\$ 5,608	\$ (107,959)
Foreign	(15,957)	(9,534)	90
Net loss before income taxes	<u>\$ (10,130)</u>	<u>\$ (3,926)</u>	<u>\$ (107,869)</u>

Income tax expense (benefit) consists of the following:

	For the Year Ended December 31,		
	2022	2021	2020
Current income taxes:			
Federal	\$ 1,696	\$ —	\$ —
State and local	1,068	155	617
Foreign	577	468	94
Total current	<u>3,341</u>	<u>623</u>	<u>711</u>
Deferred income taxes:			
Federal	904	(1,849)	(27,076)
State and local	72	(7)	(6,491)
Foreign	(2,143)	(1,214)	68
Total deferred	<u>(1,167)</u>	<u>(3,070)</u>	<u>(33,499)</u>
Income tax expense (benefit)	<u>\$ 2,174</u>	<u>\$ (2,447)</u>	<u>\$ (32,788)</u>

During the year ended December 31, 2022, the Company recognized a \$12 income tax benefit in accumulated other comprehensive loss relating to unrealized gains (losses) from foreign currency translation adjustments, revaluations, and available-for-sale securities. During the year ended December 31, 2021, the Company recognized a \$89 income tax expense in accumulated other comprehensive loss relating to unrealized gains from foreign currency translation adjustments and revaluations.

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The reconciliation of the effective tax rate to tax at the statutory rates for the years ended December 31 is as follows:

	2022		2021		2020	
	Total	Tax Rate	Total	Tax Rate	Total	Tax Rate
Pretax net loss	\$ (10,130)		\$ (3,926)		\$ (107,869)	
Taxes:						
U.S. federal income tax at statutory rate	\$ (2,128)	21.0 %	\$ (825)	21.0 %	\$ (22,652)	21.0 %
State income taxes	441	(4.4)%	678	(17.3)%	(1,811)	1.7 %
Tax effect of S-Corporation status	—	— %	—	— %	21,325	(19.8)%
Impact of change in tax status	—	— %	—	— %	(25,396)	23.5 %
Stock-based compensation expense	1,787	(17.6)%	(4,550)	115.9 %	(5,809)	5.4 %
Impact of foreign operations	1,352	(13.3)%	954	(24.3)%	(56)	0.1 %
Transaction costs	176	(1.7)%	1,082	(27.6)%	—	— %
U.S. taxation of foreign earnings	(179)	1.8 %	144	(3.7)%	81	(0.1)%
Nondeductible compensation	485	(4.8)%	682	(17.4)%	883	(0.8)%
Tax credits	(341)	3.4 %	(488)	12.4 %	(44)	0.0 %
Change in valuation allowance	427	(4.2)%	373	(9.5)%	109	(0.1)%
Other permanent items, net	154	(1.7)%	(497)	12.8 %	582	(0.5)%
Taxes and effective tax rate	\$ 2,174	(21.5)%	\$ (2,447)	62.3 %	\$ (32,788)	30.4 %

The effective tax rate in 2022 decreased to (21.5)% from 62.3% in 2021. The income tax expense in 2022 was primarily driven by a net shortfall in tax benefits on exercises and vestings of stock awards and limitations on deductions of certain employees' compensation under Internal Revenue Code Section 162(m) ("IRC 162(m)"), partially offset by the favorable impact of tax credits and foreign tax benefits from the deduction for foreign-derived intangible income.

The effective tax rate in 2021 increased to 62.3% from 30.4% in 2020. The income tax benefit in 2021 was primarily driven by exercises and vestings of stock awards partially offset by the unfavorable impact of limitations on deductions of certain employees' compensation under IRC 162(m), and acquisition costs.

The impact of foreign operations in 2022 and 2021 primarily reflects losses in Ireland taxed at 12.5%, as well as income or losses taxed at rates in other foreign jurisdictions, as opposed to the statutory U.S. federal income tax rate. The impact of foreign operations were not significant in 2020.

Vertex, Inc. and Subsidiaries
Notes to Consolidated Financial Statements (continued)
(Amounts in thousands, except per share data)

Significant components of the Company's net deferred tax assets (liabilities) are as follows:

	<u>As of December 31,</u>	
	<u>2022</u>	<u>2021</u>
Deferred tax assets:		
Deferred revenue	\$ 2,981	\$ 3,788
State operating loss carry forwards	2,831	3,894
Federal and foreign loss carry forwards	11,318	21,617
Accrued expenses	2,450	2,023
Accrued variable compensation	—	3,110
Deferred and stock-based compensation	23,634	24,971
Operating lease liabilities	6,272	7,204
Tax credits	—	532
Other	—	53
Deferred tax assets	<u>49,486</u>	<u>67,192</u>
Valuation allowance	<u>(2,285)</u>	<u>(1,839)</u>
Total deferred tax assets	<u>47,201</u>	<u>65,353</u>
Deferred tax liabilities:		
Depreciation and amortization	(9,337)	(26,269)
Prepaid expenses	(1,256)	(1,329)
Right of use asset	(4,325)	(5,120)
Accrued variable compensation	(1,646)	—
Other	(115)	—
Total deferred tax liabilities	<u>(16,679)</u>	<u>(32,718)</u>
Net deferred tax asset	<u>\$ 30,522</u>	<u>\$ 32,635</u>
Classification in the consolidated balance sheets:		
Deferred income tax asset	\$ 30,938	\$ 35,298
Deferred other liabilities	(416)	(2,663)
Net deferred tax asset	<u>\$ 30,522</u>	<u>\$ 32,635</u>

At December 31, 2022, the Company has available U.S. federal operating loss carry forwards of \$38,723 and U.S. state operating loss carry forwards of \$45,742. The federal operating loss will carryforward indefinitely, and the state operating losses will expire at varying dates beginning in 2023 through 2042 or will carryforward indefinitely. Management expects to fully use these U.S. federal and state operating loss carry forwards.

At December 31, 2022, the Company has available foreign operating losses of approximately \$4,110 and trading losses of \$14,726, which generally carry forward indefinitely. A valuation allowance for a portion of the foreign operating and non-operating losses is recorded at December 31, 2022 and 2021.

At December 31, 2022 and 2021, the Company has a valuation allowance of (\$2,285) and (\$1,839), respectively, primarily against certain net deferred tax assets, including losses, in foreign jurisdictions. The net increase in the total valuation allowance of (\$446) during December 31, 2022 primarily related to recording additional valuation allowance on net deferred tax assets in foreign jurisdictions that, in the judgment of management, are not more likely than not to be realized, partially offset by the release of a valuation allowance on the net deferred tax asset in a foreign jurisdiction which management believes is more likely than not to be realized, as well as changes in foreign exchange rates.

The Company does not assert any earnings to be permanently reinvested with respect to the undistributed earnings of its foreign subsidiaries.

The Company files tax returns as prescribed by the tax laws of the jurisdictions in which the Company operates. Under applicable U.S. federal statutes, tax years ended December 31, 2019 through December 31, 2022 remain subject to

Vertex, Inc. and Subsidiaries
Notes to Consolidated Financial Statements (continued)
(Amounts in thousands, except per share data)

examination. Under applicable statutes, state and foreign corporate tax returns filed for the Company and its respective foreign subsidiaries for years ended December 31, 2017 through December 31, 2022 remain subject to examination by the respective authorities.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement No. 333-266168 on Form S-3 and Registration Nos. 333-263726 and 333-240143 on Form S-8 of Vertex, Inc. of our report dated March 10, 2023 relating to the consolidated financial statements, appearing in this Annual Report on Form 10-K.

/s/ Crowe LLP
Crowe LLP

New York, New York
March 10, 2023

CERTIFICATION

I, David DeStefano, certify that:

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

Date: March 10, 2023

By: /s/ David DeStefano
David DeStefano
Chief Executive Officer
(principal executive officer)

CERTIFICATION

I, John Schwab, certify that:

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

Date: March 10, 2023

By: /s/ John Schwab
John Schwab
Chief Financial Officer
(principal financial officer)

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report on Form 10-K of Vertex, Inc. (the “Company”) for the period ended December 31, 2022 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 10, 2023

By: /s/ David DeStefano
David DeStefano
Chief Executive Officer
(*principal executive officer*)

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report on Form 10-K of Vertex, Inc. (the "Company") for the period ended December 31, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 10, 2023

By: /s/ John Schwab
John Schwab
Chief Financial Officer
(*principal financial officer*)
