

**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, 2023

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission File Number: 001-39413

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

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

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

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

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates of Vertex, Inc. as of June 30, 2023 totaled approximately \$835,566,225. Such value excludes common stock held by executive officers, directors and 10% or greater stockholders as of June 30, 2023. The identification of 10% or greater stockholders as of June 30, 2023 is based on Schedule 13G and amended Schedule 13G reports publicly filed before June 30, 2023. This calculation does not reflect a determination that such parties are affiliates for any other purposes.

As of February 26, 2024, the registrant had 61,673,585 shares of Class A common stock, \$0.001 par value per share, and 92,661,000 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 2024 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, 2023.

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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 19,000 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 4,300 customers, including the majority of the Fortune 500, and provide our customers with tax support in over 190 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 900 million data-driven effective tax rules and supports indirect tax compliance in more than 20,000 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, Shopify, 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 900 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, 2023, we had 4,310 customers and our Annual Recurring Revenue (“ARR”) per customer was \$118,910. 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, 2023, 2022 or 2021.

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, Shopify, 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;

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- 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. Vertex has received recognition as one of *Built In’s* 2024 Remote Best Large Places to Work. Vertex has previously been recognized for eight consecutive years as a Top Workplace by 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, 2023, we had over 1,500 full-time employees. Of these employees, 88% were based in the U.S., 10% based in Europe and 2% in other countries. 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

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our Current Reports on Form 8-K and any amendments to those forms) through the “Investors” portion of our website (<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.

We may face challenges in using and properly managing use of Artificial Intelligence ("AI") in our business, which could result in reputational or competitive harm, and legal liability, and could adversely and materially affect the results of our business, operations, financial condition, and cash flows.

We may incorporate AI solutions into our platform, offerings, and/or services, and these solutions may grow over time and become significant in our operations. If the content, analyses, or recommendations that AI applications assist in producing are or are alleged to be deficient, inaccurate, or biased, our business, operations, or financial condition may be adversely and materially affected. The use of AI applications have resulted in cybersecurity incidents that implicate the personal data of end users of such applications. Any such cybersecurity incidents related to our use of AI applications could adversely affect our reputation and operations. AI also presents emerging ethical issues and if our use of AI becomes controversial, we may experience brand or reputational harm, competitive harm, or legal liability.

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, and technologies, 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 flows.

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. There can be no assurance that our cybersecurity risk management program and processes, including our policies, controls, or procedures, will be fully implemented, complied with or effective in protecting our systems and information.

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 recently implemented a new ERP system, which included multiple business areas across the organization. Any issues, problems, and errors from 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 of our new or updated controls governing the new ERP system, or difficulties encountered from its implementation, or subsequent operation, could harm our results of operations or cause us to fail to meet our reporting obligations.

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. There is no guarantee that we will be able to offset inflationary pressure through price increases, and a sustained 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 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 our 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 accounting and 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.

If we identify any 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 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.

We are no longer an "emerging growth company," and we are no longer able to take advantage of the reduced disclosure requirements applicable to "emerging growth companies," which may increase our costs.

We no longer qualify as an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012. As a result, we are now subject to various disclosure and compliance requirements that did not previously apply to us, such as:

- the requirement that our independent registered public accounting firm attest to the effectiveness of our internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act;
- the requirement that we adopt new or revised accounting standards when they are applicable to public companies, instead of delaying their adoption until they are applicable to private companies;
- compliance with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding obligatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and financial statements;
- the requirement that we provide full and more detailed disclosures regarding executive compensation; and
- the requirement that we hold a non-binding advisory vote on executive compensation and obtain stockholder approval of any golden parachute payments not previously approved.

We expect that the loss of emerging growth company status and compliance with these additional requirements will increase our legal and financial compliance costs and cause management and other personnel to divert attention from

operational and other business matters to devote substantial time to public company reporting requirements. In addition, if we are not able to comply with changing disclosure or compliance requirements in a timely manner, the trading price of our Class A common stock could decline and we could be subject to sanctions or investigations by NASDAQ, the SEC, or other regulatory authorities, which would require additional financial and management resources.

Item 1B. Unresolved Staff Comments

Not applicable.

Item 1C. Cybersecurity Disclosures

Cybersecurity Risk Management and Strategy

Our cybersecurity risk management initiative is a cornerstone of our information security program, which includes a cross-functional management team with representatives from Legal, Enterprise Risk Management, Information Security, Information Technology, and Engineering. The cybersecurity risk management work is directed by the Enterprise Risk Management Team in collaboration with the Information Security Team and is intended to protect the confidentiality, integrity, and availability of our critical systems and information. Our information security program includes a cybersecurity incident response plan and playbook.

We have designed and assessed our program based on the National Institute of Standards and Technology Cybersecurity Framework (“NIST CSF”). This does not imply that we meet any particular technical standards, specifications, or requirements, only that we use the NIST CSF as a guide to help us identify, assess, and manage cybersecurity risks relevant to our business.

Our cybersecurity risk management initiative is integrated into our overall enterprise risk management program, and shares common methodologies, reporting channels and governance processes that apply across the enterprise risk management program to other legal, compliance, strategic, operational, and financial risk areas.

Our cybersecurity risk management initiative includes:

- risk assessments designed to help identify material cybersecurity risks to our critical systems, information, products, services, and our broader enterprise IT environment;
- a risk management team responsible for managing our cybersecurity risk assessment processes and acts as a check and balance on our information security team which is responsible for maintaining, monitoring, and updating our security controls as well as managing our response to cybersecurity incidents;
- the use of external service providers, where appropriate, to assess, test or otherwise assist with aspects of our security controls;
- cybersecurity awareness training of our employees, incident response personnel, and senior management;
- a cybersecurity incident response plan and playbook that includes procedures for responding to cybersecurity incidents; and
- a third-party risk management process for service providers, suppliers, and vendors.

We have not identified risks from known cybersecurity threats, including as a result of any prior cybersecurity incidents, that have materially affected us, including our operations, business strategy, results of operations, or financial condition. We face risks from cybersecurity threats that, if realized, are reasonably likely to materially affect us, including our operations, business strategy, results of operations, or financial condition. See Item 1A. “Risk Factors – 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.”

Cybersecurity Governance

Our Board of Directors (the “Board”) considers cybersecurity risk as part of its risk oversight function and has delegated to the Audit Committee (the “Committee”) oversight of cybersecurity and other information technology risks. The Committee oversees management’s implementation of our cybersecurity risk management program.

The Committee receives quarterly reports from management on our cybersecurity risks. In addition, management updates the Committee, as necessary, regarding any cybersecurity incidents.

The Committee reports to the full Board regarding its activities, including those related to cybersecurity. The full Board also receives briefings from management on our cybersecurity risk management program. Board members receive presentations on cybersecurity topics from our general counsel, internal security staff, or external experts as part of the Board’s continuing education on topics that impact public companies.

Our general counsel, with oversight by the Vertex Executive Leadership Team, is responsible for assessing and managing our material risks from cybersecurity threats. This team of attorneys and certified risk and information security professionals, has primary responsibility for our overall cybersecurity risk management program and supervises both our internal cybersecurity personnel and our retained external cybersecurity consultants. Our general counsel’s experience includes over twenty years of legal, information security, compliance, and risk experience and positions of leadership in global organizations supervising information security, compliance, and risk professionals and programs.

Our management team supervises efforts to prevent, detect, mitigate, and remediate cybersecurity risks and incidents through various means, which may include briefings from internal security personnel; threat intelligence and other information obtained from governmental, public or private sources, including external consultants engaged by us; and alerts and reports produced by security tools deployed in the IT environment.

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; 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 interference with our contractual relations and to prohibit the disclosure in any way of our confidential, proprietary, and/or trade secret information. We are also seeking monetary damages, including punitive damages and attorney’s fees. Avalara has filed a motion to dismiss for lack of personal jurisdiction. As of December 31, 2023, the matter remains before the Court as the parties pursue jurisdictional discovery, after which, further briefs will be filed. We believe 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, 2023, we had 6 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.

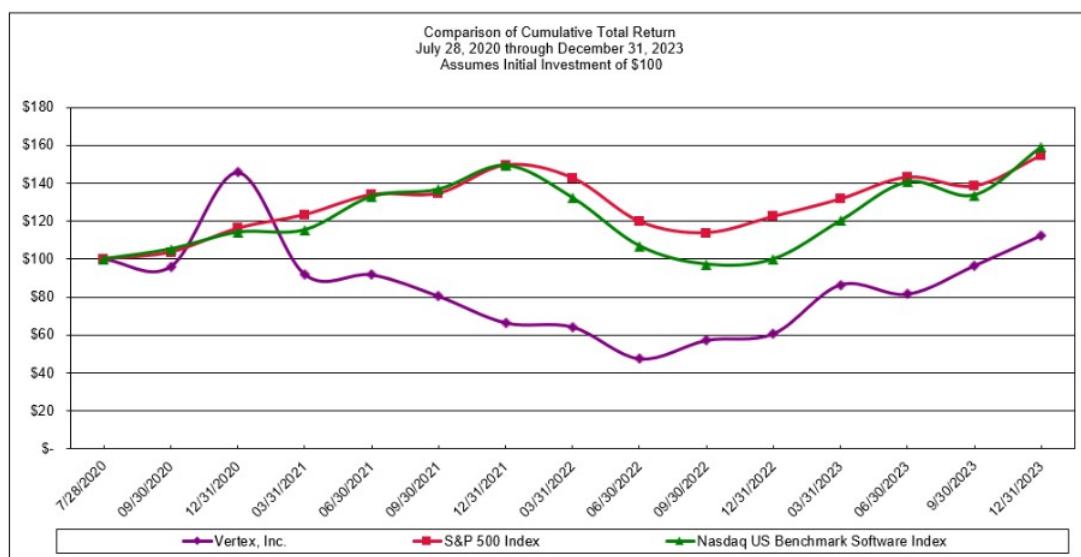
As of December 31, 2023, there were 22 stockholders of record of our Class B common stock.

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, 2023, 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	12/31/22	3/31/23	6/30/23	9/30/23	12/31/23
Vertex, Inc.		\$ 100.00	\$ 96.11	\$ 145.63	\$ 91.85	\$ 91.68	\$ 80.32	\$ 66.32	\$ 64.10	\$ 47.34	\$ 57.12	\$ 60.63	\$ 86.45	\$ 81.47	\$ 96.51	\$ 112.55
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	\$ 131.56	\$ 143.07	\$ 138.38	\$ 154.56
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	\$ 120.21	\$ 140.52	\$ 133.68	\$ 159.09

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 2023 and 2022 items and year-to-year comparisons between 2023 and 2022. Discussions of 2021 items and year-to-year comparisons between 2022 and 2021 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, 2022.

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 1,500 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 45% and 41% of software subscription revenues from cloud-based subscriptions in 2023 and 2022, respectively. While our on-premise software subscription revenues comprised 55% and 59% of our software subscription revenues for 2023 and 2022, 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, Shopify, 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 \$572.4 million and \$491.6 million in 2023 and 2022, respectively. We had a net loss of (\$13.1) million and (\$12.3) million in 2023 and 2022, 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 (including adjustments to the settlement value of deferred purchase commitment liabilities), taxes, depreciation, and amortization, as adjusted to exclude charges for asset impairments, stock-based compensation expense, amortization of cloud computing arrangement implementation costs, severance expense, acquisition contingent consideration, changes in the settlement value of deferred purchase commitment liabilities recorded as interest expense, litigation settlements, and transaction costs. Adjusted EBITDA was \$100.8 million and \$78.7 million in 2023 and 2022, 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 113% and 110% in 2023 and 2022, respectively. We believe our gross revenue retention rate (“GRR”) provides insight into and demonstrates to investors our ability to retain revenues from our existing customers. Our GRR was 95% and 96% in 2023 and 2022, respectively. Refer to “Management’s Discussion and Analysis of Financial Condition and Results of Operations— Key Business Metrics— Net Revenue Retention Rate and Gross Revenue Retention Rate” and 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 to continue

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 faster rate than sales of on-premise solutions, which is a trend that we expect to continue over time. We generated 45% and 41% of software subscription revenues from cloud-based subscriptions in 2023 and 2022, 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

On December 13, 2023, we announced that we had commenced a public tender offer to acquire a global provider of e-invoicing solutions. On January 14, 2024, we withdrew our public tender offer following competing offers. As a result, we incurred approximately \$4.9 million in transaction costs during 2023, related to legal and financial due diligence. More information is provided in Note 3 to our consolidated financial statements, beginning on page F-1 of this Annual Report on Form 10-K.

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 of approximately 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.

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, amortization of cloud computing arrangement implementation costs related to our ERP modernization initiative, and other internal support and infrastructure 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 being 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 in compliance with Section 404(b) of the Sarbanes-Oxley Act of 2002.

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 tools. Depreciation and amortization will fluctuate in correlation with our ongoing investment in internal infrastructure costs to support our growth.

Other Operating Expense (Income), net

Other operating expense (income), 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 Corporation (“LCR-Dixon”) acquisition were recorded as interest expense.

Interest income reflects earnings on investments of our cash on hand and our investment securities. 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.

Income Tax Expense (Benefit)

Income tax expense (benefit) consists primarily of federal, foreign, state, and local taxes on our loss or income. In determining our annualized effective income tax rates, net deferred tax assets, valuation allowances, and cash paid for income taxes, we are required to make judgments and estimates about domestic and foreign profitability, the timing and usage of net operating loss carryforwards, applicable tax rates, and transfer pricing methodologies. Judgments and estimates related to our projections and assumptions are inherently uncertain; therefore, actual results could materially differ from our projections.

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	
	2023	2022		
Revenues:				
Software subscriptions	\$ 480,830	\$ 415,473	\$ 65,357	15.7 %
Services	91,557	76,151	15,406	20.2 %
Total revenues	572,387	491,624	80,763	16.4 %
Cost of revenues:				
Software subscriptions ⁽¹⁾	162,920	142,071	20,849	14.7 %
Services ⁽¹⁾	60,888	51,061	9,827	19.2 %
Total cost of revenues	223,808	193,132	30,676	15.9 %
Gross profit	348,579	298,492	50,087	16.8 %
Operating expenses:				
Research and development ⁽¹⁾	58,212	41,877	16,335	39.0 %
Selling and marketing ⁽¹⁾	140,237	125,335	14,902	11.9 %
General and administrative ⁽¹⁾	145,936	121,651	24,285	20.0 %
Depreciation and amortization	15,202	12,440	2,762	22.2 %
Other operating expense, net	6,502	5,271	1,231	23.4 %
Total operating expenses	366,089	306,574	59,515	19.4 %
Loss from operations	(17,510)	(8,082)	(9,428)	116.7 %
Interest expense, net	4,164	2,048	2,116	103.3 %
Loss before income taxes	(21,674)	(10,130)	(11,544)	114.0 %
Income tax expense (benefit)	(8,581)	2,174	(10,755)	(494.7)%
Net loss	(13,093)	(12,304)	(789)	6.4 %
Other comprehensive (income) loss:				
Foreign currency translation adjustments and revaluations, net of tax	(5,978)	10,219	(16,197)	(158.5)%
Unrealized (gain) loss on investments, net of tax	(32)	36	(68)	100.0 %
Total other comprehensive (income) loss, net of tax	(6,010)	10,255	(16,265)	(158.6)%
Total comprehensive loss	\$ (7,083)	\$ (22,559)	\$ 15,476	(68.6)%

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

(Dollars in thousands)	For the year ended December 31,	
	2023	2022
Stock-based compensation expense:		
Cost of revenues, software subscriptions	\$ 2,834	\$ 2,090
Cost of revenues, services	1,846	1,433
Research and development	5,994	1,798
Selling and marketing	8,380	6,284
General and administrative	14,865	8,124
Total stock-based compensation expense	<u>\$ 33,919</u>	<u>\$ 19,729</u>

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,	
	2023	2022
Revenues:		
Software subscriptions	84.0 %	84.5 %
Services	16.0 %	15.5 %
Total revenues	<u>100.0 %</u>	<u>100.0 %</u>
Cost of revenues:		
Software subscriptions	28.5 %	28.9 %
Services	10.6 %	10.4 %
Total cost of revenues	<u>39.1 %</u>	<u>39.3 %</u>
Gross profit	<u>60.9 %</u>	<u>60.7 %</u>
Operating expenses:		
Research and development	10.2 %	8.5 %
Selling and marketing	24.5 %	25.5 %
General and administrative	25.5 %	24.7 %
Depreciation and amortization	2.7 %	2.5 %
Other operating expense, net	1.1 %	1.1 %
Total operating expenses	<u>64.0 %</u>	<u>62.3 %</u>
Loss from operations	<u>(3.1)%</u>	<u>(1.6)%</u>
Interest expense, net	0.7 %	0.4 %
Loss before income taxes	<u>(3.8)%</u>	<u>(2.0)%</u>
Income tax expense (benefit)	(1.5)%	0.4 %
Net loss	<u>(2.3)%</u>	<u>(2.4)%</u>
Other comprehensive (income) loss:		
Foreign currency translation adjustments and revaluations, net of tax	(1.0)%	2.1 %
Unrealized (gain) loss on investments, net of tax	— %	— %
Total other comprehensive (income) loss, net of tax	<u>(1.0)%</u>	<u>2.1 %</u>
Total comprehensive loss	<u>(1.3)%</u>	<u>(4.5)%</u>

Year Ended December 31, 2023 Compared to Year Ended December 31, 2022

Revenues

(Dollars in thousands)	For the year ended		Year-Over-Year Change
	December 31,		
Revenues:	2023	2022	
Software subscriptions	\$ 480,830	\$ 415,473	\$ 65,357 15.7 %
Services	91,557	76,151	15,406 20.2 %
Total revenues	<u>\$ 572,387</u>	<u>\$ 491,624</u>	<u>\$ 80,763 16.4 %</u>

Revenues increased \$80.8 million, or 16.4%, to \$572.4 million in 2023 compared to \$491.6 million in 2022. The increase in software subscriptions revenues of \$65.4 million, or 15.7%, was primarily driven by an increase of \$35.5 million, primarily from cross selling new products to existing customers, and to a lesser extent, increases from expanded use of our products and services, and price increases. Software subscriptions revenues derived from new customers averaged 6.2% and 8.0% of total software subscriptions revenues in 2023 and 2022, respectively.

The \$15.4 million increase in services revenues was primarily driven by an increase of \$11.3 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 services offering experienced a \$4.1 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	
	2023	2022		
Cost of software subscriptions revenues	\$ 162,920	\$ 142,071	\$ 20,849	14.7 %

Cost of software subscriptions revenues increased \$20.8 million, or 14.7%, to \$162.9 million in 2023 compared to \$142.1 million in 2022. This increase was primarily driven by a \$12.1 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 \$9.1 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. Lastly, stock-based compensation increased by \$0.7 million for the twelve months ended December 31, 2023 over the same period in 2022.

As a percentage of software subscriptions revenues, the cost of software subscriptions revenues decreased to 33.9% in 2023 compared to 34.2% in 2022. After excluding stock-based compensation expense, as a percentage of software subscriptions revenues, cost of software subscriptions revenues decreased to 33.3% in 2023 compared to 33.7% in 2022.

Cost of Services Revenues

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2023	2022		
Cost of services revenues	\$ 60,888	\$ 51,061	\$ 9,827	19.2 %

Cost of services revenues increased \$9.8 million, or 19.2%, to \$60.9 million in 2023 compared to \$51.1 million in 2022. This increase was primarily driven by a \$9.4 million increase in costs of service delivery personnel to support revenue growth in software-subscription related services and our managed services offering. In addition, this amount includes an increase in stock-based compensation of \$0.4 million for the twelve months ended December 31, 2023 over the same period in 2022.

As a percentage of services revenues, cost of services revenues decreased to 66.5% in 2023 compared to 67.1% for the same period in 2022. After excluding stock-based compensation expense, as a percentage of services revenues, cost of services revenues decreased to 64.5% in 2023 compared to 65.2% for the same period in 2022.

Research and Development

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2023	2022		
Research and development	\$ 58,212	\$ 41,877	\$ 16,335	39.0 %

Research and development expenses increased \$16.3 million, or 39.0%, to \$58.2 million in 2023 compared to \$41.9 million in 2022. This increase was primarily due to a \$12.1 million increase in personnel costs related to development work 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. In addition, this amount includes an increase in stock-based compensation of \$4.2 million for the twelve months ended December 31, 2023 over the same period in 2022.

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As a percentage of total revenues, research and development expenses increased to 10.2% in 2023 compared to 8.5% in 2022. After excluding stock-based compensation, research and development expenses as a percentage of total revenue increased to 9.1% in 2023 compared to 8.2% in 2022.

Selling and Marketing

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2023	2022		
Selling and marketing	\$ 140,237	\$ 125,335	\$ 14,902	11.9 %

Selling and marketing expenses increased \$14.9 million, or 11.9%, to \$140.2 million in 2023 compared to \$125.3 million in 2022, primarily driven by a \$13.5 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 \$0.4 million in advertising and promotional spending related to expanded brand awareness efforts. Lastly, there was an increase in stock-based compensation of \$2.1 million. The increase in the period was partially offset by a decrease of \$1.1 million associated with the amortization of acquired intangible assets associated with prior acquisitions for the twelve months ended December 31, 2023 compared to the same period in 2022.

As a percentage of total revenues, selling and marketing expenses decreased to 24.5% in 2023 compared to 25.5% for the same period in 2022. After excluding stock-based compensation expense, as a percentage of total revenues, selling and marketing expenses decreased to 23.0% in 2023 compared to 24.2% in 2022.

General and Administrative

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2023	2022		
General and administrative	\$ 145,936	\$ 121,651	\$ 24,285	20.0 %

General and administrative expenses increased \$24.3 million, or 20.0%, to \$145.9 million in 2023 compared to \$121.7 million in 2022, primarily driven by an increase of \$15.0 million associated with planned strategic investments in information technology infrastructure, business process re-engineering, and other initiatives to drive future operating leverage. This increase also reflects investments in employees, systems, and other resources in support of our growth, and public company reporting and compliance activities. Additionally, there was an increase of \$2.6 million for the amortization of capitalized cloud computing implementation costs related to our ERP modernization initiative. Lastly, there was an increase in stock-based compensation of \$6.7 million for the year ended December 31, 2023 over the same period in 2022.

As a percentage of total revenues, general and administrative expenses increased to 25.5% in 2023 compared to 24.7% in 2022. After excluding stock-based compensation expense, as a percentage of total revenues general and administrative expenses decreased to 22.9% in 2023 compared to 23.1% in 2022.

Depreciation and Amortization

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change	
	2023	2022		
Depreciation and amortization	\$ 15,202	\$ 12,440	\$ 2,762	22.2 %

Depreciation and amortization increased \$2.8 million, or 22.2%, to \$15.2 million in 2023 compared to \$12.4 million in 2022. 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 2023 and 2022. As a percentage of revenues, depreciation expense increased slightly to 2.7% in 2023 compared to 2.5% for the same period in 2022.

Other Operating Expense, Net

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change
	2023	2022	
Other operating expense, net	\$ 6,502	\$ 5,271	\$ 1,231 23.4 %

Other operating expense, net, increased \$1.2 million, or 23.4%, to \$6.5 million of expense in 2023 compared to \$5.3 million in 2022. Other operating expense, net for the year ended December 31, 2023, was primarily comprised of \$4.9 million related to costs associated with our public tender offer, which occurred on December 13, 2023, and was later withdrawn on January 14, 2024 (see Note 3 to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K), as well as a \$1.5 million increase in the contingent consideration liability associated with our 2021 acquisition of Tellutax, LLC (“Tellutax”), and \$0.1 million in foreign currency losses. 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 contingent consideration liability, and \$0.7 million in offering costs related to the sale of shares of certain of our Class B common stock shareholders.

As a percentage of total revenues, other operating expense, net was 1.1% for 2023, which was unchanged compared to the same period in 2022.

Interest Expense, Net

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year Change
	2023	2022	
Interest expense, net	\$ 4,164	\$ 2,048	\$ 2,116 103.3 %

Interest expense, net increased \$2.1 million, or 103.3%, to \$4.2 million in 2023 compared to \$2.0 million in 2022. This change was attributable to increases in interest expense primarily associated with: (i) an increase in interest expense of \$3.2 million that reflects a year-over-over increase to the settlement value of our deferred purchase commitment liability associated with our acquisition of Systax, which is treated as a financing cost; and (ii) a year-over-year increase in note payable interest expense of \$1.3 million primarily due to increased borrowing costs from rising interest rates under our credit agreement. Offsetting these expense increases were: (i) a one-time \$0.4 million expense recognized in 2022 from the write off of deferred financing costs related to debt refinancing in 2022; and (ii) an increase in interest and dividend income of \$2.0 million, primarily due to higher yields on our investments in 2023 as compared to 2022.

Income Tax Expense (Benefit)

(Dollars in thousands)	For the year ended December 31,		Year-Over-Year change
	2023	2022	
Income tax expense (benefit)	\$ (8,581)	\$ 2,174	\$ (10,755) (494.7)%

Income tax benefit was \$8.6 million in 2023 as compared to \$2.2 million income tax expense in 2022. The decrease in tax expense was primarily driven by changes in tax benefits on exercises and vestings of stock awards, tax credits, valuation allowances on net deferred tax assets established for certain foreign jurisdictions, loss before income taxes, and 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, or customer usage tier true-ups, 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 our current and past investments related to the expansion of our brand awareness and product innovation. We have also invested in acquisitions and product innovation to expand our product portfolio. We anticipate our operating expenses will increase in future periods as we invest to support the ongoing expansion of our business.

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

Liquidity and Capital Resources

As of December 31, 2023, we had unrestricted cash and cash equivalents of \$68.2 million and an accumulated deficit of \$0.6 million. In addition, we had \$9.5 million in investment securities with a maturity date exceeding three months as of December 31, 2023 which are not included in unrestricted cash and cash equivalents. Our primary sources of capital include sales of our solutions, proceeds from bank lending facilities, and the offering of existing or future classes of stock.

Historical Cash Flows

Years Ended December 31, 2023 and 2022

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	
	2023	2022		
Net cash provided by operating activities	\$ 74,332	\$ 63,848 (A)	\$ 10,484	16.4 %
Net cash used in investing activities	(66,171)	(72,048) (A)	5,877	8.2 %
Net cash (used in) provided by financing activities	(26,482)	17,094	(43,576)	(254.9)%
Effect of foreign exchange rate changes	724	(352)	1,076	305.7 %
Net increase (decrease) in cash, cash equivalents and restricted cash	\$ (17,597)	\$ 8,542	\$ (26,139)	

(A) Cash provided by operating activities and property and equipment additions included in net cash used in investing activities, for the year ended December 31, 2022 reflect immaterial error corrections of \$12,998, related to the reclassification of capitalized cloud computing implementation costs from property and equipment additions to prepaid expenses and other current assets and other changes in operating assets and liabilities. For more information see Note 1 to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K.

Operating Activities. Net cash provided by operating activities was \$74.3 million in 2023 compared to \$63.8 million in 2022, an increase of \$10.5 million. This was driven by an increase in cash generated from operations pertaining to net loss adjusted for non-cash charges aggregating \$18.9 million, primarily driven by year-over-year increases in depreciation and amortization, and stock-based compensation. These increases were partially offset by a \$8.4 million decrease in net cash from changes in operating assets and liabilities, due to changes in investments and timing of cash receipts and disbursements.

Investing Activities. Net cash used in investing activities was \$66.2 million in 2023 compared to \$72.0 million in 2022, a decrease in use of funds for investing activities of \$5.9 million. The decrease in use of funds was primarily driven by increased proceeds from maturities of investment securities of \$13.0 million. This was partially offset by a year-over-year increase in investments in commercial solutions supporting our customers and infrastructure investments to drive operating leverage.

Financing Activities. Net cash used by financing activities was \$26.5 million in 2023 compared to net cash provided by financing activities of \$17.1 million in 2022, an increase in cash used in financing activities of \$43.6 million. The increase in cash used in financing activities was primarily driven by cash received in 2022 in connection with borrowings under our term loan of \$50.0 million associated with the credit agreement, as well as an \$8.6 million increase in payments for taxes in connection with the exercise and/or vesting of stock-based awards. These items were partially offset by an increase in customer funds obligations of \$17.0 million in 2023 primarily due to timing differences between receipt of funds from customers and taxing jurisdiction withdrawals of these funds.

Sources of Credit

As of December 31, 2023, we had a \$200.0 million line of credit (the “Line of Credit”) and a \$50.0 million term loan (the “Term Loan”) in connection with the third amendment to the credit agreement.

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 6.46% at December 31, 2023 as we selected the Secured Overnight Financing Rate (“SOFR”) option (the “SOFR Option”). Outstanding borrowings under the Term Loan were \$46.9 million at December 31, 2023.

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, 2023, the base rate option and the SOFR Option applicable to the Line of Credit were 8.50% and 6.48%, respectively. There were no outstanding borrowings under the Line of Credit at December 31, 2023.

Outstanding borrowings under the credit agreement are collateralized by nearly all of the assets of the Company and contain financial and operating covenants. The Company was in compliance with these covenants at December 31, 2023. The credit agreement also limits the declaration or payment of certain dividends, not to exceed an aggregate of \$2.0 million.

For more information on our indebtedness refer to 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 for the next 12 months as well as our longer-term liquidity needs.

Also, we expect to have access to additional sources of funds in the capital markets, and we may, from time to time, seek additional capital through a combination of additional debt and/or equity financings. If we were to raise additional funds by issuing equity securities, our stockholders may 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, 2023 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	\$ 46,875	\$ 2,500	\$ 44,375	\$ —	\$ —
Financing lease liabilities	131	75	56	—	—
Operating lease liabilities	21,416	4,228	9,058	8,130	—
Purchase commitment liability ⁽¹⁾ ⁽²⁾	14,501	11,901	2,600	—	—
Purchase obligations	29,241	10,450	12,020	6,771	—
Total	\$ 112,164	\$ 29,154	\$ 68,109	\$ 14,901	\$ —

- (1) The Company has a contractual purchase commitment liability related to the 2020 acquisition of Systax, in which the Company is required to acquire the remaining 20% equity interest in 2024. See Note 4 to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K.
- (2) 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	
	2023	2022		
Annual Recurring Revenue	\$ 512.5	\$ 431.1	\$ 81.4	18.9 %

ARR increased by \$81.4 million or 18.9% in 2023 as compared to 2022. The increase was primarily driven by \$23.7 million of growth in revenues from subscriptions of our tax solutions to new customers, and \$57.7 million of growth in revenues from existing customers through their expanded use of our solutions as well as price increases.

We had 4,310 customers and AARPC was approximately \$118,910 at December 31, 2023. We had 4,289 customers and approximately \$100,500 of AARPC at December 31, 2022. 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

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usage, as well as any revenue expansion from migrations, new licenses for additional products or contractual and usage-based price changes.

	<u>For the year ended December 31,</u>	
	<u>2023</u>	<u>2022</u>
Net Revenue Retention Rate	113 %	110 %

The 300 basis point increase in NRR to 113% at December 31, 2023 from 110% for the same period in 2022 was primarily attributable to an increase in customer cross-sell and additional entitlements.

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.

	<u>As of December 31,</u>	
	<u>2023</u>	<u>2022</u>
Gross Revenue Retention Rate	95 %	96 %

The 100 basis point decline in GRR to 95% at December 31, 2023 from 96% for the same period in 2022 was primarily attributable to an increase in customer attrition due in part to a change in customer’s filing requirements where they no longer required Vertex products. GRR has historically been in the 94-96% range.

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 (including adjustments to the settlement value of deferred purchase commitment liabilities), taxes, depreciation, and amortization, as adjusted to exclude charges for asset impairments, stock-based compensation expense, amortization of cloud computing arrangement implementation costs, severance expense, acquisition contingent consideration, litigation settlements, and transaction costs. Adjusted EBITDA margin represents Adjusted EBITDA divided by total revenues for the same period. For purposes of comparison, our net loss was (\$13.1) million and (\$12.3) million in 2023 and 2022, respectively, while our net loss margin was (2.3)% and (2.5)% 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,	
	2023	2022
Adjusted EBITDA:		
Net loss	\$ (13,093)	\$ (12,304)
Interest expense, net ⁽¹⁾	4,164	2,048
Income tax expense (benefit)	(8,581)	2,174
Depreciation and amortization – property and equipment	15,202	12,440
Depreciation and amortization of capitalized software and acquired intangible assets – cost of subscription revenues	54,048	44,934
Amortization of acquired intangible assets – selling and marketing expense	2,641	3,779
Amortization of cloud computing implementation costs – general and administrative	2,570	—
Stock-based compensation expense	33,919	19,729
Severance expense	3,576	877
Acquisition contingent consideration	1,549	2,300
Litigation settlements	—	2,000
Transaction costs ⁽²⁾	4,853	696
Adjusted EBITDA	\$ 100,848	\$ 78,673
Adjusted EBITDA Margin:		
Total revenues	\$ 572,387	\$ 491,624
Adjusted EBITDA margin	17.6 %	16.0 %

⁽¹⁾ The year ended December 31, 2023 includes \$4,020 for the change in the settlement value of a deferred purchase commitment liability recorded as interest expense.

⁽²⁾ The year ended December 31, 2023 includes costs associated with a public tender offer, which was withdrawn by the Company on January 14, 2024. The year ended December 31, 2022 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 \$22.2 million in 2023 was primarily driven by an increase of \$60.4 million in non-GAAP gross profit, offset by increases in various non-GAAP operating expense categories including \$13.9 million in non-GAAP selling and marketing expense, \$12.3 million in non-GAAP general and administrative expense, and \$12.1 million in non-GAAP research and development expense. Increased investment in selling and marketing expense was 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 operating leverage, as well as investments in employees, systems, and resources in support of our growth and compliance requirements associated with being a public company. Transaction costs were comprised of \$4.9 million related to costs associated with our public tender offer, which occurred on December 13, 2023, and was later withdrawn on January 14, 2024 (see Note 3 to our consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K).

Adjusted EBITDA margin increased in 2023 by 160 basis points in comparison to 2022 primarily due to increased non-GAAP gross margin from our software subscriptions revenue partially offset by increased operating expenses 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 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.

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Our net cash provided by operating activities was \$74.3 million and \$63.8 million in 2023 and 2022, respectively, while our operating cash flow margin was 13.0% and 13.0% 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,	
	2023	2022
Free Cash Flow:		
Cash provided by operating activities	\$ 74,332	\$ 63,848 (A)
Property and equipment additions	(49,261)	(45,532) (A)
Capitalized software additions	(18,972)	(14,888)
Free cash flow	<u>\$ 6,099</u>	<u>\$ 3,428</u>
Free Cash Flow Margin:		
Total revenues	\$ 572,387	\$ 491,624
Free cash flow margin	<u>1.1 %</u>	<u>0.7 %</u>

(A) Cash provided by operating activities and property and equipment additions for the year ended December 31, 2022 reflects immaterial error corrections of \$12,998, related to the reclassification of capitalized cloud computing implementation costs from property and equipment additions to prepaid expenses and other current assets and other changes in operating assets and liabilities. For more information see to Note 1 to the consolidated financial statements beginning on page F-1 of this Annual Report on Form 10-K.

Free cash flow increased by \$2.7 million in 2023 compared to 2022, driven primarily by a net increase of \$10.5 million in cash provided by operating activities, partially offset by a year-over-year increase in investments in commercial solutions supporting our customers and infrastructure investments to drive operating leverage. Free cash flow margin increased in 2023 by 400 basis points compared to 2022.

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, amortization of cloud computing implementation costs 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, amortization of cloud computing implementation costs in general and administrative expense, severance expense, acquisition contingent consideration, litigation settlements, and transaction costs, 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, amortization of cloud computing implementation costs in general and administrative expense, severance expense, acquisition contingent consideration, adjustments to the settlement value of deferred purchase commitment liabilities recorded as interest expense, litigation settlements, and transaction costs, 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,	
	2023	2022
Non-GAAP cost of revenues, software subscriptions	\$ 106,038	\$ 95,047
Non-GAAP cost of revenues, services	\$ 59,042	\$ 49,628
Non-GAAP gross profit	\$ 407,307	\$ 346,949
Non-GAAP gross margin	71.2 %	70.6 %
Non-GAAP research and development expense	\$ 52,218	\$ 40,079
Non-GAAP selling and marketing expense	\$ 129,216	\$ 115,272
Non-GAAP general and administrative expense	\$ 124,925	\$ 112,650
Non-GAAP operating income	\$ 85,646	\$ 66,233
Non-GAAP net income	\$ 63,699	\$ 47,818

(Dollars in thousands)	For the year ended December 31,	
	2023	2022
Non-GAAP Cost of Revenues, Software Subscriptions:		
Cost of revenues, software subscriptions	\$ 162,920	\$ 142,071
Stock-based compensation expense	(2,834)	(2,090)
Depreciation and amortization of capitalized software and acquired intangible assets – cost of subscription revenues	(54,048)	(44,934)
Non-GAAP cost of revenues, software subscriptions	\$ 106,038	\$ 95,047
Non-GAAP Cost of Revenues, Services:		
Cost of revenues, services	\$ 60,888	\$ 51,061
Stock-based compensation expense	(1,846)	(1,433)
Non-GAAP cost of revenues, services	\$ 59,042	\$ 49,628
Non-GAAP Gross Profit:		
Gross profit	\$ 348,579	\$ 298,492
Stock-based compensation expense	4,680	3,523
Depreciation and amortization of capitalized software and acquired intangible assets – cost of subscription revenues	54,048	44,934
Non-GAAP gross profit	\$ 407,307	\$ 346,949
Non-GAAP Gross Margin:		
Total revenues	\$ 572,387	\$ 491,624
Non-GAAP gross margin	71.2 %	70.6 %
Non-GAAP Research and Development Expense:		
Research and development expense	\$ 58,212	\$ 41,877
Stock-based compensation expense	(5,994)	(1,798)
Non-GAAP research and development expense	\$ 52,218	\$ 40,079
Non-GAAP Selling and Marketing Expense:		
Selling and marketing expense	\$ 140,237	\$ 125,335
Stock-based compensation expense	(8,380)	(6,284)
Amortization of acquired intangible assets – selling and marketing expense	(2,641)	(3,779)
Non-GAAP selling and marketing expense	\$ 129,216	\$ 115,272

(Dollars in thousands)	For the year ended	
	December 31,	
	2023	2022
Non-GAAP General and Administrative Expense:		
General and administrative expense	\$ 145,936	\$ 121,651
Stock-based compensation expense	(14,865)	(8,124)
Severance expense	(3,576)	(877)
Amortization of cloud computing implementation costs – general and administrative	(2,570)	—
Non-GAAP general and administrative expense	<u>\$ 124,925</u>	<u>\$ 112,650</u>
Non-GAAP Operating Income:		
Loss from operations	\$ (17,510)	\$ (8,082)
Stock-based compensation expense	33,919	19,729
Depreciation and amortization of capitalized software and acquired intangible assets – cost of subscription revenues	54,048	44,934
Amortization of acquired intangible assets – selling and marketing expense	2,641	3,779
Amortization of cloud computing implementation costs – general and administrative	2,570	—
Severance expense	3,576	877
Acquisition contingent consideration	1,549	2,300
Litigation settlement	—	2,000
Transaction costs ⁽¹⁾	4,853	696
Non-GAAP operating income	<u>\$ 85,646</u>	<u>\$ 66,233</u>
Non-GAAP Net Income:		
Net loss	\$ (13,093)	\$ (12,304)
Income tax expense (benefit)	(8,581)	2,174
Stock-based compensation expense	33,919	19,729
Depreciation and amortization of capitalized software and acquired intangible assets – cost of subscription revenues	54,048	44,934
Amortization of acquired intangible assets – selling and marketing expense	2,641	3,779
Amortization of cloud computing implementation costs – general and administrative	2,570	—
Severance expense	3,576	877
Acquisition contingent consideration	1,549	2,300
Litigation settlement	—	2,000
Transaction costs ⁽¹⁾	4,853	696
Change in settlement value of deferred purchase commitment liability – interest expense	4,020	—
Non-GAAP income before income taxes	85,502	64,185
Income tax adjustment at statutory rate	(21,803)	(16,367)
Non-GAAP net income	<u>\$ 63,699</u>	<u>\$ 47,818</u>

⁽¹⁾ The year ended December 31, 2023 includes costs associated with a public tender offer, which was withdrawn by the Company on January 14, 2024. The year ended December 31, 2022 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. Our most critical judgments required in applying ASC 606 relate to the identification of performance obligations.

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.

Income taxes

We estimate our income taxes based on the various jurisdictions where we conduct business. Significant judgment is required in determining our worldwide income tax provision. 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 judgement 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 judgement 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.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Interest Rate Risk

We had unrestricted cash and cash equivalents of \$68.2 million and \$91.8 million as of December 31, 2023 and 2022, respectively, and investments of \$9.5 million and \$11.2 million as of December 31, 2023 and 2022, respectively. 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 our credit agreement 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, 2023, 2022, and 2021, approximately 4%, 3%, and 4% 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, 2023, 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, 2023.

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, 2023, our disclosure controls and procedures were effective at a reasonable assurance level.

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, 2023 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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, 2023 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, 2023, our internal control over financial reporting was effective.

The effectiveness of our internal control over financial reporting as of December 31, 2023 has been audited by Crowe LLP, an independent registered public accounting firm, as stated in their report, which is included below.

Report of Independent Registered Public Accounting Firm

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

Opinion on Internal Control over Financial Reporting

We have audited Vertex, Inc.'s (the "Company") internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control – Integrated Framework: (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control – Integrated Framework: (2013) issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2023 and 2022, the related consolidated statements of comprehensive loss, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2023, and the related notes (collectively referred to as the "financial statements") and our report dated February 29, 2024 expressed an unqualified opinion.

Basis for Opinion

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

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Crowe LLP

New York, New York
February 29, 2024

Item 9B. Other Information

During the fiscal quarter ended December 31, 2023, none of the Company's directors or officers adopted, modified, or terminated a Rule 10b5-1 trading arrangement or a non-Rule 10b5-1 trading arrangement, in each case as defined in Item 408 of Regulation S-K.

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 2024 Annual Meeting of Shareholders, which will be filed not later than 120 days after the end of the fiscal year ended December 31, 2023.

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 2024 Annual Meeting of Shareholders, which will be filed not later than 120 days after the end of the fiscal year ended December 31, 2023.

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 2024 Annual Meeting of Shareholders, which will be filed not later than 120 days after the end of the fiscal year ended December 31, 2023.

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 2024 Annual Meeting of Shareholders, which will be filed not later than 120 days after the end of the fiscal year ended December 31, 2023.

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 2024 Annual Meeting of Shareholders, which will be filed not later than 120 days after the end of the fiscal year ended December 31, 2023.

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 in 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	
24.1	Power of Attorney					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
97.1#	Vertex, Inc. Policy for Recovery of Erroneously Awarded Compensation					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.

VERTEX, INC. AND SUBSIDIARIES

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

	<u>Page</u>
Audited Consolidated Financial Statements as of December 31, 2023 and 2022 and for each of the three years in the period ended December 31, 2023:	
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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, 2023 and 2022, the related consolidated statements of comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2023, 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, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control – Integrated Framework: (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and our report dated February 29, 2024 expressed an unqualified opinion.

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 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. 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.

Critical Audit Matters

Critical audit matters are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. We determined that there are no critical audit matters.

/s/ Crowe LLP

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

New York, New York
February 29, 2024

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

	December 31,	
	2023	2022
Assets		
Current assets:		
Cash and cash equivalents	\$ 68,175	\$ 91,803
Funds held for customers	20,976	14,945
Accounts receivable, net of allowance of \$16,272 and \$9,554, respectively	141,752	102,885
Prepaid expenses and other current assets	26,173	22,340
Investment securities available-for-sale, at fair value (amortized cost of \$9,550 and \$11,220, respectively)	9,545	11,173
Total current assets	266,621	243,146
Property and equipment, net of accumulated depreciation	100,734	101,090
Capitalized software, net of accumulated amortization	38,771	39,012
Goodwill and other intangible assets	260,238	257,023
Deferred commissions	21,237	15,463
Deferred income tax asset	41,708	30,938
Operating lease right-of-use assets	14,605	17,187
Other assets	16,013	15,333
Total assets	\$ 759,927	\$ 719,192
Liabilities and Stockholders' Equity		
Current liabilities:		
Current portion of long-term debt	\$ 2,500	\$ 2,188
Accounts payable	23,596	14,329
Accrued expenses	44,735	38,234
Customer funds obligations	17,731	12,121
Accrued salaries and benefits	12,277	10,790
Accrued variable compensation	34,105	23,729
Deferred compensation, current	—	2,809
Deferred revenue, current	290,143	268,847
Current portion of operating lease liabilities	3,717	4,086
Current portion of finance lease liabilities	74	103
Deferred purchase consideration, current	—	19,824
Purchase commitment and contingent consideration liabilities, current	11,901	6,149
Total current liabilities	440,779	403,209
Deferred revenue, net of current portion	2,577	10,289
Debt, net of current portion	44,059	46,709
Operating lease liabilities, net of current portion	16,567	20,421
Finance lease liabilities, net of current portion	51	10
Purchase commitment and contingent consideration liabilities, net of current portion	2,600	8,412
Deferred other liabilities	313	417
Total liabilities	506,946	489,467
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; 60,989 and 50,014 shares issued and outstanding, respectively	61	50
Class B voting common stock, \$0.001 par value, 150,000 shares authorized; 92,661 and 100,307 shares issued and outstanding, respectively	93	100
Additional paid in capital	275,155	244,820
(Accumulated deficit) retained earnings	(586)	12,507
Accumulated other comprehensive loss	(21,742)	(27,752)
Total stockholders' equity	252,981	229,725
Total liabilities and stockholders' equity	\$ 759,927	\$ 719,192

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,		
	2023	2022	2021
Revenues:			
Software subscriptions	\$ 480,830	\$ 415,473	\$ 358,415
Services	91,557	76,151	67,133
Total revenues	572,387	491,624	425,548
Cost of revenues:			
Software subscriptions	162,920	142,071	116,194
Services	60,888	51,061	45,698
Total cost of revenues	223,808	193,132	161,892
Gross profit	348,579	298,492	263,656
Operating expenses:			
Research and development	58,212	41,877	44,018
Selling and marketing	140,237	125,335	99,005
General and administrative	145,936	121,651	107,009
Depreciation and amortization	15,202	12,440	11,678
Other operating expense, net	6,502	5,271	4,888
Total operating expenses	366,089	306,574	266,598
Loss from operations	(17,510)	(8,082)	(2,942)
Interest expense, net	4,164	2,048	984
Loss before income taxes	(21,674)	(10,130)	(3,926)
Income tax expense (benefit)	(8,581)	2,174	(2,447)
Net loss	(13,093)	(12,304)	(1,479)
Other comprehensive (income) loss:			
Foreign currency translation adjustments and revaluations, net of tax	(5,978)	10,219	14,370
Unrealized (gain) loss on investments, net of tax	(32)	36	—
Total other comprehensive (income) loss, net of tax	(6,010)	10,255	14,370
Total comprehensive loss	\$ (7,083)	\$ (22,559)	\$ (15,849)
Net loss attributable to Class A stockholders, basic			
	\$ (4,721)	\$ (3,771)	\$ (357)
Net loss per Class A share, basic			
	\$ (0.09)	\$ (0.08)	\$ (0.01)
Weighted average Class A common stock, basic			
	54,753	45,864	35,647
Net loss attributable to Class A stockholders, diluted			
	\$ (4,721)	\$ (3,771)	\$ (357)
Net loss per Class A share, diluted			
	\$ (0.09)	\$ (0.08)	\$ (0.01)
Weighted average Class A common stock, diluted			
	54,753	45,864	35,647
Net loss attributable to Class B stockholders, basic			
	\$ (8,372)	\$ (8,533)	\$ (1,122)
Net loss per Class B share, basic			
	\$ (0.09)	\$ (0.08)	\$ (0.01)
Weighted average Class B common stock, basic			
	97,106	103,781	112,133
Net loss attributable to Class B stockholders, diluted			
	\$ (8,372)	\$ (8,533)	\$ (1,122)
Net loss per Class B share, diluted			
	\$ (0.09)	\$ (0.08)	\$ (0.01)
Weighted average Class B common stock, diluted			
	97,106	103,781	112,133

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

Vertex, Inc. and Subsidiaries
Consolidated Statements of Stockholders' Equity
(Amounts in thousands)

	Outstanding Class A Shares	Class A Common Stock	Outstanding Class B Shares	Class B Common Stock	Additional Paid In Capital	Retained Earnings (Accumulated Deficit)	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
Balance, January 1, 2021	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 Restricted Stock Units, net	12	—	—	—	(78)	—	—	(78)
Shares issued upon vesting of Restricted Stock Awards, 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 Restricted Stock Units, net	48	—	—	—	(283)	—	—	(283)
Shares issued upon vesting of Restricted Stock Awards, 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)	—	—	—	—
Unrealized loss from available-for-sale investments, net of tax	—	—	—	—	—	—	(36)	(36)
Foreign currency translation adjustments and revaluations, net of tax	—	—	—	—	—	—	(10,219)	(10,219)
Net loss	—	—	—	—	—	(12,304)	—	(12,304)
Balance, December 31, 2022	50,014	50	100,307	100	244,820	12,507	(27,752)	229,725
Exercise of stock options, net	2,468	3	—	—	(29)	—	—	(26)
Shares issued upon vesting of Restricted Stock Units, net	511	1	—	—	(4,690)	—	—	(4,689)
Shares issued upon vesting of Restricted Stock Awards, net	198	—	—	—	(146)	—	—	(146)
Shares issued in connection with ESPP	152	—	—	—	2,486	—	—	2,486
Stock-based compensation expense	—	—	—	—	32,714	—	—	32,714
Class B shares exchanged for Class A shares	7,646	7	(7,646)	(7)	—	—	—	—
Unrealized gain from available-for-sale investments, net of tax	—	—	—	—	—	—	32	32
Foreign currency translation adjustments and revaluations, net of tax	—	—	—	—	—	—	5,978	5,978
Net loss	—	—	—	—	—	(13,093)	—	(13,093)
Balance, December 31, 2023	60,989	\$ 61	92,661	\$ 93	\$ 275,155	\$ (586)	\$ (21,742)	\$ 252,981

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,		
	2023	2022	2021
Cash flows from operating activities:			
Net loss	\$ (13,093)	\$ (12,304)	\$ (1,479)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Depreciation and amortization	71,891	61,153	44,782
Amortization of cloud computing implementation costs	2,570	—	—
Provision for subscription cancellations and non-renewals	2,083	(196)	466
Amortization of deferred financing costs	266	245	211
Write-off of deferred financing costs	—	370	—
Stock-based compensation expense	33,919	19,729	26,160
Deferred income tax benefit	(11,574)	(1,345)	(3,116)
Non-cash operating lease costs	2,587	3,357	3,825
Other	5,335	4,052	510
Changes in operating assets and liabilities:			
Accounts receivable	(45,222)	(25,665)	2,962
Prepaid expenses and other current assets	(6,354)	(2,171)	(5,192)
Deferred commissions	(5,774)	(2,908)	(812)
Accounts payable	9,241	1,369	3,847
Accrued expenses	5,837	15,064	3,210
Accrued and deferred compensation	7,516	(12,005)	(3,735)
Deferred revenue	18,172	30,768	24,691
Operating lease liabilities	(4,224)	(4,041)	(4,697)
Other	1,156	(11,624)	(1,344)
Net cash provided by operating activities	74,332	63,848	90,289
Cash flows from investing activities:			
Acquisition of business, net of cash acquired	—	(474)	(251,412)
Property and equipment additions	(49,261)	(45,532)	(31,706)
Capitalized software additions	(18,972)	(14,888)	(11,660)
Purchase of investment securities, available-for-sale	(16,328)	(16,518)	—
Proceeds from sales and maturities of investment securities, available-for-sale	18,390	5,364	—
Net cash used in investing activities	(66,171)	(72,048)	(294,778)
Cash flows from financing activities:			
Net increase (decrease) in customer funds obligations	5,610	(11,340)	14,226
Proceeds from term loan	—	50,000	—
Principal payments on long-term debt	(2,188)	(938)	—
Payments for deferred financing costs	(1,001)	(983)	—
Proceeds from purchases of stock under ESPP	2,486	1,951	2,060
Payments for taxes related to net share settlement of stock-based awards	(9,701)	(1,104)	(12,758)
Proceeds from exercise of stock options	4,839	1,821	1,859
Distributions under Tax Sharing Agreement	—	(536)	(2,700)
Payments for purchase commitment and contingent consideration liabilities	(6,424)	(423)	(10,822)
Payments of finance lease liabilities	(103)	(1,354)	(964)
Payments for deferred purchase commitments	(20,000)	(20,000)	—
Net cash (used in) provided by financing activities	(26,482)	17,094	(9,099)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	724	(352)	(479)
Net (decrease) increase in cash, cash equivalents and restricted cash	(17,597)	8,542	(214,067)
Cash, cash equivalents and restricted cash, beginning of period	106,748	98,206	312,273
Cash, cash equivalents and restricted cash, end of period	\$ 89,151	\$ 106,748	\$ 98,206
Reconciliation of cash, cash equivalents and restricted cash to the Consolidated Balance Sheets, end of period:			
Cash and cash equivalents	\$ 68,175	\$ 91,803	\$ 73,333
Restricted cash—funds held for customers	20,976	14,945	24,873
Total cash, cash equivalents and restricted cash, end of period	\$ 89,151	\$ 106,748	\$ 98,206

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 had an 80% and 65% controlling equity interest in Systax Sistemas Fiscais LTDA (“Systax”), a provider of Brazilian transaction tax content and software at December 31, 2023 and 2022, respectively. 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.

Revision of Previously Issued Financial Statements

Certain prior period amounts on the consolidated balance sheets and consolidated statements of cash flows, reflected in the tables below, have been revised to correct for certain immaterial errors, as described below.

During the second quarter of 2023, management identified certain immaterial errors impacting previously issued financial statements beginning as of December 31, 2021, and subsequent annual and quarterly reporting periods through March 31, 2023. Specifically, management identified an error in financial statement presentation required to be corrected to correctly reflect Cloud Computing Arrangement (“CCA”) software implementation costs in accordance with Accounting Standards Codification (“ASC”) 350-40, *Goodwill and Other, Internal-Use Software* (“ASC 350-40”). Management determined that these software implementation costs were subject to the internal-use software guidance under ASC 350-40 and appropriately capitalized these implementation costs in accordance with this guidance. Although the costs were correctly capitalized, they were incorrectly presented as property and equipment in the consolidated balance sheets, and as property and equipment additions in the consolidated statements of cash flows.

Management assessed the materiality of this presentation on prior period consolidated financial statements in accordance with the Securities and Exchange Commission (“SEC”) Staff Accounting Bulletin No. 99, “Materiality,” codified in ASC 250, *Accounting Changes and Error Corrections* (“ASC 250”). Based on this assessment, management concluded that the error correction is not material to any previously presented interim or annual financial statements.

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

The consolidated balance sheets have been revised to reflect the correction as follows :

	<u>As Reported</u>	<u>Revision</u>	<u>As Revised</u>
December 31, 2021			
Property and equipment, net of accumulated depreciation	\$ 98,390	\$ (1,680)	\$ 96,710
Other assets	1,900	1,680	3,580
March 31, 2022 (unaudited)			
Property and equipment, net of accumulated depreciation	\$ 102,228	\$ (4,642)	\$ 97,586
Other assets	3,158	4,642	7,800
June 30, 2022 (unaudited)			
Property and equipment, net of accumulated depreciation	\$ 106,526	\$ (7,668)	\$ 98,858
Other assets	2,592	7,668	10,260
September 30, 2022 (unaudited)			
Property and equipment, net of accumulated depreciation	\$ 109,123	\$ (11,107)	\$ 98,016
Other assets	2,422	11,107	13,529
December 31, 2022			
Prepaid expenses and other current assets	\$ 20,383	\$ 1,957	\$ 22,340
Total current assets	241,189	1,957	243,146
Property and equipment, net of accumulated depreciation	115,768	(14,678)	101,090
Other assets	2,612	12,721	15,333
March 31, 2023 (unaudited)			
Prepaid expenses and other current assets	\$ 22,536	\$ 3,588	\$ 26,124
Total current assets	231,435	3,588	235,023
Property and equipment, net of accumulated depreciation	117,444	(17,942)	99,502
Other assets	2,621	14,354	16,975

The effect on the consolidated statements of cash flows are as follows:

	<u>Twelve months ended December 31, 2021</u>		
	<u>As Reported</u>	<u>Revision</u>	<u>As Revised</u>
Cash flows from operating activities:			
Other changes in operating assets and liabilities	\$ 336	\$ (1,680)	\$ (1,344)
Net cash (used in) provided by operating activities	91,969	(1,680)	90,289
Cash flows from investing activities:			
Property and equipment additions	(33,386)	1,680	(31,706)
Net cash used in investing activities	(296,458)	1,680	(294,778)

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

	<u>Three months ended March 31, 2022</u>		
(unaudited)	<u>As Reported</u>	<u>Revision</u>	<u>As Revised</u>
Cash flows from operating activities:			
Other changes in operating assets and liabilities	\$ (950)	\$ (2,962)	\$ (3,912)
Net cash (used in) provided by operating activities	2,595	(2,962)	(367)
Cash flows from investing activities:			
Property and equipment additions	(13,873)	2,962	(10,911)
Net cash used in investing activities	(17,259)	2,962	(14,297)
	<u>Six months ended June 30, 2022</u>		
(unaudited)	<u>As Reported</u>	<u>Revision</u>	<u>As Revised</u>
Cash flows from operating activities:			
Other changes in operating assets and liabilities	\$ (457)	\$ (5,988)	\$ (6,445)
Net cash (used in) provided by operating activities	14,576	(5,988)	8,588
Cash flows from investing activities:			
Property and equipment additions	(27,827)	5,988	(21,839)
Net cash used in investing activities	(41,170)	5,988	(35,182)
	<u>Nine months ended September 30, 2022</u>		
(unaudited)	<u>As Reported</u>	<u>Revision</u>	<u>As Revised</u>
Cash flows from operating activities:			
Other changes in operating assets and liabilities	\$ (349)	\$ (9,427)	\$ (9,776)
Net cash (used in) provided by operating activities	33,026	(9,427)	23,599
Cash flows from investing activities:			
Property and equipment additions	(42,973)	9,427	(33,546)
Net cash used in investing activities	(59,862)	9,427	(50,435)
	<u>Twelve months ended December 31, 2022</u>		
(unaudited)	<u>As Reported</u>	<u>Revision</u>	<u>As Revised</u>
Cash flows from operating activities:			
Prepaid expenses and other current assets	\$ (214)	\$ (1,957)	\$ (2,171)
Other changes in operating assets and liabilities	(583)	(11,041)	(11,624)
Net cash (used in) provided by operating activities	76,846	(12,998)	63,848
Cash flows from investing activities:			
Property and equipment additions	(58,530)	12,998	(45,532)
Net cash used in investing activities	(85,046)	12,998	(72,048)

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

(unaudited)	Three months ended March 31, 2023		
	As Reported	Revision	As Revised
Cash flows from operating activities:			
Prepaid expenses and other current assets	\$ (2,109)	\$ (1,631)	\$ (3,740)
Other changes in operating assets and liabilities	(58)	(1,633)	(1,691)
Net cash (used in) provided by operating activities	6,755	(3,264)	3,491
Cash flows from investing activities:			
Property and equipment additions	(13,313)	3,264	(10,049)
Net cash used in investing activities	(17,561)	3,264	(14,297)

The consolidated balance sheet as of December 31, 2022 and the consolidated statements of cash flows for the years ended December 31, 2022 and 2021 have been revised in this Annual Report on Form 10-K. The Company intends to revise the remaining quarterly and annual amounts affected in future filings in which they appear, as applicable.

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 (“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, 2023, 2022, and 2021 approximately 8%, 8%, and 7%, respectively, of the Company’s revenues were generated outside of the U.S. As of December 31, 2023 and 2022, \$633 and \$827 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, 2023, 2022, and 2021.

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

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

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 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, intangible assets, and capitalized CCA software implementation costs; (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 Employee 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.

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

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*Cloud Computing Software Implementation Costs*

The Company follows ASC 350-40 to account for development costs incurred for cloud computing software implementations. ASC 350-40 requires such costs to be capitalized once certain criteria are met. Costs are primarily comprised of contracted labor, direct labor, and related expenses. ASC 350-40 includes specific guidance on costs not to be capitalized, such as overhead, general and administrative, and training costs. 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.

Cloud computing software implementation costs incurred in hosting arrangements are capitalized and reported as a component of prepaid expenses and other current assets, and other assets, once available for their intended use. These costs are amortized using the straight-line method over their respective contract service periods, including periods covered by an option to extend, ranging from two to five years.

Amortization expense for capitalized cloud computing implementation costs for the year ended December 31, 2023 was \$2,570 and is included in general and administrative expense in the consolidated statements of comprehensive loss. There was no amortization expense for the years ended December 31, 2022 or 2021.

Internal-Use Software

The Company follows ASC 350-40 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 and contracted labor, and related expenses. ASC

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

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 and contracted 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

Vertex, Inc. and Subsidiaries
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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

The 2020 Incentive Award Plan (the “2020 Plan”) and the ESPP 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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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.

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 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. 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

In accordance with ASU No. 2016-02, *Leases* ("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.

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 \$2,246 and \$2,219 at December 31, 2023 and 2022, 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.

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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.

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

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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 \$17, \$133, and \$14 for the years ended December 31, 2023, 2022, and 2021, 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 \$26,000, \$26,529, and \$20,386 for the years ended December 31, 2023, 2022, and 2021, respectively.

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 (losses) gains of \$(109), \$(38), and \$183 for the years ended December 31, 2023, 2022, and 2021, respectively.

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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"), 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.

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 initial public offering, that closed on July 28, 2020. 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 revocation of the Company's S-Corporation election, which became effective July 27, 2020, 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

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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.

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 and 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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Supplemental Balance Sheet Information

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

	As of December 31,	
	2023	2022
Prepaid expenses and other current assets:		
Prepaid expenses	\$ 11,558	\$ 5,875
Unamortized cloud computing implementation costs	3,995	1,957
Prepaid insurance	521	2,291
Prepaid licenses and support	10,099	12,217
Prepaid expenses and other current assets	<u>\$ 26,173</u>	<u>\$ 22,340</u>
Other assets:		
Unamortized cloud computing implementation costs	\$ 12,475	\$ 12,721
Other assets	3,538	2,612
Total other assets	<u>\$ 16,013</u>	<u>\$ 15,333</u>
Accrued expenses:		
Accrued general expenses	\$ 25,998	\$ 18,485
Accrued contract labor and professional fees	13,372	17,421
Accrued income and other taxes	5,365	2,328
Accrued expenses	<u>\$ 44,735</u>	<u>\$ 38,234</u>

Supplemental Cash Flow Disclosures

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

	For the year ended December 31,		
	2023	2022	2021
Cash paid for:			
Interest	\$ 3,729	\$ 2,221	\$ 223
Income taxes, net of refunds	5,652	3,059	1,287
Cash paid included in the measurement of lease liabilities:			
Operating cash flows from operating leases	4,019	4,240	4,692
Non-cash investing and financing activities:			
Change in settlement value of deferred purchase commitment liability	4,020	990	—
Change in fair value of contingent consideration liability	1,549	2,300	300
Estimated distributions payable under Tax Sharing Agreement	—	—	536
Purchase commitment and contingent consideration liabilities	—	—	12,736
Deferred purchase consideration	—	—	39,024
Leased assets obtained in exchange for new finance lease liabilities	124	1,069	173

Recently Issued Or Adopted Accounting Pronouncements

Prior to December 31, 2023, the Company qualified as an “emerging growth company,” under the Jumpstart Our Business Startups Act (the “JOBS Act”), which allowed the Company to delay the adoption of new or revised accounting pronouncements applicable to public companies, until such pronouncements were made applicable to private companies. The Company may have previously elected to delay adoption of certain new or revised accounting standards. As a result,

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the Company's consolidated financial statements may not have been 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. Effective December 31, 2023, the Company no longer qualified as an "emerging growth company" and is now required to adopt accounting pronouncements at the dates applicable to public companies. There are no material accounting pronouncements that the Company is required to apply retrospectively to prior periods presented as a result of the change in status.

Disclosure Improvements

In October 2023, the Financial Accounting Standards Board ("FASB") issued ASU 2023-06, which amends the disclosure or presentation requirements related to various subtopics in the FASB Accounting Standards Codification (the "Codification"). In the SEC Release No. 33-10532, *Disclosure Update and Simplification*, issued in August 2018, the SEC referred certain of its disclosure requirements that overlap with, but require incremental information to, generally accepted accounting principles to the FASB for potential incorporation into the Codification. This ASU incorporates certain SEC disclosure requirements into the Codification. The amendments in the ASU are expected to clarify or improve disclosure and presentation requirements of a variety of Codification Topics, allow users to more easily compare entities subject to the SEC's existing disclosures with those entities that were not previously subject to the requirements, and align the requirements in the Codification with the SEC's regulations. The requirements are relatively narrow in nature. Some of the amendments represent clarifications to, or technical corrections of, the current requirements. The effective date for each amendment will be the date on which the SEC removes that related disclosure from its rules. However, if by June 30, 2027, the SEC has not removed the related disclosure from its regulations, the amendments will be removed from the Codification and not become effective for any entity. The Company is continuing to assess the potential impacts of the standard, and it does not expect this pronouncement to have a material effect on its financial statements, other than the required changes to the applicable disclosures.

Segment Reporting

In November 2023, the FASB issued ASU 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures*. The amendments in ASU 2023-07, improve reportable segment disclosure requirements through enhanced disclosures. These new requirements include: disclosure of significant segment expenses regularly provided to the CODM, the title and position of the CODM, and the extension of certain annual disclosures to interim periods, permitting the disclosure of multiple measures of segment profit or loss, provided that certain criteria are met. The standard also clarifies that entities with a single reportable segment are subject to new and existing segment reporting requirements. The standard will be effective for annual periods in fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024, with early adoption permitted. Entities must adopt the changes to the segment reporting guidance on a retrospective basis. The Company is continuing to assess the potential impacts of the standard, and it does not expect this pronouncement to have a material effect on its consolidated financial statements, other than the required changes to the segment disclosures.

Income Tax Disclosures

In December 2023, the FASB issued ASU 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures*. Entities will be required to disclose additional information in specified categories in the reconciliation of the effective tax rate to the statutory rate for federal, state, and foreign income taxes. The standard also requires greater detail about individual reconciling items in the rate reconciliation to the extent the impact of those items exceeds a specified threshold and eliminates certain existing disclosures. In addition to new disclosures associated with the rate reconciliation, the standard requires information pertaining to taxes paid (net of refunds received) to be disaggregated for federal, state, and foreign taxes and further disaggregated for specific jurisdictions to the extent the related amounts exceed a quantitative threshold. The standard will be effective for annual periods in fiscal years beginning after December 15, 2024, and for interim periods for fiscal years beginning after December 15, 2025 with early adoption permitted. The Company is

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continuing to assess the potential impacts of the standard, and it does not expect this pronouncement to have a material effect on its financial statements, other than the required changes to the income tax disclosures.

2. REVENUE RECOGNITION

Disaggregation of revenue

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

	For the year ended December 31,		
	2023	2022	2021
Software subscriptions:			
Software licenses	\$ 266,213	\$ 246,577	\$ 231,371
Cloud subscriptions	214,617	168,896	127,044
Software subscriptions	480,830	415,473	358,415
Services	91,557	76,151	67,133
Total revenues	<u>\$ 572,387</u>	<u>\$ 491,624</u>	<u>\$ 425,548</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 \$16,272 and \$9,554 at December 31, 2023 and 2022, 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:

	2023	2022
Balance, beginning of period	\$ 102,885	\$ 76,929
Balance, end of period	141,752	102,885
Increase, net	<u>\$ 38,867</u>	<u>\$ 25,956</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 \$11,741 and \$7,133 at December 31, 2023 and 2022, 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,					
	2023		2022		2021	
	Balance	Net Change	Balance	Net Change	Balance	Net Change
Allowance balance, January 1,	\$ (9,554)		\$ (9,151)		\$ (8,592)	
Allowance balance, December 31,	(16,272)		(9,554)		(9,151)	
Change in allowance		\$ 6,718		\$ 403		\$ 559
Deferred allowance balance, January 1,	7,133		6,537		6,432	
Deferred allowance balance, December 31,	11,741		7,133		6,537	
Change in deferred allowance		(4,608)		(596)		(105)
Net amount charged to revenues		<u>\$ 2,110</u>		<u>\$ (193)</u>		<u>\$ 454</u>

The amount of revenue recognized during the years ended December 31, 2023, 2022, and 2021 that was included in the opening deferred revenue balance of the same fiscal year was \$268,847, \$237,344, and \$207,560, 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,	
	2023	2022
Balances:		
Deferred revenue, current	\$ 290,143	\$ 268,847
Deferred revenue, non-current	2,577	10,289
Total deferred revenue	<u>\$ 292,720</u>	<u>\$ 279,136</u>

	For the year ended December 31,		
	2023	2022	2021
Changes to deferred revenue:			
Beginning balance	\$ 279,136	\$ 249,010	\$ 222,262
Additional amounts deferred	585,971	521,750	452,296
Revenues recognized	(572,387)	(491,624)	(425,548)
Ending balance	<u>\$ 292,720</u>	<u>\$ 279,136</u>	<u>\$ 249,010</u>

Deferred revenue at December 31, 2023 will be recognized as follows for all future years:

Year Ending December 31,	
2024	\$ 290,143
2025	2,498
2026	79
Total	<u>\$ 292,720</u>

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.

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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 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,		
	2023	2022	2021
Deferred commissions:			
Beginning balance	\$ 15,463	\$ 12,555	\$ 11,743
Additions	16,552	13,913	10,018
Amortization	(10,778)	(11,005)	(9,206)
Ending balance	<u>\$ 21,237</u>	<u>\$ 15,463</u>	<u>\$ 12,555</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, 2023 and 2022 is \$0 and \$19,824, respectively and is included in current liabilities in the consolidated balance sheet.

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

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on the acquisition date, which are reflected in the table below, were finalized during the second quarter of 2022 and include 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:

	As of Acquisition Date
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	\$ 98,810

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:

LCR-Dixon Identifiable Intangibles	Balance Sheet Location	September 22, 2021			
		Fair Value	Valuation Methodology	Estimated Useful Life	Discount Rate
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 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 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 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.

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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	\$ 8,300

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.

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 prior year periods.

Public Tender Offer and Withdrawal of Offer

On December 13, 2023, the Company announced that it had commenced a public tender offer to acquire a global provider of e-invoicing solutions. On January 14, 2024, the Company withdrew its public tender offer following competing offers. Total transaction costs of \$4,853 associated with the public tender offer were expensed in 2023, and are reported in the other operating expense, net, line of the consolidated statement of comprehensive loss.

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4. INVESTMENTS

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, 2023 and 2022. Accrued interest receivables of \$20 and \$24 as of December 31, 2023 and 2022, respectively are not included in the tables.

	As of December 31, 2023				
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Allowance For Credit Losses	Fair Value
Investment securities available-for-sale:					
Commercial Paper	\$ 7,169	\$ —	\$ (1)	\$ —	\$ 7,168
U.S. Treasury Securities	3,628	—	(7)	—	3,621
Total investment securities available-for-sale	\$ 10,797	\$ —	\$ (8)	\$ —	\$ 10,789

	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, 2023 and 2022. The amounts include securities available-for-sale without an allowance for credit losses. As of December 31, 2023, the Company's available-for-sale investment securities consisted of 41 securities, 24 of which are in an immaterial unrealized loss position. 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. As a result, there is no allowance for credit losses recorded for available-for-sale debt securities as of December 31, 2023 or 2022.

	As of December 31, 2023					
	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	\$ 4,472	(1)	\$ —	\$ —	\$ 4,472	(1)
U.S. Treasury Securities	—	—	2,043	(7)	2,043	(7)
Total investment securities available-for-sale	\$ 4,472	\$ (1)	\$ 2,043	\$ (7)	\$ 6,515	\$ (8)

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	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)

Maturities of Investment Securities

The table below summarizes, as of December 31, 2023, 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.

	As of December 31, 2023				
	Due in 1 Year or Less	Due > 1 Year through 5 Years	Due > 5 Years through 10 Years	Due > 10 Years	Total
Fair value of investment securities available-for-sale:					
Commercial Paper	\$ 7,168	\$ —	\$ —	\$ —	\$ 7,168
U.S. Treasury Securities	1,279	2,342	—	—	3,621
Total investment securities available-for-sale	\$ 8,447	\$ 2,342	\$ —	\$ —	\$ 10,789
Amortized cost of investment securities available-for-sale	\$ 8,450	\$ 2,347	\$ —	\$ —	\$ 10,797

The Company's debt securities portfolio had unaccreted discounts of \$114 and \$139 and had no remaining unamortized premiums as of December 2023 and 2022, respectively.

Net Securities Gains or Losses and Securities Pledged

During 2023, the Company had sales of debt securities totaling \$2,336, resulting in a realized loss of \$4. During 2022, the Company had no sales of debt securities categorized as available-for-sale, resulting in no realized gain or (loss). No securities were pledged during the years ended December 31, 2023 or 2022.

During the years ended December 31, 2023 and 2022, no net gains or losses were recognized on sales of equity securities and no unrealized gains or losses were recognized on equity securities held as of December 31, 2023 or 2022.

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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 for its financial assets and liabilities measured at fair value on a recurring basis:

	Fair Value	Fair Value Measurements Using		
		Prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
As of December 31, 2023				
Money Market Funds	\$ 53,049	\$ 53,049	\$ —	\$ —
Commercial Paper	7,168	—	7,168	—
U.S. Treasury Securities	3,621	—	3,621	—
Tellutax Contingent Consideration	4,900	—	—	4,900
Foreign Currency Forward Contracts	849	—	849	—
	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	—

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 and U.S. Treasury Securities, the Company believes that Level 2 designation is appropriate under ASC 820-10, *Fair Value Measurements and Disclosures*, 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 \$1,549 and \$2,300 was recorded in other operating expense, net for the years ended December 31, 2023 and 2022, respectively. At December 31, 2023, the Tellutax Contingent Consideration of \$2,300 and \$2,600 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, 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.

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

<u>Liability</u>	<u>December 31, 2023</u>			
	<u>Fair Value</u>	<u>Valuation Technique</u>	<u>Unobservable Inputs</u>	
Tellutax Contingent Consideration	\$ 4,900	Monte Carlo Simulation	Revenue volatility	60.0 %
			Revenue discount rate	20.8 %
			Term (in years)	1.3

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

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

	<u>Tellutax Contingent Consideration</u>
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
Fair value adjustments	1,549
Payments	(1,449)
Balance, December 31, 2023	\$ 4,900

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.

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 \$0 and \$19,824 (See Note 3) are recorded in the consolidated balance sheets at December 31, 2023 and 2022, respectively. The carrying amount approximated its respective fair value at December 31, 2022 and is considered a Level 3 non-recurring fair value measurement.

On January 7, 2020, the Company acquired a 60% controlling interest in Systax, a provider of Brazilian transaction tax content and software. The Company has a contractual commitment to acquire the remaining equity interest from the original Systax quotaholders incrementally through 2024. Future purchase commitment payments for these incremental acquisition amounts are based on a multiple of Systax revenue and earnings before interest, depreciation, amortization, and income taxes (“EBITDA”) performance at the end of 2022 and 2023, whereby the Company will have full ownership after the final transaction in 2024. Management determined these future purchase commitments to be a forward contract, resulting in the Company being required to estimate and record an estimated future purchase commitment amount (the “Purchase Commitment Liability”) in connection with recording the initial purchase. The fair value of the Purchase Commitment Liability at the acquisition date was finalized to be \$12,592. This amount will fluctuate as a result of changes in foreign currency exchange rates and is reflected in purchase commitment and contingent consideration liabilities in the consolidated balance sheets, with such changes in exchange rates being reflected in other comprehensive loss or income in the consolidated statements of comprehensive loss. Adjustments to the settlement date 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

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consolidated statements of comprehensive income (loss) in the period the change is identified. The Company recorded increases in interest expense of \$4,022 and \$990, during 2023 and 2022, respectively, associated with recording an increase in the settlement value.

The Company acquired an additional 5% equity interest of Systax during 2021 for \$788, increasing the Company's equity interest in Systax to 65%. The Company acquired an additional 15% equity interest of Systax through a Purchase Commitment Liability payment of \$4,975 during 2023, increasing the Company's equity interest in Systax to 80%.

The remaining Purchase Commitment Liability at December 31, 2023 included in purchase commitment and contingent consideration liabilities, current, in the consolidated balance sheet was \$9,601. The Purchase Commitment Liability included in purchase commitment and contingent consideration liabilities, current and purchase commitment and contingent consideration liabilities, net of current portion in the consolidated balance sheets on December 31, 2022 was \$4,749 and \$5,012, respectively. The carrying amounts approximated their respective fair values at December 31, 2023 and 2022, respectively, 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. The Company estimated the initial fair value of the Purchase Commitment Liability using a Monte Carlo Simulation, which the Company considers 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

The Company may periodically enter into derivative contracts to reduce its exposure to foreign currency exchange rates. Historically the Company has not designated derivative contracts as hedges. The derivative contracts are typically designed to manage specific risks according to the Company's strategies, which may change from time to time.

In May 2020, the Company entered into a series of foreign currency forward contracts to reduce its exposure to adverse fluctuations in the Brazilian Real associated with a portion of the Purchase Commitment Liability. Such forward contracts, have not been designated as a hedge, do not qualify for hedge accounting and are not material to the consolidated financial statements. The Company remeasures these forward contracts at fair value on a recurring basis and include them in other assets in the consolidated balance sheets with changes in their estimated fair value recognized as interest expense in the consolidated statements of comprehensive loss. The Company's fair value determinations are based on foreign currency exchange rates in active markets, which the Company considers 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,	
	2023	2022
Leasehold improvements	\$ 20,662	\$ 20,929
Equipment	22,012	39,238
Computer software purchased	2,690	11,892
Internal-use software developed:		
Cloud-based customer solutions	142,302	142,980
Internal systems and tools	39,430	42,035
Furniture and fixtures	7,669	7,665
In-process internal-use software	28,883	18,200
Property and equipment	263,648	282,939
Less accumulated depreciation and amortization	(162,914)	(181,849)
Property and equipment, net	<u>\$ 100,734</u>	<u>\$ 101,090</u>

Depreciation expense for property and equipment, excluding all internal-use software developed and finance leases, was \$5,847, \$6,445, and \$7,425 for the years ended December 31, 2023, 2022, and 2021, 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 \$610, \$1,082, and \$931 for the years ended December 31, 2023, 2022, and 2021, respectively. Finance lease amortization is included in depreciation and amortization in the consolidated statements of comprehensive loss.

Assets under finance leases of \$297, and \$1,461, net of accumulated amortization of \$190 and \$861, at December 31, 2023 and 2022, 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,	
	2023	2022
Internal-use software developed	\$ 181,732	\$ 185,015
Less accumulated depreciation	(121,646)	(119,603)
Internal-use software developed, net of accumulated depreciation	60,086	65,412
In-process internal-use software	28,883	18,200
Internal-use software developed, net	<u>\$ 88,969</u>	<u>\$ 83,612</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,		
	2023	2022	2021
Cloud-based customer solutions	\$ 29,496	\$ 28,918	\$ 19,837
Internal systems and tools	17,751	13,356	9,811
Total	<u>\$ 47,247</u>	<u>\$ 42,274</u>	<u>\$ 29,648</u>

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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, 2023, 2022, and 2021, was \$34,592, \$27,682, and \$19,076, 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. Depreciation expense for the years ended December 31, 2023, 2022, and 2021 associated with this developed technology was \$12,325, \$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, 2023, 2022, and 2021 was \$8,745, \$4,913, and \$3,322, 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, 2023 is as follows for all future years:

Year Ending December 31,	Internal Systems and Tools	Cloud-Based Customer Solutions
2024	\$ 8,982	\$ 25,151
2025	6,787	12,822
2026	1,615	3,901
2027	621	—
2028	207	—
Total	<u>\$ 18,212</u>	<u>\$ 41,874</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:

	As of December 31,	
	2023	2022
Capitalized software	\$ 115,152	\$ 96,577
Less accumulated amortization	(81,410)	(62,197)
Capitalized software, net of accumulated depreciation	<u>33,742</u>	<u>34,380</u>
In-process capitalized software	5,029	4,632
Capitalized software, net	<u>\$ 38,771</u>	<u>\$ 39,012</u>

Software development costs capitalized for the years ended December 31, 2023, 2022, and 2021, excluding acquisitions were \$18,972, \$14,888, and \$11,660, 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.

Vertex, Inc. and Subsidiaries
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Capitalized software amortization expense, including amortization of acquired technology for the years ended December 31, 2023, 2022, and 2021 was \$19,213, \$17,018, and \$12,962, 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, 2023 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, 2023 is as follows for all future years:

<u>Year Ending December 31,</u>	
2024	\$ 19,143
2025	10,689
2026	3,880
2027	30
2028	—
Total	<u>\$ 33,742</u>

8. LEASES

The Company leases office space, IT equipment and office equipment. The Company's leases have remaining terms of up to 5 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>2023</u>	<u>2022</u>
Lease assets:			
Operating lease right-of-use assets	Operating lease right-of-use assets	\$ 14,605	\$ 17,187
Finance lease assets	Property and equipment, net (Note 6)	107	600
Total lease assets		<u>\$ 14,712</u>	<u>\$ 17,787</u>
Lease liabilities:			
Current:			
Operating lease liabilities	Current portion of operating lease liabilities	\$ 3,717	\$ 4,086
Finance lease liabilities	Current portion of finance lease liabilities	74	103
Total current lease liabilities		<u>\$ 3,791</u>	<u>\$ 4,189</u>
Non-current:			
Operating lease liabilities	Operating lease liabilities, net of current portion	\$ 16,567	\$ 20,421
Finance lease liabilities	Finance lease liabilities, net of current portion	51	10
Total non-current lease liabilities		<u>16,618</u>	<u>20,431</u>
Total lease liabilities		<u>\$ 20,409</u>	<u>\$ 24,620</u>

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The major components of lease cost are as follows:

	For the year ended December 31,		
	2023	2022	2021
Operating lease cost	\$ 4,019	\$ 3,714	\$ 4,774
Finance lease cost:			
Amortization of lease assets	788	1,275	931
Interest on lease liabilities	8	18	16
Total lease cost	\$ 4,815	\$ 5,007	\$ 5,721

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

	As of December 31,	
	2023	2022
Weighted-average remaining lease term (years):		
Operating leases	4.7	5.7
Finance leases	2.1	0.5
Weighted-average discount rate:		
Operating leases	2.3 %	2.3 %
Finance leases	5.6 %	2.3 %

Lease liability maturities for the next five years and thereafter are as follows as of December 31, 2023:

	Operating Leases	Finance Leases
2024	\$ 4,228	\$ 75
2025	4,493	45
2026	4,565	11
2027	4,636	—
2028	3,494	—
Thereafter	—	—
Total lease payments	21,416	131
Less: Imputed interest	(1,132)	(6)
Present value of lease liabilities	\$ 20,284	\$ 125

9. GOODWILL AND OTHER INTANGIBLE ASSETS

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

	As of December 31,	
	2023	2022
Goodwill	\$ 257,842	\$ 251,842
Other intangible assets, net	2,396	5,181
Total	\$ 260,238	\$ 257,023

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The changes in the carrying amount of goodwill are as follows for the periods presented:

	As of December 31,	
	2023	2022
Balance, January 1	\$ 251,842	\$ 270,041
Measurement period adjustments	—	(10,329)
Foreign currency translation adjustments	6,000	(7,870)
Balance, December 31, gross	257,842	251,842
Accumulated impairment losses	—	—
Balance, December 31, net	<u>\$ 257,842</u>	<u>\$ 251,842</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,	
	2023	2022
Weighted average amortization period (years)	3.5	3.5

	As of December 31, 2023		As of December 31, 2022	
	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Customer relationships	\$ 8,348	\$ 6,385	\$ 8,225	\$ 3,855
Trademarks and tradenames	1,303	1,119	1,240	887
Developed technology	1,309	1,060	1,202	744
Total	<u>\$ 10,960</u>	<u>\$ 8,564</u>	<u>\$ 10,667</u>	<u>\$ 5,486</u>

For the year ended December 31,	Cost of Revenues, Software Subscriptions	Selling and Marketing Expense	Total Expense
2023	\$ 243	\$ 2,641	\$ 2,884
2022	234	3,779	4,013
2021	253	813	1,066

The following table presents estimated future amortization of intangible assets over their remaining estimated useful lives:

Year Ending December 31,	
2024	\$ 2,110
2025	286
Total	<u>\$ 2,396</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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10. DEBT

Credit Agreement

On March 31, 2020, the Company entered into a credit agreement (“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”).

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, 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 were 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 are being 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 of \$277, pertaining to the remaining bank associated with the Previous Credit Agreement are being 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 sheets at December 31, 2023 and 2022.

On December 12, 2023, the Company entered into the Third Amendment to Credit Agreement (the “Third Amendment” collectively, with the Previous Credit Agreement and the Second Amendment, the “Credit Agreement”), with the existing banking syndicate, which provided funding for a proposed acquisition. On December 13, 2023, the Company announced that it had commenced a public tender offer to acquire a global provider of e-invoicing solutions. The Company intended to fund the transaction with proceeds from the Line of Credit and from the issuance of a new series of convertible preferred equity (“Convertible Preferred Equity”). On January 14, 2024, the Company withdrew its public tender offer. See Note 3 for more information on the public tender offer.

Certain provisions under the Third Amendment, including the ability to issue the Convertible Preferred Equity, will expire on April 30, 2024. The majority of the provisions provided by the Third Amendment were contingent upon the completion of the acquisition and the issuance of the Convertible Preferred Equity, which will no longer occur, and therefore, immediately revert to the terms of the Second Amendment.

The Company incurred \$1,112 in financing costs in connection with the Third Amendment during 2023, which will be amortized over the remaining term of the Credit Agreement. 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 sheets at December 31, 2023.

Outstanding borrowings under the Credit Agreement are collateralized by nearly all of the assets of the Company and contain financial and operating covenants. The Company was in compliance with these covenants at December 31, 2023 and 2022. The Credit Agreement also limits the declaration or payment of certain dividends not to exceed an aggregate of \$2,000.

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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 6.46% and 5.42% at December 31, 2023 and 2022, respectively, 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 \$46,875 and \$49,063 at December 31, 2023 and 2022, respectively.

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, 2023, the New Base Rate Option and SOFR Option applicable to the Line of Credit borrowings were 8.50% and 6.48%, respectively. There were no outstanding borrowings under the Line of Credit at December 31, 2023 or 2022.

Our indebtedness at December 31, 2023 and December 31, 2022 was as follows:

	As of December 31,	
	2023	2022
Term Loan	\$ 2,500	\$ 2,188
Current portion of long-term debt	2,500	2,188
Term Loan	44,375	46,875
Deferred financing costs	(316)	(166)
Debt, net of current portion	\$ 44,059	\$ 46,709
Total debt	\$ 46,559	\$ 48,897

Debt maturities under the Credit Agreement for the next five years and thereafter are as follows as of December 31, 2023:

Year Ending December 31,	
2024	\$ 2,500
2025	2,500
2026	3,437
2027	38,438
Total debt, net of financing costs	\$ 46,875

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Notes to Consolidated Financial Statements (continued)
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11. STOCKHOLDERS' EQUITY

Common Stock

During 2023, the Company issued 2,468 shares of Class A common stock ("Class A") related to the exercise of options, net of 314 shares returned to the Company in lieu of payment of the exercise price and taxes due on these exercises. The Company issued 511 shares of Class A in 2023 in connection with the vesting of RSUs, net of 285 shares returned to the Company in lieu of payment of taxes due on the vesting of these awards. The Company issued 198 shares of Class A in 2023 in connection with the vesting of RSAs, net of 7 shares returned to the Company in lieu of payment of taxes due on the vesting of these awards. The Company also issued 152 shares in connection with the ESPP Plan in 2023. During 2023, stockholders exchanged 7,646 shares of Class B common stock ("Class B") for an equivalent number of shares of Class A.

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.

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.

No payments were required under the Tax Sharing Agreement in 2023. 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. Through the year ended December 31, 2021, the Company distributed \$2,733 to the former S-Corporation shareholders under the Tax Sharing Agreement.

Vertex, Inc. and Subsidiaries
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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 and Class B for the periods reflected below.

Class A common stock:	For the year ended December 31,		
	2023	2022	2021
Numerator, basic:			
Net loss attributable to all stockholders	\$ (13,093)	\$ (12,304)	\$ (1,479)
Class A common stock as a percentage of total shares outstanding, basic	36.06 %	30.65 %	24.12 %
Net loss attributable to Class A stockholders, basic	<u>\$ (4,721)</u>	<u>\$ (3,771)</u>	<u>\$ (357)</u>
Numerator, diluted:			
Net loss attributable to all stockholders	\$ (13,093)	\$ (12,304)	\$ (1,479)
Class A common stock as a percentage of total shares outstanding, diluted	36.06 %	30.65 %	24.12 %
Net loss attributable to Class A stockholders, diluted	<u>\$ (4,721)</u>	<u>\$ (3,771)</u>	<u>\$ (357)</u>
Denominator, basic and diluted:			
Weighted average Class A common stock, basic	54,753	45,864	35,647
Dilutive effect of common stock equivalents ^{(1) (2) (3)}	—	—	—
Weighted average Class A common stock, diluted	<u>54,753</u>	<u>45,864</u>	<u>35,647</u>
Net loss per Class A share, basic	<u>\$ (0.09)</u>	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>
Net loss per Class A share, diluted	<u>\$ (0.09)</u>	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>

¹⁾ For the year ended December 31, 2023, 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: 7,374 options (including 482 out-of-the-money options), 168 RSAs, 3,910 RSUs and 42 shares under the ESPP.

²⁾ 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 RSAs, 2,254 RSUs and 52 shares under the ESPP.

³⁾ 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 RSAs, 387 RSUs and 29 shares under the ESPP.

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Class B common stock:	For the year ended December 31,		
	2023	2022	2021
Numerator, basic:			
Net loss attributable to all stockholders	\$ (13,093)	\$ (12,304)	\$ (1,479)
Class B common stock as a percentage of total shares outstanding, basic	63.94 %	69.35 %	75.88 %
Net loss attributable to Class B stockholders, basic	<u>\$ (8,372)</u>	<u>\$ (8,533)</u>	<u>\$ (1,122)</u>
Numerator, diluted:			
Net loss attributable to all stockholders	\$ (13,093)	\$ (12,304)	\$ (1,479)
Class B common stock as a percentage of total shares outstanding, diluted	63.94 %	69.35 %	75.88 %
Net loss attributable to Class B stockholders, diluted	<u>\$ (8,372)</u>	<u>\$ (8,533)</u>	<u>\$ (1,122)</u>
Denominator, basic and diluted:			
Weighted average Class B common stock, basic	97,106	103,781	112,133
Dilutive effect of common stock equivalents	—	—	—
Weighted average Class B common stock, diluted	<u>97,106</u>	<u>103,781</u>	<u>112,133</u>
Net loss per Class B share, basic	<u>\$ (0.09)</u>	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>
Net loss per Class B share, diluted	<u>\$ (0.09)</u>	<u>\$ (0.08)</u>	<u>\$ (0.01)</u>

13. EMPLOYEE BENEFIT AND DEFERRED COMPENSATION PLANS

The Company maintains a 401(k) plan that covers eligible employees. For the year ended December 31, 2021, 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. Discretionary profit-sharing contributions aggregated \$3,994 for the year ended December 31, 2021. Effective January 1, 2022, discretionary profit-sharing contributions were eliminated and the Company began to match up to 6% of eligible compensation during the period in which an eligible participant contributes to the plan. Matching 401(k) contributions were \$11,285, \$10,056, and \$4,062 for the years ended December 31, 2023, 2022, and 2021, 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 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. At December 31, 2022, the Company had one open Reward Performance Period, which was paid in 2023.

Compensation expense associated with LTR plan was \$0, \$892, and \$3,059 for the years ended December 31, 2023, 2022, and 2021, respectively. Amounts paid in 2023 and 2022 for the LTR plan were \$2,237 and \$4,023, respectively.

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Stock-Based Award Plans

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, 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 at the ESPP discount through payroll deductions. 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, 2024 and 2023 aggregated \$371 and \$311 as of December 31, 2023 and 2022, respectively.

2020 Plan

Upon commencement of the 2020 Plan, an aggregate of 16,500 shares of our Class A were available for issuance. The number of shares available for issuance are 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 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 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.

As of December 31, 2023, 15,676 shares of our Class A 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, 2023.

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.

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Options under 2020 Plan

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

<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, 2023	8,508	\$ 4.34	4.3	\$ 86,514
Exercised	(2,782)	\$ 2.32		
Forfeited	(34)	\$ 5.82		
2020 Plan options outstanding at December 31, 2023	<u>5,692</u>	<u>\$ 5.32</u>	4.7	124,327
2020 Plan options exercisable at December 31, 2023	<u>4,289</u>	<u>\$ 4.31</u>	4.1	97,737

The detail of options outstanding, vested and exercisable under the 2020 Plan as of December 31, 2023 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	786	*	786	*
\$2.15	147	1.1	147	1.1
\$2.50	1,721	2.7	1,721	2.7
\$2.67	63	3.1	63	3.1
\$3.17	431	4.4	431	4.4
\$3.73	1,236	5.8	490	5.8
\$4.70	603	6.1	261	6.1
\$18.47	213	7.9	107	7.9
\$18.96	185	7.6	120	7.6
\$19.00	65	7.7	32	7.7
\$32.16	242	7.2	131	7.2
	<u>5,692</u>		<u>4,289</u>	

*These Options have indefinite contractual lives.

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 underlying the options on the date of grant. Compensation expense to participants under the 2020 Plan is measured based on the grant date 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.

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The Company issued 779 options under the 2020 Plan in 2021. No options were issued during 2022 or 2023. 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, 2023, \$4,756 of unrecognized compensation expense associated with the options is expected to be recognized over a weighted average period of approximately 1.2 years.

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, 2023	2,562	\$ 15.90
Granted	2,627	16.64
Vested	(796)	17.45
Forfeited	(222)	15.23
Outstanding at December 31, 2023	4,171	\$ 16.11

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, 2023, \$46,180 of unrecognized compensation cost for RSUs is expected to be recognized over a weighted average period of approximately 2.6 years.

In connection with the Taxamo acquisition, certain continuing employees of Taxamo received RSUs with service and performance conditions, which were measured as of December 31, 2023. These targets were not met, therefore, no compensation expense was recorded and they have been forfeited as of December 31, 2023.

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

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, 2023	235	\$ 14.91
Granted	62	22.69
Vested	(206)	14.32
Outstanding at December 31, 2023	<u>91</u>	\$ 21.50

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, 2023, \$949 of unrecognized compensation cost for RSAs is expected to be recognized over a weighted average period of approximately 0.5 year.

Employee Stock Purchase Plan

The ESPP permits participants to purchase Class A 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 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 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 may be issued. The ESPP is administered by a committee of the Board. As of December 31, 2023, there were 4,914 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. 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 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. If 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, 2023 and 2022, there was approximately \$375 and \$324, 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, 2024 and 2023, 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. ESPP offering periods reflected in

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

the December 31, 2023, financial statements include the periods noted below in the table. The value of the call or put was estimated using the Black-Scholes model with the following assumptions:

	Offering Period Ending				
	5/31/2024	11/30/2023	5/31/2023	11/30/2022	5/31/2022
Fair market value of common stock	\$ 27.82	\$ 21.76	\$ 17.21	\$ 11.16	\$ 17.38
Volatility	36.6 %	39.4 %	46.4 %	35.4 %	37.3 %
Expected term (years)	0.5	0.5	0.5	0.5	0.5
Expected dividend yield	-	-	-	-	-
Risk-free interest rate	5.3 %	5.4 %	4.7 %	1.6 %	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 six months. 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,		
	2023	2022	2021
Stock-based compensation expense:			
Stock options	\$ 6,349	\$ 7,081	\$ 17,533
RSUs	24,257	9,286	2,964
RSAs	2,496	2,768	5,126
ESPP	817	594	537
Total stock-based compensation expense	<u>\$ 33,919</u>	<u>\$ 19,729</u>	<u>\$ 26,160</u>

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

	For the year ended December 31,		
	2023	2022	2021
Stock-based compensation expense:			
Cost of revenues, software subscriptions	\$ 2,834	\$ 2,090	\$ 2,336
Cost of revenues, services	1,846	1,433	2,648
Research and development	5,994	1,798	2,620
Selling and marketing	8,380	6,284	6,371
General and administrative	14,865	8,124	12,185
Total stock-based compensation expense	<u>\$ 33,919</u>	<u>\$ 19,729</u>	<u>\$ 26,160</u>

The total recognized tax benefit related to the stock-based compensation expense for the years ended December 31, 2023, 2022, and 2021 was \$16,541, \$3,324, and \$14,683, respectively. The tax benefit from stock options exercised during the years ended December 31, 2023, 2022, and 2021 was \$13,079, \$2,710, and \$14,159, respectively.

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

14. RELATED PARTIES

In connection with the termination of the Company's S-corporation status and our establishment of a new capital structure, which both occurred in July 2020, the Company entered into the Third Amended and Restated Stockholders' Agreement (the "Stockholders' Agreement") with the Class B 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. No offering costs related to the sale of shares associated with the Selling Shareholder Registration were incurred during the year ended December 31, 2023. 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.

Purchase Obligations

In the ordinary course of business, the Company enters into non-cancelable agreements with third-party providers, primarily for subscriptions and the use of cloud services. Future minimum payments as of December 31, 2023 are summarized in the table below:

2024	\$	10,450
2025		7,452
2026		4,568
2027		3,696
2028		3,075
	\$	<u>29,241</u>

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

16. INCOME TAXES

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

	For the year ended December 31,		
	2023	2022	2021
U.S.	\$ (3,126)	\$ 5,827	\$ 5,608
Foreign	(18,548)	(15,957)	(9,534)
Net loss before income taxes	<u>\$ (21,674)</u>	<u>\$ (10,130)</u>	<u>\$ (3,926)</u>

Income tax expense (benefit) consists of the following:

	For the year ended December 31,		
	2023	2022	2021
Current income taxes:			
Federal	\$ (279)	\$ 1,696	\$ —
State and local	1,568	1,068	155
Foreign	1,347	577	468
Total current	<u>2,636</u>	<u>3,341</u>	<u>623</u>
Deferred income taxes:			
Federal	(9,224)	904	(1,849)
State and local	(1,552)	72	(7)
Foreign	(441)	(2,143)	(1,214)
Total deferred	<u>(11,217)</u>	<u>(1,167)</u>	<u>(3,070)</u>
Income tax expense (benefit)	<u>\$ (8,581)</u>	<u>\$ 2,174</u>	<u>\$ (2,447)</u>

During the year ended December 31, 2023, the Company recognized a \$27 income tax expense 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, 2022, the Company recognized a \$12 income tax benefit in accumulated other comprehensive loss relating to unrealized gains from foreign currency translation adjustments and revaluations, and available-for-sale securities.

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

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

	2023		2022		2021	
	Total	Tax Rate	Total	Tax Rate	Total	Tax Rate
Pretax net loss	\$ (21,674)		\$ (10,130)		\$ (3,926)	
Taxes:						
U.S. federal income tax at statutory rate	\$ (4,552)	21.0 %	\$ (2,128)	21.0 %	\$ (825)	21.0 %
State income taxes	289	(1.3)%	441	(4.4)%	678	(17.3)%
Stock-based compensation expense	(6,236)	28.8 %	1,787	(17.6)%	(4,550)	115.9 %
Impact of foreign operations	1,463	(6.8)%	1,352	(13.3)%	954	(24.3)%
Transaction costs	—	0.0 %	176	(1.7)%	1,082	(27.6)%
U.S. taxation of foreign earnings	(245)	1.1 %	(179)	1.8 %	144	(3.7)%
Nondeductible compensation	2,822	(13.0)%	485	(4.8)%	682	(17.4)%
Tax credits	(5,818)	26.8 %	(341)	3.4 %	(488)	12.4 %
Change in valuation allowance	3,386	(15.6)%	427	(4.2)%	373	(9.5)%
Changes in prior year unrecognized tax benefits	451	(2.1)%	—	0.0 %	—	0.0 %
Other permanent items, net	(141)	0.7 %	154	(1.7)%	(497)	12.8 %
Taxes and effective tax rate	<u>\$ (8,581)</u>	<u>39.6 %</u>	<u>\$ 2,174</u>	<u>(21.5)%</u>	<u>\$ (2,447)</u>	<u>62.3 %</u>

The effective tax rate in 2023 increased to 39.6% from (21.5)% in 2022. The increase in income tax benefit in 2023 was primarily driven by changes in tax benefits on exercises and vestings of stock awards, tax credits, valuation allowances on net deferred tax assets established for certain foreign jurisdictions, loss before income tax, and limitations on deductions of certain employees' compensation under Internal Revenue Code ("IRC") Section 162(m).

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 IRC Section 162(m), partially offset by the favorable impact of tax credits and foreign tax benefits from the deduction for foreign-derived intangible income.

The impact of foreign operations in 2023, 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.

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>2023</u>	<u>2022</u>
Deferred tax assets:		
Deferred revenue	\$ 3,523	\$ 2,981
State operating loss carry forwards	2,682	2,831
Federal and foreign loss carry forwards	4,361	11,318
Accrued expenses	2,239	2,238
Accrued compensation	2,339	—
Deferred and stock-based compensation	19,008	23,634
Operating lease liabilities	5,151	6,272
Tax credits	3,662	—
Depreciation and amortization	6,417	—
Other	2,721	—
Deferred tax assets	<u>52,103</u>	<u>49,274</u>
Valuation allowance	(5,941)	(2,285)
Total deferred tax assets	<u>46,162</u>	<u>46,989</u>
Deferred tax liabilities:		
Depreciation and amortization	—	(9,337)
Prepaid expenses	(1,026)	(1,256)
Right of use asset	(3,428)	(4,325)
Accrued compensation	—	(1,434)
Other	—	(115)
Total deferred tax liabilities	<u>(4,454)</u>	<u>(16,467)</u>
Net deferred tax asset	<u>\$ 41,708</u>	<u>\$ 30,522</u>
Classification in the consolidated balance sheets:		
Deferred income tax asset	\$ 41,708	\$ 30,938
Deferred other liabilities	—	(416)
Net deferred tax asset	<u>\$ 41,708</u>	<u>\$ 30,522</u>

At December 31, 2023, the Company has no U.S. federal operating loss carry forwards and available U.S. state operating loss carry forwards of \$42,090. The state operating losses will expire at varying dates beginning in 2031 through 2043 or will carry forward indefinitely. Management expects to fully use these U.S. state operating loss carry forwards.

At December 31, 2023, the Company has available foreign operating losses of approximately \$27,577 and nontrading losses of \$51, which generally carry forward indefinitely. A valuation allowance for a portion of the foreign operating and non-operating losses is recorded at December 31, 2023 and 2022.

At December 31, 2023, the Company has available U.S. federal R&D tax credit carryovers of \$4,014. The credits will expire from 2041 through 2043. Management expects to fully use these U.S. federal credit carry forwards.

At December 31, 2023 and 2022, the Company has a valuation allowance of (\$5,941) and (\$2,285), respectively, primarily against certain net deferred tax assets, including losses, in foreign jurisdictions. The net increase in the total valuation allowance of (\$3,656) during December 31, 2023 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 foreign jurisdictions, 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.

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

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, 2020 through December 31, 2023 remain subject to examination. Under applicable statutes, state and foreign corporate tax returns filed for the Company and its respective foreign subsidiaries for years ended December 31, 2018 through December 31, 2023 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 Statement Nos. 333-263726 and 333-240143 on Form S-8 of Vertex, Inc. of our report dated February 29, 2024 relating to the financial statements of Vertex, Inc., and our report dated the same date relative to the effectiveness of internal control over financial reporting, appearing in this Annual Report on Form 10-K.

/s/ Crowe LLP
Crowe LLP

New York, New York
February 29, 2024

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that the undersigned, a member of the Board of Directors of Vertex, Inc., a Delaware corporation (the "Company"), with its principal executive offices in King of Prussia, Pennsylvania, do hereby constitute, designate and appoint each of John Schwab and Bryan Rowland, each of whom are officers of the Company, as my true and lawful attorneys-in-fact, each with power of substitution and resubstitutions, with full power to act without the other and on behalf of and as attorney for me, for the purpose of executing and filing with the Securities and Exchange Commission the Company's Annual Report on Form 10-K for the year ended December 31, 2023, and any and all amendments thereto, and to do all such other acts and execute all such other instruments which said attorney may deem necessary or desirable in connection therewith.

I have executed this Limited Power of Attorney effective as of February 12, 2024.

/s/ ERIC ANDERSEN

Eric Andersen

Director

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that the undersigned, a member of the Board of Directors of Vertex, Inc., a Delaware corporation (the "Company"), with its principal executive offices in King of Prussia, Pennsylvania, do hereby constitute, designate and appoint each of John Schwab and Bryan Rowland, each of whom are officers of the Company, as my true and lawful attorneys-in-fact, each with power of substitution and resubstitutions, with full power to act without the other and on behalf of and as attorney for me, for the purpose of executing and filing with the Securities and Exchange Commission the Company's Annual Report on Form 10-K for the year ended December 31, 2023, and any and all amendments thereto, and to do all such other acts and execute all such other instruments which said attorney may deem necessary or desirable in connection therewith.

I have executed this Limited Power of Attorney effective as of February 12, 2024.

/s/ PHILIP SAUNDERS

Philip Saunders
Director

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that the undersigned, a member of the Board of Directors of Vertex, Inc., a Delaware corporation (the "Company"), with its principal executive offices in King of Prussia, Pennsylvania, do hereby constitute, designate and appoint each of John Schwab and Bryan Rowland, each of whom are officers of the Company, as my true and lawful attorneys-in-fact, each with power of substitution and resubstitutions, with full power to act without the other and on behalf of and as attorney for me, for the purpose of executing and filing with the Securities and Exchange Commission the Company's Annual Report on Form 10-K for the year ended December 31, 2023, and any and all amendments thereto, and to do all such other acts and execute all such other instruments which said attorney may deem necessary or desirable in connection therewith.

I have executed this Limited Power of Attorney effective as of February 12, 2024.

/s/ KEVIN ROBERT

Kevin Robert
Director

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that the undersigned, a member of the Board of Directors of Vertex, Inc., a Delaware corporation (the "Company"), with its principal executive offices in King of Prussia, Pennsylvania, do hereby constitute, designate and appoint each of John Schwab and Bryan Rowland, each of whom are officers of the Company, as my true and lawful attorneys-in-fact, each with power of substitution and resubstitutions, with full power to act without the other and on behalf of and as attorney for me, for the purpose of executing and filing with the Securities and Exchange Commission the Company's Annual Report on Form 10-K for the year ended December 31, 2023, and any and all amendments thereto, and to do all such other acts and execute all such other instruments which said attorney may deem necessary or desirable in connection therewith.

I have executed this Limited Power of Attorney effective as of February 12, 2024.

/s/ J. RICHARD STAMM

J. Richard Stamm

Director

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that the undersigned, a member of the Board of Directors of Vertex, Inc., a Delaware corporation (the "Company"), with its principal executive offices in King of Prussia, Pennsylvania, do hereby constitute, designate and appoint each of John Schwab and Bryan Rowland, each of whom are officers of the Company, as my true and lawful attorneys-in-fact, each with power of substitution and resubstitutions, with full power to act without the other and on behalf of and as attorney for me, for the purpose of executing and filing with the Securities and Exchange Commission the Company's Annual Report on Form 10-K for the year ended December 31, 2023, and any and all amendments thereto, and to do all such other acts and execute all such other instruments which said attorney may deem necessary or desirable in connection therewith.

I have executed this Limited Power of Attorney effective as of February 12, 2024.

/s/ AMANDA WESTPHAL RADCLIFFE

Amanda Westphal Radcliffe

Director

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that the undersigned, a member of the Board of Directors of Vertex, Inc., a Delaware corporation (the "Company"), with its principal executive offices in King of Prussia, Pennsylvania, do hereby constitute, designate and appoint each of John Schwab and Bryan Rowland, each of whom are officers of the Company, as my true and lawful attorneys-in-fact, each with power of substitution and resubstitutions, with full power to act without the other and on behalf of and as attorney for me, for the purpose of executing and filing with the Securities and Exchange Commission the Company's Annual Report on Form 10-K for the year ended December 31, 2023, and any and all amendments thereto, and to do all such other acts and execute all such other instruments which said attorney may deem necessary or desirable in connection therewith.

I have executed this Limited Power of Attorney effective as of February 12, 2024.

/s/ STEFANIE WESTPHAL THOMPSON

Stefanie Westphal Thompson

Director

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that the undersigned, a member of the Board of Directors of Vertex, Inc., a Delaware corporation (the "Company"), with its principal executive offices in King of Prussia, Pennsylvania, do hereby constitute, designate and appoint each of John Schwab and Bryan Rowland, each of whom are officers of the Company, as my true and lawful attorneys-in-fact, each with power of substitution and resubstitutions, with full power to act without the other and on behalf of and as attorney for me, for the purpose of executing and filing with the Securities and Exchange Commission the Company's Annual Report on Form 10-K for the year ended December 31, 2023, and any and all amendments thereto, and to do all such other acts and execute all such other instruments which said attorney may deem necessary or desirable in connection therewith.

I have executed this Limited Power of Attorney effective as of February 12, 2024.

/s/ BRADLEY GAYTON

Bradley Gayton
Director

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: February 29, 2024

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: February 29, 2024

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, 2023, 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: February 29, 2024

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, 2023, 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: February 29, 2024

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

VERTEX, INC. POLICY FOR RECOVERY OF ERRONEOUSLY AWARDED COMPENSATION

Vertex, Inc. (the “*Company*”) has adopted this Policy for Recovery of Erroneously Awarded Compensation (the “*Policy*”), effective as of October 2, 2023 (the “*Effective Date*”). Capitalized terms used in this Policy but not otherwise defined herein are defined in Section 11.

1. Persons Subject to Policy

This Policy shall apply to current and former Officers of the Company.

2. Compensation Subject to Policy

This Policy shall apply to Incentive-Based Compensation received on or after the Effective Date. For purposes of this Policy, the date on which Incentive-Based Compensation is “received” shall be determined under the Applicable Rules, which generally provide that Incentive-Based Compensation is “received” in the fiscal period during which the relevant Financial Reporting Measure is attained or satisfied, without regard to whether the grant, vesting or payment of the Incentive-Based Compensation occurs thereafter.

3. Recovery of Compensation

In the event that the Company is required to prepare a Restatement, the Company shall recover, reasonably promptly, the portion of any Incentive-Based Compensation that is Erroneously Awarded Compensation, unless the Committee has determined that recovery would be Impracticable. Recovery shall be required in accordance with the preceding sentence regardless of whether the applicable Officer engaged in misconduct or otherwise caused or contributed to the requirement for the Restatement and regardless of whether or when restated financial statements are filed by the Company. For clarity, the recovery of Erroneously Awarded Compensation under this Policy will not give rise to any person’s right to voluntarily terminate employment for “good reason,” or due to a “constructive termination” (or any similar term of like effect) under any plan, program or policy of or agreement with the Company or any of its affiliates.

4. Manner of Recovery; Limitation on Duplicative Recovery

The Committee shall, in its sole discretion, determine the manner of recovery of any Erroneously Awarded Compensation, which may include, without limitation, reduction or cancellation by the Company or an affiliate of the Company of Incentive-Based Compensation or Erroneously Awarded Compensation, reimbursement or repayment by any person subject to this Policy of the Erroneously Awarded Compensation, and, to the extent permitted by law, an offset of the Erroneously Awarded Compensation against other compensation payable by the Company or an affiliate of the Company to such person. Notwithstanding the foregoing, unless otherwise prohibited by the Applicable Rules, to the extent this Policy provides for recovery of Erroneously Awarded Compensation already recovered by the Company pursuant to Section 304 of the

Sarbanes-Oxley Act of 2002 or Other Recovery Arrangements, the amount of Erroneously Awarded Compensation already recovered by the Company from the recipient of such Erroneously Awarded Compensation may be credited to the amount of Erroneously Awarded Compensation required to be recovered pursuant to this Policy from such person.

5. Administration

This Policy shall be administered, interpreted and construed by the Committee, which is authorized to make all determinations necessary, appropriate or advisable for such purpose. The Board of Directors of the Company (the “**Board**”) may re-vest in itself the authority to administer, interpret and construe this Policy in accordance with applicable law, and in such event references herein to the “Committee” shall be deemed to be references to the Board. Subject to any permitted review by the applicable national securities exchange or association pursuant to the Applicable Rules, all determinations and decisions made by the Committee pursuant to the provisions of this Policy shall be final, conclusive and binding on all persons, including the Company and its affiliates, equity holders and employees. The Committee may delegate administrative duties with respect to this Policy to one or more directors or employees of the Company, as permitted under applicable law, including any Applicable Rules.

6. Interpretation

This Policy will be interpreted and applied in a manner that is consistent with the requirements of the Applicable Rules, and to the extent this Policy is inconsistent with such Applicable Rules, it shall be deemed amended to the minimum extent necessary to ensure compliance therewith.

7. No Indemnification; No Liability

The Company shall not indemnify or insure any person against the loss of any Erroneously Awarded Compensation pursuant to this Policy, nor shall the Company directly or indirectly pay or reimburse any person for any premiums for third-party insurance policies that such person may elect to purchase to fund such person’s potential obligations under this Policy. None of the Company, an affiliate of the Company or any member of the Committee or the Board shall have any liability to any person as a result of actions taken under this Policy.

8. Application; Enforceability

Except as otherwise determined by the Committee or the Board, the adoption of this Policy does not limit, and is intended to apply in addition to, any other clawback, recoupment, forfeiture or similar policies or provisions of the Company or its affiliates, including any such policies or provisions of such effect contained in any employment agreement, bonus plan, incentive plan, equity-based plan or award agreement thereunder or similar plan, program or agreement of the Company or an affiliate or required under applicable law (the “**Other Recovery Arrangements**”). The remedy specified in this Policy shall not be exclusive and shall be in addition to every other right or remedy at law or in equity that may be available to the Company or an affiliate of the Company.

9. **Severability**

The provisions in this Policy are intended to be applied to the fullest extent of the law; provided, however, to the extent that any provision of this Policy is found to be unenforceable or invalid under any applicable law, such provision will be applied to the maximum extent permitted, and shall automatically be deemed amended in a manner consistent with its objectives to the extent necessary to conform to any limitations required under applicable law.

10. **Amendment and Termination**

The Board or the Committee may amend, modify or terminate this Policy in whole or in part at any time and from time to time in its sole discretion. This Policy will terminate automatically when the Company does not have a class of securities listed on a national securities exchange or association.

11. **Definitions**

“Applicable Rules” means Section 10D of the Exchange Act, Rule 10D-1 promulgated thereunder, the listing rules of the national securities exchange or association on which the Company’s securities are listed, and any applicable rules, standards or other guidance adopted by the Securities and Exchange Commission or any national securities exchange or association on which the Company’s securities are listed.

“Committee” means the committee of the Board responsible for executive compensation decisions comprised solely of independent directors (as determined under the Applicable Rules), or in the absence of such a committee, a majority of the independent directors serving on the Board.

“Erroneously Awarded Compensation” means the amount of Incentive-Based Compensation received by a current or former Officer that exceeds the amount of Incentive-Based Compensation that would have been received by such current or former Officer based on a restated Financial Reporting Measure, as determined on a pre-tax basis in accordance with the Applicable Rules.

“Exchange Act” means the Securities Exchange Act of 1934, as amended.

“Financial Reporting Measure” means any measure determined and presented in accordance with the accounting principles used in preparing the Company’s financial statements, and any measures derived wholly or in part from such measures, including GAAP, IFRS and non-GAAP/IFRS financial measures, as well as stock or share price and total equityholder return.

“GAAP” means United States generally accepted accounting principles.

“IFRS” means international financial reporting standards as adopted by the International Accounting Standards Board.

“Impracticable” means (a) the direct costs paid to third parties to assist in enforcing recovery would exceed the Erroneously Awarded Compensation; provided that the Company (i) has made reasonable attempts to recover the Erroneously Awarded Compensation, (ii) documented

such attempt(s), and (iii) provided such documentation to the relevant listing exchange or association, (b) to the extent permitted by the Applicable Rules, the recovery would violate the Company's home country laws pursuant to an opinion of home country counsel; provided that the Company has (i) obtained an opinion of home country counsel, acceptable to the relevant listing exchange or association, that recovery would result in such violation, and (ii) provided such opinion to the relevant listing exchange or association, or (c) recovery would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company, to fail to meet the requirements of 26 U.S.C. 401(a)(13) or 26 U.S.C. 411(a) and the regulations thereunder.

“Incentive-Based Compensation” means, with respect to a Restatement, any compensation that is granted, earned, or vested based wholly or in part upon the attainment of one or more Financial Reporting Measures and received by a person: (a) after beginning service as an Officer; (b) who served as an Officer at any time during the performance period for that compensation; (c) while the issuer has a class of its securities listed on a national securities exchange or association; and (d) during the applicable Three-Year Period.

“Officer” means each person who serves as an executive officer of the Company, as defined in Rule 10D-1(d) under the Exchange Act.

“Restatement” means an accounting restatement to correct the Company's material noncompliance with any financial reporting requirement under securities laws, including restatements that correct an error in previously issued financial statements (a) that is material to the previously issued financial statements or (b) that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period.

“Three-Year Period” means, with respect to a Restatement, the three completed fiscal years immediately preceding the date that the Board, a committee of the Board, or the officer or officers of the Company authorized to take such action if Board action is not required, concludes, or reasonably should have concluded, that the Company is required to prepare such Restatement, or, if earlier, the date on which a court, regulator or other legally authorized body directs the Company to prepare such Restatement. The “Three-Year Period” also includes any transition period (that results from a change in the Company's fiscal year) within or immediately following the three completed fiscal years identified in the preceding sentence. However, a transition period between the last day of the Company's previous fiscal year end and the first day of its new fiscal year that comprises a period of nine to 12 months shall be deemed a completed fiscal year.