

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

Form 10-K

(MARK ONE)

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

For the fiscal year ended December 31, 2022

or

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

For the transition period from _____ to _____

Commission File Number **001-33554**



PROS HOLDINGS, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware

(State or Other Jurisdiction of
Incorporation or Organization)

76-0168604

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

3200 Kirby Drive, Suite 600

77098

Houston, Texas

(Address of Principal Executive Offices)

(Zip code)

Registrant's telephone number, including area code: **713 335-5151**

Securities Registered Pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Common Stock, \$0.001 par value per share	PRO	New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange 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 definition of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act:

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

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

☐

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

audit report. ☒

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

The aggregate market value of voting and non-voting common equity held by non-affiliates of the registrant was approximately \$ 1,140,571,313 as of June 30, 2022 based upon the closing price for the registrant's common stock on the New York Stock Exchange. This determination of affiliate status was based on publicly filed documents and is not necessarily a conclusive determination for other purposes.

45,872,928 shares of common stock were issued and outstanding as of February 9, 2023.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's proxy statement relating to its 2023 Annual Stockholders Meeting (the "2023 Proxy Statement"), are incorporated by reference into Part III of this Annual Report on Form 10-K. The 2023 Proxy Statement will be filed with the U.S. Securities and Exchange Commission within 120 days of the end of the fiscal year to which this report relates.

PROS Holdings, Inc.
Annual Report on Form 10-K
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For the Year Ended December 31, 2022

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SIGNIFICANT RELATIONSHIPS REFERENCED IN THIS ANNUAL REPORT

The terms "PROS," "we," "us," and "our" refer to PROS Holdings, Inc., a Delaware corporation, and all of its subsidiaries that are consolidated in conformity with the generally accepted accounting principles in the United States of America ("GAAP").

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, 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 in this report other than historical facts are forward-looking and are based on current estimates, assumptions, trends and projections. Statements which include the words "believes," "seeks," "expects," "may," "should," "intends," "likely," "targets," "plans," "anticipates," "estimates," or the negative version of those words and similar expressions are intended to identify forward-looking statements. Numerous important factors, risks and uncertainties affect our operating results, including, without limitation, those contained in this report, and could cause our actual results to differ materially, from the results implied by these or any other forward-looking statements made by us or on our behalf. You should pay particular attention to the important risk factors and cautionary statements described in the section of this report entitled "Risk Factors." You should also carefully review the cautionary statements described in the other documents we file from time to time with the Securities and Exchange Commission ("SEC"), specifically all Quarterly Reports on Form 10-Q and Current Reports on Form 8-K.

You should not rely on forward-looking statements as predictions of future events, as we cannot guarantee that future results, levels of activity, performance or achievements will meet expectations. The forward-looking statements made herein are only made as of the date hereof, and we undertake no obligation to publicly update such forward-looking statements for any reason.

Part I

Item 1. *Business*

Overview

PROS provides solutions that optimize shopping and selling experiences. PROS solutions leverage artificial intelligence ("AI"), self-learning and automation to ensure that every transactional experience is fast, frictionless and personalized for every shopper, supporting both business-to-business ("B2B") and business-to-consumer ("B2C") companies across industry verticals. Companies can use our selling, pricing, revenue optimization, distribution and retail, and digital offer marketing solutions to assess their market environments in real time to deliver customized offers and prices. Our solutions enable buyers to move fluidly across our customers' direct sales, partner, online, mobile and emerging channels with personalized experiences regardless of which channel buyers choose. Our decades of data science and AI expertise are infused into our solutions and are designed to reduce time and increase win-rates through actionable intelligence. Our solutions are provided via software-as-a-service ("SaaS") and are designed to achieve high levels of performance, scalability, availability and security. We provide standard configurations of our solutions based on the industries we serve and offer services to configure our solutions to meet the specific needs of each customer and manage all updates and upgrades of software deployed on the PROS cloud platform.

Our Industry

Real-time decision making is an important driver of business performance in the digital economy. Rapidly changing markets and buyer expectations make it increasingly harder for companies to compete and grow. In response to these pressures, we believe that market forces, including increasingly dynamic and complex business models, the continued growth of eCommerce, inflation, supply and demand volatility, and the volume of enterprise and market data will increase demand for software solutions that enable companies to dynamically configure, price and sell their products and services across buyer channels with speed, precision and consistency. We believe the market for solutions that can power commerce using AI and machine learning is a large, growing market that spans most major industries.

Our Solutions

Our cloud-based software solutions, built on the PROS Platform, provide companies with AI-based predictive and prescriptive guidance on key business decisions that drive growth and profitability. We focus primarily on configure price quote

("CPQ"), pricing optimization and management, airline revenue optimization, airline distribution and retail, and digital offer marketing software. Our solutions help increase visibility, business agility and customer engagement by aligning sales and pricing strategy across go-to-market channels.

PROS Platform

We believe the PROS Platform is the only unified pricing and selling platform built for an omnichannel world. The PROS Platform enables businesses to grow revenue and improve profitability by dynamically adapting their digital selling strategy to market conditions. Using our unique and proven AI-based capabilities for deep demand and margin forecasting, cost modeling and dynamic pricing, the PROS Platform continuously feeds daily decision-making and longer-term business strategy. The PROS Platform helps eliminate barriers between stakeholders in the selling process to collaborate on a customer offer and drive it to a close while accelerating pricing and selling efficiencies. The PROS Platform is comprised of PROS Smart Configure Price Quote and PROS Smart Price Optimization and Management, and is offered via composable paths based on our customers' business objectives, ranging from simple to advanced use cases with the ability to scale to broader PROS Platform capabilities over time.

PROS Smart Configure Price Quote is designed to improve sales productivity and accelerate deal velocity by automating critical sales tasks. Utilizing a foundation of AI and machine learning algorithms, this solution empowers businesses to tailor every offer for every buyer, across all sales channels, leading to more personalized and engaging customer interactions. Smart Configure Price Quote enables users to find and tailor product recommendations, customize configurations, manage approvals, price optimally and generate professional proposals to increase the probability of winning the sale on the first quote. Smart Configure Price Quote supports all selling scenarios including spot-order purchases, subscription orders and setup and maintenance of negotiated sales agreements. Businesses can also integrate Smart Configure Price Quote into their eCommerce portals, empowering end users to self-serve quotes with confidence. Smart Configure Price Quote is available in three editions:

- *Essentials* enables businesses to digitize and streamline their selling processes and respond quickly to customers with professional looking quotes.
- *Advantage* includes all the capabilities in the Essentials edition, plus enables businesses to sell more complex configurable products, create bills of materials and manage the lifecycle of sales purchase agreements.
- *Ultimate* includes all the capabilities in the Advantage edition, plus enables businesses to create high-volume quotes (10,000+ line items) and leverage AI and machine learning to identify new opportunities to help proactively increase account penetration with existing customers while preventing customer churn.

PROS Smart Price Optimization and Management enables businesses to optimize, personalize and harmonize pricing across the complexity of their go-to-market channels in the context of dynamic market and competitive conditions. Our price management capabilities provide a comprehensive pricing platform that offers a single source of accuracy for price management, coordination and strategy. This solution allows businesses to harmonize pricing across go-to-market channels while simultaneously increasing price discipline and protecting price attainment. Pricing users leverage this solution to deploy formulaic price strategies that can incorporate real-time information or conditional data to ensure that every delivered price is up-to-date with the latest market and competitive conditions. With the performance, power and scalability of PROS Real-Time Pricing Engine, B2B and B2C organizations can replace price lists across commerce channels with dynamic calculations for price requests, ensuring that every delivered price is cognizant of conditions at the time of request. This engine allows businesses facing volatile price competition and underlying component costs to leverage data science to systematically adjust pricing in real time. Our price optimization capabilities leverage AI-powered algorithms to provide market-relevant price guidance across sales channels that is dynamically refined to adapt to changing market conditions and buyer behavior. This predictive and prescriptive price guidance provides optimized pricing for each unique buying scenario, which is designed to help businesses drive revenue growth, recover margin leakage, accelerate quote turnaround times and increase win-rates. Smart Price Optimization and Management works with traditional eCommerce scenarios where a sales person is not involved, as well as where a sales person needs negotiation support, and in all cases this solution provides business-relevant analytics to promote explainability of the AI recommendation. PROS Smart Price Optimization and Management is available in three editions:

- *Essentials* enables businesses to create omnichannel pricing strategies and power their digital, self-service channels.
- *Advantage* includes all the capabilities in the Essentials edition, plus gives businesses the ability to leverage PROS AI-powered price optimization capabilities to respond quickly to changing market patterns, with the best price, to win business and improve revenue and profitability.
- *Ultimate* includes all the capabilities in the Advantage edition, plus gives businesses the ability to inform their pricing strategies with demand and capacity forecasting or their own proprietary data science capabilities using our Extensible AI™, as well as drive more of their business to self-service channels.

PROS Platform - Travel

PROS Airline Revenue Optimization solutions enable airlines to drive revenue- and profit-maximizing business strategies through the application of advanced forecasting, optimization technologies and decision-support capabilities. These solutions are designed to empower airlines to quickly adapt to changing market conditions, differentiate customers by market and sales channel, monitor pricing and revenue management performance, and increase customer loyalty by providing the right products and services to the right customer at the right time. Our Airline Revenue Optimization suite of products includes:

- *PROS Airline Revenue Management* delivers algorithmic forecasting and network optimization for the travel industry. Airlines leverage our forecasting and optimization capabilities to determine optimal capacity levels and manage booking classes inventory to optimize revenue at the flight/network level.
- *PROS Airline Real-Time Dynamic Pricing™* is a scalable solution that offers accurate booking class availability and seat prices across all channels, while keeping the rules, fares and other data in sync. The solution dynamically applies strategies to compute both booking class availability and seat prices in real time at the time of transaction so that airlines can maximize revenue.
- *PROS Airline Group Sales Optimizer* is a group revenue and sales optimization solution powered by dynamic pricing science that enables airlines and their travel agent partners to create and manage group bookings, contracts, policies and payments in one location.
- *PROS Corporate Sales* is a solution that enables airlines to create commercial agreements with their corporate customers, that lead to easier and more repeatable bookings for business travel, by allowing businesses to both self-service and interact with airlines in the digital creation of corporate travel agreements.

PROS Airline Distribution and Retail solutions enable airlines to become better direct retailers by increasing their control and flexibility over how they sell and distribute offers through scalable shopping, booking and merchandising capabilities to design and distribute offers. The solutions are powered by proprietary algorithms, compliant with industry pricing and distribution standards and are entirely passenger service system-independent. Our Airline Distribution and Retail suite of products includes:

- *PROS Dynamic Offers* powers airlines' shopping, pricing and repricing by delivering fast, accurate and comprehensive flight offers to travelers across airlines' sales channels. PROS Dynamic Offers is comprised of several key offer management capabilities including ancillary merchandising, bundling and omni-channel distribution designed to comply with International Air Transport Association ("IATA") New Distribution Capability ("NDC") data transmission standards.
- *PROS Digital Retail* offers a configurable end-to-end solution for airlines to optimize the traveler experience from inspiration to post-trip. With this IATA NDC Level 4 capable solution, airlines can increase conversion rates and upsell opportunities while having the flexibility and control to optimize user interface across their internet booking engine and mobile application.

Digital Offer Marketing

PROS Digital Offer Marketing solutions provide performance content management and search engine marketing tools that enable businesses in the travel industry to drive their customers directly into their direct selling channels, helping create superior brand experiences and foster customer loyalty. These solutions also reduce our customer's dependency and costs associated with transactions routed through third-party intermediaries. PROS Digital Offer Marketing solutions include:

- *airTRFX* allows airlines to launch and manage digital marketing campaigns by generating digital landing pages for every route, origin and destination in an airline's network with relevant fares and a wide range of local languages.
- *airModules* provides airlines flight search displays with relevant fares for digital advertising, including maps, histograms, mosaics, carousels, and maps.
- *FareWire* displays dynamic fares and content powered by user-search data independent of third party intermediaries.
- *airSEM* provides airline specific search engine marketing tools designed to help airlines build, launch and manage ad campaigns with real-time fares in ad copy.

Technology

Our high-performance software architecture supports real-time, high-volume transaction processing and enables us to

handle the complex and demanding processing requirements of sophisticated global enterprises, including those who require sub-second response times for their customers. We provide the majority of our cloud services via cloud computing platform partners who offer Infrastructure-as-a-Service ("IaaS") and Platform-as-a-Service ("PaaS"), located in the United States, the Netherlands, Ireland, Germany, United Arab Emirates, Australia, Singapore and other countries. The use of cloud computing platform partners provides us flexibility to service customers at scale and also offers options to comply with data residency and privacy requirements. We also deliver our solutions from infrastructure designed and operated by us but secured within third-party data center facilities. Our Platform consists of multi-tenant cloud capabilities with an architecture that incorporates customer-specific data privacy and ,complies with data sovereignty policies.

Artificial Intelligence. More than three decades of data science research and access to very large data sets underlies the robust machine learning and AI capabilities of our solutions. Our dynamic AI, including forecasting, optimization, neural networks, segmentation and reinforcement learning, allows us to leverage our deep science and research expertise in our solutions. These capabilities are industry-independent and are validated using our proprietary verification and testing processes. We recently launched our next generation of PROS Smart Price Optimization and Management powered by PROS Gen IV AI which we believe makes PROS the first in the market to drive hyper-personalized price recommendations using neural network technology.

Configuration and Extensibility. Our solutions are designed to handle customer business needs through self-service configuration rather than custom code. The configuration capabilities define both a business layer (including definition of user workflows, executive dashboards, analytics views, calculations, approval processes and alerts), as well as a data layer that permits configuration of data structures, including hierarchical dimensions, pricing levels and measures. We maintain our customers' configurations which allows them to use the latest version of our solutions. We also offer capabilities where scripting languages can be used to handle business requirements that are unique to individual customers. In addition, our solutions are extensible through API's, which allows for broader and richer commerce solutions to be developed with our Platform as a core component.

Data Integration. The data needed to execute and power personalized digital buying typically resides in multiple sources, such as a company's enterprise resource planning ("ERP"), supply chain management ("SCM"), customer relationship management ("CRM"), eCommerce, reservations and inventory systems, external market data sources, spreadsheets and/or industry-specific transaction systems. Our Platform interoperates with many different systems, including those that have been heavily customized to customer requirements. Our data integration capabilities bring data from disparate sources together into a single cohesive data platform, both in real time and through scheduled batch tasks. We also provide certified integration content for SAP and integration development services using industry standard tools and adapters for other common data sources and applications.

Scalability. Our architecture contains multiple microservices designed to provide the reliability and performance necessary for real-time pricing, availability and eCommerce applications. To achieve this, we utilize industry-standard container orchestration tools, noSQL and Event Store technologies to provide high availability, redundancy, zero-downtime upgrades, horizontal scalability and geographic distribution of data.

Intuitive User Interface. Our technology provides a rich and modern, browser-based interface that supports a global user base and has been recognized for its intuitiveness by industry analysts. This interface supports a wide variety of interactive charts and other data views and provides a comprehensive security model based on user role and scope of responsibility. This interface operates on a variety of internet browsers, mobile devices and tablets. We also provide native capabilities for a variety of commerce systems including Adobe Magento, Salesforce CRM and Microsoft Dynamics CRM.

Subscription Services

Our subscription services provide customers access to our software via the Internet which, as compared to on-premises software, reduces their infrastructure, installation and ongoing administration requirements. We also reduce the total cost of ownership of our cloud services over the subscription term by delivering multiple releases per year that automatically introduce new features, while preserving previous configurations and integrations that minimize additional customer investment for compatibility. We also provide cloud-based services to allow existing customers who previously purchased licenses to our legacy software to have access to that software within a cloud-based IT environment that we manage.

Sales, Marketing and Customer Success

We sell and market our software solutions primarily through our direct global sales force and indirectly through go-to-market partners, resellers and systems integrators. Our sales force is organized by our target markets, including automotive and industrial manufacturing and distribution, consumer goods, transportation and logistics, chemicals and energy, food and consumables, insurance, healthcare, technology and travel. Our marketing activities consist of a variety of programs designed to generate sales leads, accelerate sales opportunities and build awareness of our solutions. We also use digital channels including search and content syndication to reach our target market. We host an annual customer conference, Outperform, where our customers and prospects are invited to learn about best practices from thought leaders, executives and other practitioners in using technology to compete in the digital economy, hear about our latest innovations, and network with peers across industries. We also host other smaller conferences throughout the year, host informational web seminars and participate in and sponsor other industry and trade conferences and organizations. We believe that customer adoption, support and success are critical to retaining and expanding our customer base. Our customer success team helps ensure customer satisfaction with our solutions, by working with our customers to ensure that our solutions drive value for them in order to drive customer retention. Our customer success teams help our customers drive adoption of our solutions, advise on product features and capabilities, and provide recommendations on best practices to meet our customers' business objectives.

Professional Services

To accelerate our customers' time to value, we provide software-related services, including implementation, configuration, consulting and training services. We offer in-depth expertise, proven best practices and repeatable delivery methodologies based on standardized and tested implementation processes developed through years of experience implementing our software solutions in global enterprises across multiple industries. We also offer an array of training on all aspects of our software solutions, from introductory on-demand mini-courses to multi-day hands-on deep technical classroom sessions. In addition to our own internal services team, we also work with many third-party system integrators who have been certified to implement our software.

Maintenance and Support

Customers maintaining implementations under on-premises licenses that were purchased prior to our cloud transition may purchase, at their discretion, maintenance and support services. Maintenance enrollment entitles a customer to solicit support through a web-based interface to submit and track issues, access our online knowledge base, and receive unspecified upgrades, maintenance releases and bug fixes during the term of the support period. Revenue from maintenance and support services has continued to decline as a result of existing maintenance customers migrating to our cloud solutions. We have notified our legacy on-premises customers that we will be discontinuing maintenance for most of our legacy on-premises software at the end of 2023.

Customers

We sell our solutions to customers across many industries, including automotive and industrial manufacturing and distribution, transportation and logistics, chemicals and energy, food and consumables, healthcare, insurance, technology and travel. Our customers are generally large global enterprises and medium-sized businesses, although we also have customers that are smaller in scope of operations. In 2022, we had no single customer that accounted for 10% or more of our revenue. Our customers are also geographically diverse, as approximately 64% of our total revenue came from customers outside the U.S. for the year ended December 31, 2022.

Competition

The markets for our solutions are competitive, fragmented and rapidly evolving. We compete in a sales solutions ecosystem with competitors that aim to drive effectiveness and efficiency in selling, although we believe we are unmatched in our ability to deliver sales and pricing AI with usability, speed, scale and precision. We face competition from both larger and smaller competitors, including those providing industry specific software, pricing solutions, CPQ solutions and revenue management solutions, all of which deliver only a part of the functionality of our competing PROS offerings. We also face competition from retail, shopping and merchandising solutions designed for the airline industry. To a lesser extent, we compete against large enterprise application providers that have developed offerings that include competing functionality and custom solutions developed internally by businesses, which generally include some combination of spreadsheets, manual processes, external consultants and internally developed software tools.

The number of companies that we compete with has increased as we expanded into adjacent technologies. We believe our customers consider the following factors when evaluating our solutions versus competitive solutions:

- breadth and depth of product and service offerings, including functionality, performance, product architecture, data security, reliability and scalability;
- user experience;
- return on investment, total cost of ownership and time-to-value;
- applicability for all current and expected selling channels;
- customer base and reputation;
- brand awareness;
- strength of AI and real-time capabilities;
- breadth and depth of integrations with the software already used by the customer;
- depth of expertise in data and pricing science; and
- industry domain expertise and functionality.

We do not believe that any of our competitors provide a competitive level of all the functionality needed to support an organization interested in optimizing sales growth through AI-based omnichannel pricing, selling and revenue management. Our competitors generally compete on price or by bundling their applications with other enterprise applications, and we expect that this will continue in the future. We distinguish ourselves from these vendors through our long history of providing software solutions incorporating AI and/or machine learning, the breadth and depth of the functionality we offer, the robust integration and configuration capabilities of our solutions, our ability to handle large data volumes at scale and our proven ability to provide high-value dynamic science-based optimization software to our global customer base across industries. In the future, we believe our competition will continue to increase as we expand into adjacent market segments.

Intellectual Property

Our success and ability to compete is dependent, in part, on our ability to develop and maintain the proprietary aspects of our technology and operate without infringing upon the proprietary rights of others. We protect our intellectual property with a combination of trade secrets, confidentiality procedures, contractual provisions, patents, trademarks, copyrights and other similar measures. We believe that reliance upon trade secrets and unpatented proprietary know-how are generally the most advantageous methods for us to protect our proprietary information.

Research and Development

We believe our software innovation is the foundation of our business and accordingly have made, and continue to make, significant investments in research and development for the enhancement of existing solutions and the development of solutions. We also believe that our long-term investments in AI and machine learning to power pricing and revenue management differentiate us from our competitors. We are committed to continuing the further development of these high-value solutions as evidenced by our continued investment in research and development. In fiscal 2022 and 2021, we incurred research and development expenses, net of capitalized internal-use software cost, of \$93.4 million and \$82.3 million, respectively, which is over 30% of our annual revenue in both years. Our research and development expenses include costs associated with our product management, product development and science and research groups. We conduct research and development activities predominantly in Bulgaria, Ecuador, France and the U.S., and also utilize third-party contractors in various countries, including Bolivia, Colombia and India.

We employ data scientists, many of whom are Ph.D.'s, to advance sales, pricing and revenue management technology and its implementation in our software solutions. These scientists have specialties including, but not limited to, AI, machine learning, operations research, management science, statistics, econometrics and computational methods. Our data scientists regularly interact with our customers, product development, sales, marketing and services teams to help keep our science efforts relevant to real-world demands.

Human Capital Resources

Our mission is to help people and companies outperform. To fulfill that mission, we believe we must attract, develop, motivate and retain exceptional employees to maintain our culture and uphold our high ethical standards. As innovation is one

of our core values, we believe that our commitment to innovation begins with our commitment to create an environment where our employees can thrive and reach their full potential. To accomplish this, we offer competitive total rewards, promote diversity, equity, inclusion and belonging, invest in ongoing learning and development, and focus on the future of work. Oversight of our approach to and investment in human capital resources is a key governance matter for our Board of Directors ("Board"). Directly, and through its Compensation and Leadership Development Committee, the Board engages regularly with management on human capital matters. As of December 31, 2022, we had 1,528 full-time personnel, which included 1,357 employees and 171 outsourced personnel. Our team spans 15+ countries, reflecting various backgrounds, ages, gender identities and ethnicities.

Culture. At PROS, our values and culture are embedded in everything we do. We proactively look for ways to maintain our collaborative and open company culture and further improve our organizational health, including through regular employee and management communication, periodic team events and frequent employee pulse surveys. We use insights from employee feedback, including through town halls, leader forums and other communication channels, to inform our human capital resources plans. PROS has been Certified™ by Great Place to Work® and recognized as a Best Workplace in Texas, Most Loved Workplace and People's 100 Companies that Care, which shows the continued impact of our efforts. We encourage you to visit our website for more detailed information regarding our Human Capital programs and initiatives.

Total Rewards. We require a talented workforce to drive innovation, operational excellence and long-term stockholder value. We also believe that employees should be paid for what they do and how they do it, regardless of their gender, race or other personal characteristics, and we constantly strive for pay parity. We define pay parity as ensuring that employees in the same job and location are paid fairly regardless of their gender or ethnicity. To attract and retain a talented workforce, we provide total rewards programs, practices and policies designed to be market-competitive, including by benchmarking and setting pay ranges based on market data, and also considering factors such as an employee's role, skills, experience, job location and performance. We have invested in analysis and transparency to demonstrate our commitment to fair compensation and opportunity.

Our human resources management philosophy goes beyond traditional compensation and benefits. We design our total rewards to meet the needs of the whole person, not just the employee, recognizing that life events and circumstances that occur outside of work may impact what happens at work. For example, we provide a trusted time off approach in the U.S. to give employees more flexibility and control over their schedules. Our investments in employee mental health and wellness programs are also cornerstones of this philosophy. As we transition to the future of work, we added specific employee well-being initiatives which are discussed below.

Diversity and Inclusion. We believe diversity, equity, inclusion, and belonging ("DEIB") drive innovation and ownership. Our commitment to diversity and inclusion starts at the top with a skilled and diverse Board which provides oversight over our human capital resources efforts, including our DEIB programs and initiatives. As of December 31, 2022, the majority of our Board was comprised of either female and/or ethnically diverse directors, with both female and ethnically diverse representation on our Board for more than 10 years. As of December 31, 2022, women represent 37% of our global employees, and in the U.S., more than 50% of our employees represent minority groups, with underrepresented minorities (defined as those who identify as Black/African American, Hispanic/Latinx, Native American, Pacific Islander and/or two or more races) representing 29% of our U.S. employees.

We strive to maintain a working environment that celebrates diverse perspectives, cultures and experiences and invest in programs to engage our employees, including diversity, inclusion and harassment training. We have a heritage of fostering inclusion and belonging, awareness and education, and social interaction and camaraderie through our employee resource groups. Sponsored and funded by PROS, these employee-led groups are open to any interested employee and create spaces for our people to connect from all walks of life, grow together and build relationships and community. We are proud of what we have accomplished to advance DEIB, but we recognize we still have work to do, including how we approach the future of work.

Additional information on our diversity and inclusion strategy, diversity metrics and programs can be found on our website at pros.com/about-pros/diversity-and-inclusion. Nothing on our website shall be deemed incorporated by reference into this Annual Report on Form 10-K.

Future of Work. As the pandemic brought systemic changes to historic work habits, we embraced a hybrid work model with an eye on the future of work. As part of this hybrid model, we emphasize flexibility, including in work location and work schedules, based on a blend of what makes sense for each employee, their team, and our business. In addition, we continue to take an integrated approach to helping our employees manage their work and personal responsibilities, with a strong focus on employee physical and mental health. Recognizing that working in a hybrid environment across our global company remains a relatively new way to interact, we offer company-wide initiatives to assist our employees in managing through the

changes, including productivity, mental and physical health programming, periodic recharge days and "wellness Wednesdays" with limited scheduled meetings. Additional information on our hybrid work model and related wellness initiatives will be included in our 2023 Proxy Statement.

Learning and Development. We believe that continuous learning cultivates innovation and that the development of our most important assets, our people, is foundational to fulfill our mission. We regularly invest in our employees' career growth and provide our employees opportunities for training on a wide range of skills designed to help them be more effective in their current and future roles. In 2022, all our employees participated in learning and development activities, and we introduced a new PROS University, giving employees access to thousands of courses across a broad range of categories, including leadership, inclusion and diversity, professional skills, technical and compliance. Because the development of our employees and next generation of leaders is critical to our long-term success, we annually engage in a comprehensive talent evaluation and succession planning process, including manager evaluations of all employees and detailed succession planning for all director and above roles with Board oversight over succession planning for senior management and other key roles. As of December 31, 2022, 92% of our managers have completed a leadership training program we developed in partnership with the Jones Graduate School of Business at Rice University.

Corporate Information

We were incorporated in Texas in 1985. We reincorporated as a Delaware corporation in 1998. In 2002, we reorganized as a holding company in Delaware. Our principal executive offices are located at 3200 Kirby Drive, Suite 600, Houston, Texas 77098. We report as one operating segment with our Chief Executive Officer acting as our chief operating decision maker. Our telephone number is (713) 335-5151. Our website is www.pros.com. Our website and the information that can be accessed through our website are not part of this report.

Available Information

We make available, free of charge through our website, our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, including exhibits thereto, and any amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after the reports are electronically filed with or furnished to the SEC. Our reports that are filed with, or furnished to, the SEC are also available at the SEC's website at www.sec.gov.

Annual CEO Certification

Pursuant to Section 303A.12(a) of the New York Stock Exchange ("NYSE") Listed Company Manual, on May 17, 2022, we submitted to the NYSE an annual certification signed by our Chief Executive Officer certifying that he was not aware of any violation by us of NYSE corporate governance listing standards.

Item 1A. Risk Factors

Our business, operations and financial results are subject to various risks and uncertainties, including those described below, that could adversely affect our business, financial condition, results of operations, cash flows and the trading price of our common stock. The following material factors, among others, could cause our actual results to differ materially from historical results and those expressed in forward-looking statements made by us or on our behalf in filings with the SEC, press releases, communications with investors and oral statements. The order of these risk factors does not reflect their relative importance or likelihood of occurrence.

Strategic, Commercial and Operational Risks

Current and future economic uncertainty and other unfavorable conditions in the industries we serve or the global economy could limit our ability to grow our business and negatively affect our operating results.

Our operating results may vary based on the impact of changes in the global economy or conditions in the industries we serve. General macroeconomic conditions, such as increased inflation (see risk factor below), increased cost of capital, supply chain disruptions, fluctuations in currency exchange rates or an economic downturn in the United States or internationally, could adversely affect demand for our solutions and make it difficult to accurately forecast and plan our future business activities. The Russia-Ukraine conflict has also had an adverse impact on the global economy, including on the inflation rate, and has contributed to significant fluctuation in global stock markets. All of these risks and conditions could harm our future sales, business and operating results. Our business and operations could also be harmed and our costs could increase if our or our customers' or other partners' manufacturing, logistics or other operations, costs or financial performance are disrupted or adversely affected. While the ultimate scope and broader impact of the ongoing Russia-Ukraine conflict cannot be predicted with certainty, the conflict has not had a material impact to date on our business or ability to operate in Eastern Europe. However, if the conflict continues or related geopolitical tensions extend to other countries, we remain subject to additional risks, including general geopolitical unrest, broader economic uncertainty, turmoil in certain financial markets, instability in the financial system, disruption to domestic and international travel, displacement of persons, disruption of supply chains and routes, including energy supplies, commodity and other price inflation, increased cybersecurity threats and attacks, the possibility of military activity or risk of wider war in countries near or adjacent to Ukraine. As of December 31, 2022, we had marketing, research and development, professional services, customer success, maintenance and support and general and administrative staff located in Sofia, Bulgaria, representing approximately 16% of our total personnel.

Weakening economic conditions could adversely impact our prospects' and customers' rate of information technology spending, delay their purchasing decisions, impact their ability or willingness to purchase or continue to use our solutions, reduce the value, scope or duration of subscription contracts, or limit their ability to pay amounts owed, all of which would adversely affect our operating results. For example, during the early part of the COVID-19 pandemic, customers, particularly in the travel industry, delayed and deferred purchasing decisions and requested concessions. Prolonged economic uncertainties relating to macroeconomic trends could limit our ability to grow our business and negatively affect our operating results. Unfavorable trends in the U.S. or global economy, such as rising interest rates, and conditions resulting from financial and credit market fluctuations may cause our customers and prospective customers to decrease their information technology budgets, which would limit our ability to grow our business and negatively affect our operating results.

We may be adversely affected by the effects of inflation.

We have experienced, and may continue to experience, cost increases as a result of inflation. Inflation has negative effects on our cost of capital and results of operations by increasing our overall cost structure. The effect of increased inflation on our business will be exacerbated if we are unable to achieve commensurate increases in the prices we charge our customers or if increased prices lead to decreased spending by our customers. Increased inflation in the economy has resulted in, and may continue to result in, higher interest rates and capital costs, shipping costs, supply shortages, increased costs of labor, weakening exchange rates and other similar effects. Although we may take measures to mitigate the impact of inflation, if these measures are not effective, our business, financial condition, results of operations and liquidity could be materially adversely affected. Even if such measures are effective, there could be a difference between the timing of when these beneficial actions impact our results of operations and when the cost of inflation is incurred. The U.S. Federal Reserve has raised, and may again raise, interest rates in response to concerns about inflation. In response, market interest rates have also risen in recent periods. While the timing and impact of rising interest rates are unknown, continued increases in market interest rates could have an adverse effect on our cost structure, results of operations, cost of capital, financial condition and cash flows.

The COVID-19 pandemic continues to present uncertainty and may continue to materially and adversely affect certain industries, customers and our business.

There is uncertainty regarding the nature and degree of the COVID-19 pandemic's ongoing impacts on the industries we serve, our customers and our business. For example, the travel industry, particularly the airline industry, is recovering from the unprecedented impacts of the pandemic and adjusting to the operational challenges of the dramatic recovery in demand. COVID-19 impacted, and is anticipated to continue impacting, our subscription revenue growth rates adversely due to lower subscription bookings during the pandemic and the lag between subscription bookings and the revenue recognized on those subscription bookings. In addition, the COVID-19 pandemic, and the actions taken in response to the pandemic, have led to global supply chain challenges, reduced availability of goods and increased inflation, each of which may impact our customers and could ultimately impact demand for our solutions.

Since the impact of the COVID-19 pandemic is ongoing, the effect of the COVID-19 pandemic and the related impact on the global economy may not be fully reflected in our results of operations until future periods. The full impact of the pandemic on our business will continue to depend on future developments, including but not limited to, the emergence of new coronavirus variants, the duration of the pandemic, the actions undertaken to contain the virus or mitigate its impacts, including actions mandated by federal, state and local governments and health authorities and changing public health directives or restrictions, vaccine efficacy against future COVID-19 variants, future travel restrictions and how quickly and to what extent normal global economic and operating conditions can or will resume, all of which are rapidly evolving and are difficult to predict. Volatility in the capital markets has been heightened during recent months and such volatility may continue, which may cause further declines in equity markets, particularly for technology stocks, and impact the availability and cost of capital.

Our IT systems are regularly under attack. If our security measures are breached and unauthorized access is obtained to a customer's data, our data or our IT systems, our and our customers' operations may be disrupted, our reputation may be harmed, our solutions may be perceived as not being secure, customers may limit or stop using our solutions and we may incur significant legal and financial exposure and liabilities.

We have been and will continue to be a target for cyber security attacks because we store, process, and transmit confidential, proprietary and other sensitive information for both our customers and our own business operations. We incur significant costs to maintain security measures designed to prevent, mitigate, eliminate or alleviate known security vulnerabilities, data theft, data corruption, data loss, unauthorized access, mishandling of customer, employee and other confidential data, computer viruses, ransomware or malicious software programs or code, cyber attacks, including advanced persistent threat intrusions by inside actors or third parties, social engineering attacks ("phishing") targeting our employees, web application and infrastructure attacks, denial of service, and similar disruptive events (each a "Security Incident"). Security Incidents could result from third-party action, employee, vendor or contractor error or misconduct, malfeasance, and other factors. We use third-party and public-cloud infrastructure providers, such as Microsoft Azure, IBM, Amazon Web Services ("AWS"), and other third-party service providers, and we are dependent on the security measures of those third-parties to protect against Security Incidents. We may experience Security Incidents introduced through the tools and services we use. Our ability to monitor our third-party service providers' data security is limited, and in any event, attackers may be able to circumvent our third-party service providers' data security measures. There have been and may continue to be significant attacks on certain third-party providers, and we cannot guarantee that our or our third-party providers' systems and networks have not been breached, or that they do not contain exploitable defects or bugs that could result in a breach of or disruption to our systems and networks or the systems and networks of third parties that support us and our Platform. The security measures implemented by us and our third-party service providers cannot provide absolute security, and there can be no assurance that such security measures will be effective against current or future security threats.

In the normal course of our business, we experience Security Incidents that, to date, we believe have been typical for a SaaS company of our size. However, despite implementing security measures, there is no guarantee of preventing or mitigating a Security Incident. Cyber attacks have in the past, and may again in the future, impede the performance of our products, penetrate the security of our network, cloud platform and other internal systems, or that of our customers, misappropriate proprietary information and/or cause interruptions to our services. Given the novel and sophisticated ways that cyber criminals engage in cyber attacks, it is reasonable to expect that despite the implementation of security measures, our security measures and the security measures of third-party providers on which we rely would not be sufficient to prevent our systems from being compromised.

The scale and number of cyber attacks continue to grow and techniques used to compromise systems change frequently and may not be recognized until launched or for an extended period of time thereafter. These threats continue to evolve in sophistication and volume and are difficult to detect and predict due to advances in electronic warfare techniques, new discoveries in the field of cryptography and new and sophisticated methods used by criminals including phishing, social

engineering or other illicit acts. Cyber attacks have become more prevalent against SaaS companies generally, have increased as more individuals work remotely, and have increased due to political uncertainty and military actions associated with the war in Ukraine. As a result, we and our third-party service providers are subject to heightened risks of Security Incidents from nation-state actors or other third parties leveraging tools originating from nation-state actors, and potentially expose us to new complex threats. We may be unable to anticipate these techniques or implement adequate preventative or remediation measures in a timely manner, if at all, even when a vulnerability is known. We and our third-party providers may not be able to address such vulnerability prior to experiencing a Security Incident.

We may incur significant costs and liability in the event of a breach, whether as a result of third-party action, employee error or misconduct, design or deployment defects, or otherwise. We may also be required to or find it appropriate to expend substantial capital and other resources to remediate or otherwise respond to problems caused by any actual or perceived breaches or Security Incidents. Security Incidents impacting us or our services providers could result in interruptions, delays, cessation of service and loss of existing or potential customers, as well as loss of confidence in the security of our solutions and services, damage to our reputation, negative impact to our future sales, disruption of our business, increases to our information security costs, unauthorized access to, and theft, loss or disclosure of, our and our customers' proprietary and confidential information, including personal information, litigation, governmental investigations and enforcement actions, including fines or other actions, increased stock price volatility, significant costs related to indemnity obligations, legal liability and other expenses, and material harm to our business, financial condition, cash flows and results of operations. For example, in the event of a ransomware attack, it could be difficult to recover services that are the subject of the ransomware attack and there can be no guarantee as to the timing or completeness of any such recovery. These costs may include liability for stolen assets or information and repair of system damage that may have been caused, incentives offered to customers or other business partners in an effort to maintain business relationships after a breach, and other costs, expenses and liabilities. We cannot ensure that our commercial insurance will be available or sufficient to compensate us for all costs we may incur as a result of a Security Incident, and if we made significant insurance claims, our ability to obtain comparable insurance in the future may be impaired or only available at significantly increased cost.

There can be no assurance that future Security Incidents will not be material to our business operations, financial condition, cash flows, and results of operations.

Failure to increase business from our customers and sustain our historical renewal rates and pricing could adversely affect our future revenue and operating results.

Many of our customers initially purchase one of our software solutions for a specific business segment, geographic location, or user group within their organization, and later purchase additional solutions and/or add business segments, other geographic locations and seats for additional users. Our subscription agreements are typically for an initial term of one to five years. These customers might not choose to renew, expand the scope of use for their existing software solutions or purchase additional software solutions. As we deploy new applications and features for our software solutions or introduce new software solutions, our customers may not purchase these new offerings. If we fail to generate additional business from our existing customers, our revenue could grow at a slower rate or even decrease.

We may not accurately predict future customer renewal rates, which can decline or fluctuate as a result of a number of factors, including customers' level of satisfaction with our services, our ability to continue to regularly add functionality, the reliability (including uptime) of our subscription services, the prices of our services, the actual or perceived information security of our systems and services, mergers and acquisitions of our customers, reductions in our customers' spending levels, or declines in customer activity as a result of customer bankruptcies, general economic downturns or uncertainty in financial markets. If our customers choose not to renew their subscription agreements with us on favorable terms or at all, our business, operating results, cash flows, and financial condition could be harmed.

If we fail to manage our growth and profit objectives effectively, our business and results of operations will be adversely affected.

Over the past several years, we have experienced, and expect to continue experiencing, growth in our customers and operations. Our success will depend in part on our ability to effectively manage this growth profitably while continuing to scale our operations. We will need to manage our cost structure while investing for growth and continually improving our operational and financial efficiency. Failure to effectively manage growth efficiently could adversely impact our business performance and operating results.

We depend on third-party data centers, software, data and other unrelated service providers and any disruption from such third-party providers could impair the delivery of our service and negatively affect our business.

Our cloud products are dependent upon third-party hardware, software and cloud hosting vendors, including Microsoft Azure, IBM Softlayer and AWS, all of which must inter-operate for end users to achieve their computing goals. We utilize third-party data center hosting facilities, cloud platform providers and other service providers to host and deliver our subscription services as well as for our own business operations. We host our cloud products from data centers in a variety of countries, including the United States, the Netherlands, Ireland, Germany, United Arab Emirates, Australia, Singapore and other countries. While we control and generally have exclusive access to our servers and all of the components of our network that are located in our external data centers, we do not control the operation of these facilities and they are vulnerable to damage or interruption from hurricanes, earthquakes, floods, fires, power loss, telecommunications failures and similar events. They may also be subject to Security Incidents, break-ins, sabotage, intentional acts of vandalism and similar misconduct. Despite our failover capabilities, standard protocols and other precautions, the occurrence of a natural disaster or an act of terrorism, a decision to close the facilities without adequate notice or other unanticipated problems at these facilities could result in lengthy interruptions in our service. In addition, disruptions to the hardware supply chain necessary to maintain these third-party systems or to run our business could impact our service availability and performance. These providers have no obligation to renew their agreements with us on commercially reasonable terms, or at all. If we are unable to renew these agreements on commercially reasonable terms or at all, or if one of our data center operators is acquired, we may be required to transfer our servers and other infrastructure to new data center facilities, and we may incur significant costs and possible service interruption in connection with doing so.

Certain of our applications are essential to our customers' ability to quote, price, and/or sell their products and services. Interruption in our service may affect the availability, accuracy or timeliness of quotes, pricing or other information and could require us to issue service credits to our customers, damage our reputation, cause our customers to terminate their use of our solutions, require us to indemnify our customers against certain losses, and prevent us from gaining additional business from current or future customers. In addition, certain of our applications require access to our customer's data which may be held by third parties, some of whom are, or may become, our competitors. For example, many of our travel industry products rely upon access to airline data held by large airline IT providers which compete against certain of our airline products. Certain of these competitors have in the past, and may again in the future, make it difficult for our airline customers to access their data in a timely and/or cost-effective manner.

Any disruption from our third-party data center, software, data or other service providers could impair the delivery of our service and negatively affect our business, damage our reputation, negatively impact our future sales and lead to legal liability and other costs.

Implementation projects involve risks which can negatively impact the effectiveness of our software, resulting in harm to our reputation, business and financial performance.

The implementation of certain of our software solutions involve complex, large-scale projects that require substantial support operations, significant resources and reliance on factors beyond our control. For example, the success of certain of our implementation projects is dependent upon the quality of data used by our software solutions and the commitment of customers' resources and personnel to the projects. We may not be able to correct or compensate for weaknesses or problems in data, or any lack of our customers' commitment and investment in personnel and resources. Further, various factors, including our customers' business, integration, migration and security requirements, or errors by us, our partners, or our customers, may cause implementations to be delayed, inefficient or otherwise unsuccessful. For example, changes in customer requirements, delays, unilateral delay of "go live", or deviations from our recommended best practices occur during implementation projects. As a result, we may incur significant costs in connection with the implementation of our products and/or delay revenue recognition of software subscription revenue. Further, some implementations of our projects are carried out by third-party service providers, and we do not have control of such implementations. If we, or a third-party service provider providing the implementation, are unable to successfully manage the implementation of our software solutions, and as a result those products or implementations do not meet customer needs, expectations or timeline, disputes with our customers can occur, our ability to sell additional products or secure a renewal of the customer's subscription is impacted, and our business reputation and financial performance may be significantly harmed. If an implementation project for a large customer or a number of customers is substantially delayed or canceled, our ability to recognize the associated revenue and our operating results could be adversely affected.

If we fail to manage our cloud operations, we may be subject to liabilities and our reputation and operating results may be adversely affected.

We have experienced substantial growth in the number of customers and data volumes serviced by our cloud infrastructure in recent years. While we have designed our cloud infrastructure to meet the current and anticipated future performance and accessibility needs of our customers, we must manage our cloud operations to handle changes in hardware and software parameters, spikes in customer usage and new versions of our software. We have experienced, and may in the future experience, system disruptions, outages and other cloud infrastructure performance problems. These problems may be caused by a variety of factors, including infrastructure changes, human or software errors, viruses, security attacks (internal or external), fraud, spikes in customer usage, denial of service issues and other Security Incidents. In some instances, we may not be able to identify the cause or causes of these performance problems within an acceptable period of time. Our customer agreements typically provide service level commitments on a monthly basis and for certain of our products we also offer response time commitments. If we are unable to meet the stated service level or response time commitments, or if we suffer extended periods of unavailability for our solutions, we may be contractually obligated to issue service credits or refunds to customers for prepaid and unused subscription services, or customers may choose to terminate or not renew contracts. Any extended service outages or other performance problems could also result in damage to our reputation or our customers' businesses, cause our customers to elect not to renew or to delay or withhold payment to us, loss of future sales, lead to customers making other claims against us that could harm our subscription revenue, result in an increase in our provision for credit losses, increase collection cycles for our accounts receivable or lead to the expense and risk of litigation.

If we fail to protect our intellectual property adequately, our business may be harmed.

Our success and ability to compete depends in part on our ability to protect our intellectual property. We rely upon a combination of trade secrets, confidentiality policies, nondisclosure and other contractual arrangements, and patent, copyright and trademark laws to protect our intellectual property rights. We cannot, however, be certain that steps we take to protect our intellectual property are adequate. In January 2023, the U.S. Federal Trade Commission ("FTC") proposed a sweeping ban on employee non-competition agreements which we have historically utilized with a significant percentage of our employees to enhance the protection of our intellectual property. If the FTC's proposal is issued and upheld, a ban on non-competition agreements would make it more challenging for us to protect our intellectual property and could have a material adverse effect on our business.

We may be required to spend significant resources to protect our intellectual property rights. Litigation brought to protect and enforce our intellectual property rights could be costly, time-consuming and distracting to management and could result in the impairment or loss of portions of our intellectual property. Furthermore, our efforts to enforce our intellectual property rights may be met with defenses, counterclaims and countersuits attacking the validity and enforceability of our intellectual property rights. The procurement and enforcement of certain intellectual property rights involves complex legal and factual considerations, and the associated legal standards are not always applied predictably or uniformly, can change, and may not provide adequate remedies. As a result, we may not be able to obtain or adequately enforce our intellectual property rights, and other companies may be better able to develop products that compete with ours. Our failure to secure, protect and enforce our intellectual property rights could adversely affect our brand, competitive business position, business prospects, operating results, cash flows and financial condition.

Our use of third-party software creates dependencies outside of our control.

We use third-party software in our software solutions. If our relations with any of these third parties are impaired, or if we are unable to obtain or develop a replacement for the software, our business could be harmed. The operation of our solutions could be impaired if errors occur in the third-party software that we utilize. It may be more difficult for us to correct any defects in third-party software because the software is not within our control. Accordingly, our business could be adversely affected in the event of any errors in this software. There can be no assurance that these third parties continue to invest the appropriate levels of resources in their products and services to maintain and enhance the capabilities of their software.

We may enter into acquisitions that may be difficult to integrate, fail to achieve our strategic objectives, disrupt our business, dilute stockholder value or divert management attention.

We have completed five acquisitions since 2013, including our 2021 acquisition of EveryMundo LLC ("EveryMundo"), and we plan to continue to acquire other businesses, technologies and products to complement or enhance our existing business, solutions, services and technologies. We cannot provide assurance that the acquisitions we have made or may make in the future will provide us with the benefits or achieve the results we anticipated when entering into the transaction(s). Acquisitions are typically accompanied by a number of risks, including:

- difficulties in integrating the operations and personnel of the acquired companies;
- difficulties in maintaining acceptable standards, controls, procedures and policies, including integrating financial reporting and operating systems, particularly with respect to foreign and/or public subsidiaries;
- disruption of ongoing business and distraction of management;
- inability to maintain relationships with customers of the acquired business;
- impairment of relationships with employees and customers as a result of any integration of new management and other personnel;
- difficulties in incorporating acquired technology and rights into our solutions and services;
- unexpected expenses resulting from the acquisition; and
- potential unknown liabilities associated with the acquisition.

We have experienced, and may experience in the future, acquisition integration challenges, including, but not limited to, the issues listed in the bullets above. In addition, we may incur debt, acquisition-related costs and expenses, restructuring charges and write-offs as a result of acquisitions. Acquisitions may also result in goodwill and other intangible assets that are subject to impairment tests, which could result in future impairment charges. In addition, we have in the past, and may in the future, enter into negotiations for acquisitions that are not ultimately consummated. Those negotiations could result in diversion of management time and significant out-of-pocket costs. If we fail to evaluate and execute acquisitions successfully, we may not be able to achieve our anticipated level of growth or profitability, and our business and operating results could be adversely affected.

Catastrophic events may disrupt our operations.

We are a global company headquartered in Houston, Texas with significant operations in Sofia, Bulgaria and operations and personnel located in numerous other U.S. and international locations. We rely on our network and third-party infrastructure and enterprise applications for our sales, marketing, development, services, operational support and hosted services. A disruption, infiltration or failure of our infrastructure, systems or third-party hosted services in the event of a major hurricane, earthquake, fire, flood or other weather event, power loss, telecommunications failure, software or hardware malfunctions, pandemics, war, terrorist attack or other catastrophic event that our business continuity and disaster recovery plans do not adequately address, could cause, among other impacts, system interruptions, reputational harm, loss of intellectual property, delays in our product development, lengthy interruptions in our services, breaches of data security and loss of critical data. Any of these events could prevent us from fulfilling our customer obligations or could negatively impact a country or region in which we sell our products, which could in turn decrease that country's or region's demand for our products. Even though we carry business interruption insurance and typically have provisions in our contracts that protect us in certain events, we might suffer losses from business interruptions that exceed the coverage under our insurance policies or for which we do not have coverage. Any natural disaster or other catastrophic event could create a negative perception in the marketplace, delay our product innovations, or lead to lengthy interruptions in our services, breaches of data security and losses of critical data, all of which could have an adverse effect on our operating results.

We are a multinational corporation exposed to risks inherent in international operations.

The majority of our revenues are derived from our customers outside the U.S. While the majority of our sales are denominated in U.S. dollars, the majority of our international operations expenses are denominated in local currencies. To date, we have not used risk management techniques or "hedged" the risks associated with fluctuations in foreign currency exchange rates. Consequently, our results of operations, cash flows, and financial condition, including our revenue and operating margins, can be subject to losses from fluctuations in foreign currency exchange rates, as well as regulatory, political, social and economic developments or instability in the foreign jurisdictions in which we operate. *For additional financial information about geographic areas, see [Note 19](#) of the Notes to the Consolidated Financial Statements.*

Our operations outside the U.S. are subject to risks inherent in doing business internationally, requiring resources and management attention, and may subject us to new or larger levels of regulatory, economic, foreign currency exchange, tax and political risks. We have customers in over 60 countries internationally, which we service through our operations in the U.S.,

Australia, Bulgaria, Canada, Ecuador, France, Germany, Ireland, United Arab Emirates, United Kingdom and Singapore. We expect our international operations to continue to grow. In addition to navigating the challenges related to the ongoing COVID-19 pandemic in foreign jurisdictions, we face other risks with respect to our international operations, including:

- economic conditions in various parts of the world, including supply chain and labor market disruptions, inflation, currency exchange rate fluctuations and recession;
- sustained disruption to international travel from the COVID-19 pandemic and variations or mutations thereof as well as any other outbreaks of contagious diseases;
- differing labor and employment regulations, especially where labor laws are generally more advantageous to employees as compared to the U.S.;
- the difficulty of managing and staffing our international operations and the increased travel, infrastructure and legal compliance costs associated with multiple international locations;
- new and different sources of competition;
- compliance with multiple, conflicting, ambiguous or evolving governmental laws and regulations, including privacy, anti-corruption, import/export, antitrust and industry-specific laws and regulations and our ability to identify and respond timely to compliance issues when they occur;
- vetting and monitoring our third-party business partners in new and evolving markets to confirm they maintain standards consistent with our brand and reputation;
- less favorable intellectual property laws;
- availability of sufficient network connectivity required for certain of our products; and
- difficulties in enforcing contracts and collecting accounts receivable, especially in developing countries.

If we continue to expand our business globally, our success will depend, in large part, on our ability to anticipate and effectively manage these and other risks associated with our international operations. Our failure to manage any of these risks successfully could harm our international operations and reduce our international sales, adversely affecting our business, operating results, financial condition and cash flows.

Market and Competition Risks

Any downturn in sales to our target markets could adversely affect our operating results.

Our success is highly dependent upon our ability to sell our software solutions to customers in our target industries, including automotive and industrial manufacturing, transportation and logistics, chemicals and energy, food and beverage, healthcare, high tech and travel. If we are unable to sell our software solutions effectively to customers in these industries, we may not be able to grow our business. For example, the pandemic had a dramatic adverse impact on the travel industry. While the airline industry is recovering as travel restrictions are lifted, the airline and rental car industries, for example, continue to face various operational challenges which can limit their ability to engage with us on our solutions.

We have historically been subject to lengthy sales cycles, and delays or failures to complete sales may harm our business and cause our revenue, operating income, and cash flows to decline in the future.

Our sales cycles may take a month to over a year for large enterprise customers. A large enterprise customer's decision to use our solutions typically involves a number of internal approvals, and sales to those prospective customers generally require us to provide greater levels of education about the benefits and features of our solutions. We expend substantial resources during our sales cycles with no assurance that a sale may ultimately result. The length of each individual sales cycle depends on many factors, a number of which we cannot control, including the prospective customer's internal evaluation and approval process requirements, as well as the prospective customer's budget and/or resource constraints. Any unexpected lengthening of the sales cycle or failure to secure anticipated orders could negatively affect our revenue. Any significant failure to generate sales after incurring costs related to our sales process could also have a material adverse effect on our business, financial condition, cash flows and results of operations.

If we fail to develop or acquire new functionality and software solutions, we may not be able to grow our business and it could be harmed.

If we are unable to provide enhancements and new features for our existing software solutions or new solutions that achieve market acceptance or to integrate technology, products and services that we acquire into our Platform, our business, revenues and other operating results could be significantly adversely affected. The success of enhancements, new features and modules depends on several factors, including the timely completion, introduction and market acceptance of the enhancements or new features or modules. We have experienced, and may in the future experience, delays in the planned release dates of enhancements to our Platform, and we have discovered, and may in the future discover, errors in new releases after their introduction. Either situation could result in adverse publicity, loss of sales, delay in market acceptance of our Platform, or customer claims, including, among other things, warranty claims against us, any of which could cause us to lose existing customers or affect our ability to attract new customers. Furthermore, because our software solutions are intended to interoperate with a variety of third-party enterprise software solutions, we must continue to modify and enhance our software to keep pace with changes in such solutions. Any inability of our software to operate effectively with third-party software necessary to provide effective solutions to our customers could reduce the demand for our software solutions, result in customer dissatisfaction and limit our financial performance.

The markets in which we participate are intensely competitive, and if we do not compete effectively, our operating results could be harmed.

The markets for enterprise software applications for CPQ, pricing optimization and management, airline revenue optimization, airline distribution and retail, and digital offer marketing are competitive, fragmented and rapidly evolving. We expect additional competition from other established and emerging companies as the markets in which we compete continue to develop and expand, as well as through industry consolidation, including through a merger or partnership of two or more of our competitors or the acquisition of a competitor by a larger company. Some of our current and potential competitors may have larger installed bases of users, longer operating histories, broader distribution, greater name recognition, and have significantly greater resources than we have. As a result, these companies may be able to respond more quickly to new or emerging technologies and changes in customer demands, and devote greater resources to the development, promotion and sale of their products.

Competition could seriously impede our ability to sell our software solutions and services on terms favorable to us or at all. Our current and potential competitors may develop and market new technologies that render our existing or future solutions obsolete, unmarketable or less competitive. In addition, if these competitors develop solutions with similar or superior functionality to our solutions, or if they offer solutions with similar functionality at substantially lower prices than our solutions, we may need to decrease the prices for our solutions in order to remain competitive. In addition, our competitors have and may in the future, offer their products and services at a lower price, or offer price concessions, delay payment terms, or provide financing or other terms and conditions that are more enticing to potential customers. If we are unable to maintain our current pricing due to competitive pressures, our margins could be reduced and our operating results could be adversely affected. If we do not compete successfully against current or future competitors, competitive pressures could materially and adversely affect our business, financial condition, cash flows and operating results.

We focus primarily on CPQ, pricing optimization and management, airline revenue optimization, airline distribution and retail, and digital offer marketing software and if the markets for these software solutions develop more slowly than we expect or if we fail to capitalize on the market opportunity, our business could be harmed.

We derive most of our revenue from providing our software solutions for CPQ, pricing optimization and management, airline revenue optimization, airline distribution and retail, and digital offer marketing, as well as providing implementation services and ongoing customer support. These markets are evolving rapidly, and it is uncertain whether software for these markets will achieve and sustain high levels of demand. Our success depends on the willingness of businesses in our target markets to use the types of solutions we offer and our ability to capture share in these markets. Some businesses may be reluctant or unwilling to implement such software for a number of reasons, including failure to understand the potential returns of improving their processes, lack of knowledge about the potential benefits that such software may provide, or reluctance to change existing internal processes. Some businesses may elect to improve their sales and pricing processes through solutions obtained from their existing enterprise software providers, whose solutions are designed principally to address functional areas other than what our solutions provide. If businesses do not embrace the benefits of vendor software solutions in the areas in which we focus, then these markets may not continue to develop or may develop more slowly than we expect, either of which would significantly and adversely affect our revenue, operating results, and cash flows.

Human Capital Risks

If we cannot maintain our corporate culture, we could lose the innovation, teamwork and passion that we believe contribute to our success, and our business may be harmed.

We believe that a critical component of our success has been our corporate culture, and we invest substantial time and resources in building and maintaining our culture and developing our personnel; however, as we continue to scale our business both organically and through potential acquisitions, it may be increasingly difficult to maintain our culture. Moreover, our shift to a hybrid work environment requires significant action to preserve our culture with many employees primarily working remotely and facing unique personal and professional challenges. While we have implemented many wellness, development and supportive programs for our workforce, the shift to a hybrid work environment during and following the COVID-19 pandemic presents unprecedented risks to our culture. Any failure to preserve our culture could negatively affect our future success, including our ability to retain and recruit personnel and to effectively pursue our strategic objectives.

If we lose key members of our management team or sales, development or operations personnel, or are unable to attract and retain employees, our business could be harmed.

Our future success depends upon the performance and service of our executive officers and other key personnel. From time to time, there may be changes in our executive management team and to other key employee roles resulting from organizational changes or the hiring or departure of executives or other employees, which could have a serious adverse effect on our business and operating results. If key personnel leave our company or are unable to perform their duties, we may not be able to manage our business effectively and, as a result, our business and operating results could be harmed.

Our future success depends on our ability to continue to timely identify, attract and retain highly qualified personnel, including data scientists, software developers and implementation personnel, and there can be no assurance that we will be able to do so. Competition for qualified personnel is intense, particularly for technical talent in certain markets, and is exacerbated by tight labor market conditions. We compete for talent with other companies that have greater resources, in large part, based on our culture and overall employee experience. With the wide market acceptance of and increase in remote work, we have experienced increased direct competition for talent, often from larger companies taking advantage of lower cost talent markets. Employee turnover creates a variety of risks including time, costs and resources required to recruit and train new employees to learn our business. The flexibility of our hybrid work approach provides us with access to greater talent pools and contributes to our hiring and retaining competitiveness but also brings costs and risks, including employment, tax, insurance and compliance risks. If we are unable to attract and retain our key employees, we may not be able to achieve our objectives, and our business could be harmed.

Failure to adequately expand and train our direct and indirect sales force may impede our growth.

To date, substantially all of our revenue has been attributable to the efforts of our direct sales force. We believe that our future growth will depend, to a significant extent, on the continued development of our direct sales force, and our sales team's ability to manage and retain our existing customer base, expand our sales to existing customers and obtain new customers. Our ability to achieve significant revenue growth in the future will depend, in large part, on our success in recruiting, training and retaining a sufficient number of direct sales personnel. We manage the staffing levels of our direct sales force against a number of factors, including performance management, natural attrition, quality of our enablement and training program as well as competition for talent. New sales hires require significant training and often take a number of months before becoming fully productive, if at all. If we are unable to continuously recruit, develop or retain sufficient numbers of productive direct sales personnel, our growth may be impeded.

In addition to our direct sales force, we have developed, and expect to expand, our indirect sales force via channel partners, such as management consulting firms, systems integrators and other resellers, to market, sell and/or implement our solutions. While we have invested to establish channel partners to drive sales growth, to date substantially all of our revenue generation has been attributable to our direct sales force. If we are unable to establish and maintain productive partner relationships, or otherwise develop and expand our indirect distribution channel, our sales growth rates may be limited.

Regulatory, Compliance and Litigation Risks

Evolving global laws, regulations and standards on privacy and data security, restrictions on cross-border data transfers, and data localization requirements impact our business and expose us to increased liability.

Personal privacy, data localization and data security continue to be significant issues in the United States, Europe and many other jurisdictions. We provide our cloud software solutions globally, including in countries that have, or may adopt in the future, stringent data privacy, cyber security or data localization laws and regulations. These laws and regulations may be inconsistent across jurisdictions and are subject to evolving and differing (sometimes conflicting) interpretations. Government officials and regulators, privacy advocates and class action attorneys continue to increasingly scrutinize how companies collect, process, use, store, share and transmit personal data. This increased scrutiny may result in new interpretations of existing laws, thereby further impacting our business. International laws such as the EU's General Data Protection Regulation ("GDPR"), as well as emerging and evolving state laws in the United States, such as the California Consumer Protection Act, the California Privacy Rights Act, the Virginia Consumer Data Protection Act, the Colorado Privacy Act, the Connecticut Data Privacy Act, and the Utah Consumer Privacy Act, could create new compliance obligations and expand the scope of potential liability, either jointly or severally with our customers and suppliers. Although we have implemented measures designed to comply with applicable requirements, the dynamic nature of these laws and regulations, as well as their interpretation by regulators and courts, may affect our ability to implement our business models effectively. In addition, our ongoing efforts to comply with these laws and regulations entail substantial expenses and may divert resources from other initiatives. For example, if we establish systems and processes to host and access European customer data solely in Europe, our costs and operational risks could increase. Changes in these laws and regulations have in the past increased, and may continue to increase, the cost of providing our products and services, could limit us from offering certain solutions in certain jurisdictions, could adversely affect our sales cycles, and could impact our new technology innovation. In addition, our cloud software solutions store data on behalf of our customers, and if our customers fail to comply with contractual obligations or applicable laws and regulations, such non-compliance could result in litigation or reputational harm to us. Any perceived inability to adequately address privacy, data localization or cyber security compliance or to comply with more complex and numerous laws and regulations, even if unfounded, could result in liability to us and indemnification obligations, damage our reputation, inhibit sales of our solutions or harm our business, financial condition, results of operations and cash flows.

Further, we are subject to evolving laws and regulations that dictate whether, how, and under what circumstances we can transfer, process and receive personal data. For example, in 2020, the Court of Justice of the European Union ("CJEU") invalidated the EU-U.S. and the Swiss-U.S. Privacy Shield frameworks as a basis for transfers of personal data from the EU and Switzerland to the United States. While we have historically relied on Standard Contractual Clauses ("SCCs") for such transfers and the CJEU has upheld SCCs as a valid transfer mechanism, provided those SCCs meet certain requirements, the CJEU rulings make clear that these transfer mechanisms will be subject to additional and ongoing scrutiny. The European Commission has published revised SCCs for data transfers from the European Economic Area ("EEA"), and we have adapted our existing contractual arrangements to meet these new requirements.

In early 2022, the EU and U.S. announced that they had reached an agreement in principle on a new Trans-Atlantic Data Privacy Framework, which will be translated into legal documents to be adopted in the EU and U.S. to provide a renewed basis for transatlantic data transfers. In December 2022, the European Commission issued a draft adequacy decision concluding that the Trans-Atlantic Data Privacy Framework provides an adequate level of protection for personal data transferred from EU to U.S. companies. The framework is subject to additional approval steps, and if it is not adopted we may be unable to continue to rely on SCCs or rely upon other alternative means of data transfers from the EU to the U.S.

The validity of data transfer mechanisms in both Europe and the U.S. remain subject to legal, regulatory and political developments in both Europe and the U.S. Recent recommendations from the European Data Protection Board, decisions from supervisory authorities, recent proposals for reform of the data transfer mechanisms for transfers of personal data outside the U.K., and potential invalidation of other data transfer mechanisms, which, together with increased enforcement action from supervisory authorities in relation to cross-border transfers of personal data, could have a significant adverse effect on our ability to process and transfer personal data outside of the EEA and the U.K. If other jurisdictions implement restrictive regulations for cross-border data transfers (or do not permit data to leave the country of origin), such developments could adversely impact our business, financial condition, cash flows, and results of operations in those jurisdictions.

Any unauthorized, and potentially improper, actions of our personnel could adversely affect our business, operating results, cash flows, and financial condition.

The recognition of our revenue depends on, among other things, the terms negotiated in our contracts with our customers. Our personnel may act outside of their authority and negotiate additional terms without our knowledge. We have

implemented policies to help prevent and discourage such conduct, but there can be no assurance that such policies will be followed. For instance, in the event that our sales personnel negotiate terms that do not appear in the contract and of which we are unaware, whether such additional terms are written or verbal, we could be prevented from recognizing revenue in accordance with our plans. Furthermore, depending on when we learn of unauthorized actions and the size of the transactions involved, we may have to restate revenue for a previously reported period, which could seriously harm our business, operating results, cash flows, financial condition and reputation with current and potential customers and investors.

Intellectual property litigation and infringement claims may cause us to incur significant expense or prevent us from selling our software solutions.

Our industry is characterized by the existence of a large number of patents, trademarks and copyrights, and by litigation based on allegations of infringement or other violations of intellectual property rights. A third-party may assert that our technology violates its intellectual property rights, or we may become the subject of a material intellectual property dispute. Selling improvement (including CPQ), pricing, airline revenue optimization (including revenue management) and airline eCommerce (including shopping, merchandising and retail, and digital offer marketing) solutions may become increasingly subject to infringement claims as the number of such commercially available solutions increases and the functionality of these solutions overlaps. In addition, changes in patent laws in the U.S. may affect the scope, strength and enforceability of our patent rights or the nature of proceedings which may be brought by us related to our patent rights. Future litigation may involve patent holding companies or other adverse patent owners who have no relevant product revenue and against whom our own potential patents may therefore provide little or no deterrence. Regardless of the merit of any particular claim that our technology violates the intellectual property rights of others, responding to such claims may require us to:

- incur substantial expenses and expend significant management efforts to defend such claims;
- pay damages, potentially including treble damages, if we are found to have willfully infringed such parties' patents or copyrights;
- cease making, selling or using products that are alleged to incorporate the intellectual property of others;
- distract management and other key personnel from performing their duties for us;
- enter into potentially unfavorable royalty or license agreements in order to obtain the right to use necessary technologies; and
- expend additional development resources to redesign our solutions.

Any licenses required as a result of litigation under any patent may not be made available on commercially acceptable terms, if at all. In addition, some licenses may be nonexclusive, and therefore our competitors may have access to the same technology licensed to us. If we fail to obtain a required license or are unable to design around a patent, we may be unable to effectively develop or market our solutions, which could limit our ability to generate revenue or maintain profitability.

Our contract terms generally obligate us to indemnify and hold our customers harmless from certain costs arising from third-party claims brought against our customers alleging that the use of our solutions infringe intellectual property rights of others. If we are unable to resolve our legal obligations by settling or paying an infringement claim, we may be required to compensate our customers.

Our use of open source software may subject our software solutions to general release or re-engineering.

We use open source software in our solutions. From time to time, there have been claims challenging the ownership of open source software against companies that incorporate open source software into their products. As a result, we could be subject to lawsuits by parties claiming ownership of what we believe to be open source software. Some open source licenses contain requirements that we make available source code for modifications or derivative works we create based upon the open source software and that we license such modifications or derivative works under the terms of a particular open source license or other license granting third parties certain rights of further use. If we combine our proprietary software solutions with open source software in a certain manner, we could, under certain of the open source licenses, be required to release the source code of our proprietary software solutions. In addition to risks related to 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 origin of the software. In addition, open source license terms may be ambiguous and many of the risks associated with usage of open source cannot be eliminated, and could, if not properly addressed, negatively affect our business. If we were

found to have inappropriately used open source software, we may be required to seek licenses from third parties in order to continue offering our software, to re-engineer our solutions, to discontinue the sale of our solutions in the event re-engineering cannot be accomplished on a timely basis or take other remedial action that may divert resources away from our development efforts, any of which could adversely affect our business, operating results, cash flows, and financial condition.

Defects or errors in our software solutions could harm our reputation, impair our ability to sell our solutions and result in significant costs to us.

Our software solutions are complex and may contain undetected defects or errors. Several of our solutions have recently been developed and may therefore be more likely to contain undetected defects or errors. In addition, we frequently develop enhancements to our software solutions that may contain defects. We have not suffered significant harm from any defects or errors to date. We have in the past issued, and may in the future need to issue, corrective releases of our solutions to correct defects or errors. The occurrence of any defects or errors could result in:

- delayed market acceptance and lost sales of our software solutions;
- delays in payment to us by customers;
- damage to our reputation;
- diversion of our resources;
- legal claims, including product liability claims, against us;
- increased maintenance and support expenses; and
- increased insurance costs.

Our agreements with our customers typically contain provisions designed to limit our liability for defects and errors in our software solutions and damages relating to such defects and errors, but these provisions may not be enforced by a court or otherwise effectively protect us from legal claims. Our liability insurance may not be adequate to cover all of the costs resulting from these legal claims. Moreover, we cannot provide assurance that our current liability insurance coverage would continue to be available on acceptable terms. In addition, the insurer may deny coverage on any future claims. The successful assertion against us of one or more large claims that exceeds available insurance coverage, or the occurrence of changes in our insurance policies, including premium increases or the imposition of large deductible or co-insurance requirements, could have a material adverse effect on our business and operating results. Furthermore, even if we prevail in any litigation, we are likely to incur substantial costs and our management's attention may be diverted from our operations.

Business Model and Capital Structure Risks

We have experienced losses since we transitioned to a cloud strategy in 2015, the COVID-19 pandemic has extended our timeline to profitability, and we may continue to incur losses for longer than we expect.

We expect our expenses to continue to exceed our revenues in the near term as we continue to make investments as part of our cloud strategy, particularly in new product development, sales, marketing, security, privacy and cloud operations. In addition, the impact of COVID-19 on our business contributed to our losses over the past three years and extended our timeline of achieving profitability. While we are making progress towards delivering free cash flow in 2023 and profitable operations on an adjusted EBITDA basis, our ability to return to profitability depends on our ability to: continue to drive subscription sales, enhance our existing products and develop new products, scale our sales and marketing and product development organizations, successfully execute our marketing and sales strategies, renew our subscription agreements with existing customers, and manage our expenses. If we are not able to execute on these actions, our business may not grow as we anticipate, our operating results could be adversely affected and we will continue to incur net losses in the future. Additionally, our new initiatives may not generate sufficient revenue and cash flows to recoup our investments in them. If any of these events were to occur, it could adversely affect our business, results of operations, financial condition and cash flows.

We incurred indebtedness by issuing convertible notes, and our debt repayment obligations may adversely affect our financial condition and cash flows in the future.

In September 2020, we issued \$150.0 million principal amount of 2.25% convertible senior notes ("2027 Notes") due September 15, 2027, unless earlier redeemed, purchased or converted in accordance with their terms prior to such date. Interest is payable semi-annually in arrears on March 15 and September 15 of each year. As of December 31, 2022, the entire \$150.0 million of aggregate principal amount of 2027 Notes are outstanding.

In May 2019, we issued \$143.8 million principal amount of 1.0% convertible senior notes ("2024 Notes" and together with the 2027 Notes, the "Notes") due May 15, 2024, unless earlier redeemed, purchased or converted in accordance with their terms prior to such date. Interest is payable semi-annually in arrears on May 15 and November 15 of each year. As of December 31, 2022, the entire \$143.8 million of aggregate principal amount of 2024 Notes are outstanding.

Our indebtedness could have important consequences because it may impair our ability to obtain additional financing in the future for working capital, capital expenditures, acquisitions and general corporate or other purposes. Our ability to meet our debt obligations will depend on our future performance, which will be affected by financial, business, economic, regulatory and other factors. We cannot control many of these factors. Our future operations may not generate sufficient cash to enable us to repay our debt. If we fail to comply with any covenants contained in the agreements governing any of our debt, or make a payment on any of our debt when due, we could be in default on such debt, which could, in turn, result in such debt and our other indebtedness becoming immediately payable in full. If we are at any time unable to pay our indebtedness when due, we may be required to renegotiate the terms of the indebtedness, seek to refinance all or a portion of the indebtedness, and/or obtain additional financing. There can be no assurance that, in the future, we will be able to successfully renegotiate such terms, that any such refinancing would be possible or that any additional financing could be obtained on terms that are favorable or acceptable to us.

Our quarterly results may vary and may not fully reflect the performance of our business.

We generally recognize revenue from customers ratably over the terms of their subscription agreements. As a result, most of the revenue we report in each quarter is the result of agreements entered into during prior quarters. The lag between entering into a contract and recognizing subscription revenue can be extended with some of our travel products. Consequently, a decline in new or renewed subscriptions in any quarter may not be reflected in our revenue for that quarter, but will negatively affect our revenue in future quarters. Accordingly, the effect of significant downturns in sales, our failure to achieve our internal sales targets, a decline in the market demand of our services or decreases in our retention rate may not be fully reflected in our operating results until future periods. For example, the effect of the COVID-19 pandemic may not be fully reflected in our results of operations until future periods. Our subscription model also makes it difficult for us to rapidly increase our revenue through additional sales in any period, as subscription revenue from additional sales must be recognized over the applicable subscription term. We may be unable to timely adjust our cost structure to reflect changes in revenues. In addition, a significant majority of our costs are expensed as incurred, while subscription revenues are recognized over the term of the customer agreement. As a result, increased sales growth could result in our recognition of more costs than revenues in the earlier periods of the terms of our agreements. In addition, we expect to continue to experience some seasonal variations in our cash flows from operating activities, including, as a result of the timing of payment of payroll taxes, performance bonuses to our employees and costs associated with annual company-wide events, each of which have historically been highest in our first fiscal quarter. Therefore, the results of any prior quarterly periods should not be relied upon as an indication of our future operating performance.

If we fail to migrate customers with on-premises software licenses to our latest cloud software solutions, our future revenue may be limited and our costs to provide support to those customers may increase.

We have notified our legacy on-premises customers that we will be discontinuing maintenance for most of our legacy on-premises software at the end of 2023. These customers will need to migrate to our current cloud solutions to continue to be supported and take advantage of our latest features, functionality and security which are only available via the PROS cloud. When considering whether to migrate, these customers may evaluate alternative solutions due to the additional change in management and implementation costs associated with migrating to cloud-based applications. When on-premises software customers delay or decline to migrate to our cloud solutions, our internal development and customer support teams find it increasingly difficult and costly to support a declining number of on-premises customers. In addition, if our legacy on-premises license customers delay or decline to migrate to our cloud solutions, choose alternative solutions or otherwise choose to not continue doing business with us by, for example, canceling maintenance, our future revenue will be affected.

If our goodwill or amortizable intangible assets become impaired, we could be required to record a significant charge to earnings.

Under GAAP, we review our goodwill and amortizable intangible assets for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. GAAP requires us to test for goodwill impairment at least annually. Factors that may be considered a change in circumstances indicating that the carrying value of our goodwill or amortizable intangible assets may not be recoverable include declines in stock price, market capitalization or cash flows and slower growth rates in our industry. We could be required to record a significant charge to earnings in our financial statements during the period in which any impairment of our goodwill or amortizable intangible assets were determined, negatively impacting our results of operations.

Risks relating to Ownership of our Common Stock

Market volatility may affect our stock price and the value of your investment.

The market price for our common stock, and the software industry generally, has been and is likely to continue to be volatile. Volatility could make it difficult to trade shares of our common stock at predictable prices or times. Many factors could cause the market price of our common stock to be volatile, including the following:

- variations in our quarterly or annual operating results;
- decreases in market valuations of comparable companies;
- fluctuations in stock market prices and volumes;
- decreases in financial estimates by equity research analysts;
- announcements by our competitors of significant contracts, new solutions or enhancements, acquisitions, distribution partnerships, joint ventures or capital commitments;
- departure of key personnel;
- changes in governmental regulations and standards affecting the software industry and our software solutions;
- conversion of convertible notes into equity or sales of common stock or other securities by us in the future;
- damages, settlements, legal fees and other costs related to litigation, claims and other contingencies;
- U.S. and global economic conditions; and
- other risks described elsewhere in this section.

In the past, securities class action litigation often has been initiated against a company following a period of volatility in the market price of the company's securities. If class action litigation is initiated against us, we may incur substantial costs and our management's attention could be diverted from our operations. All of these factors could cause the market price of our stock to decline, and you may lose some or all of your investment.

Anti-takeover provisions in our Certificate of Incorporation and Bylaws and under Delaware law could make an acquisition of us more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Our Certificate of Incorporation and Bylaws and Section 203 of the Delaware General Corporation Law contain provisions that might enable our management to resist a takeover of our company. These provisions include the following:

- the division of our board of directors into three classes to be elected on a staggered basis, one class each year;
- a prohibition on actions by written consent of our stockholders;
- the elimination of the right of stockholders to call a special meeting of stockholders;

- a requirement that stockholders provide advance notice of any stockholder nominations of directors or any proposal of new business to be considered at any meeting of stockholders;
- a requirement that a super majority vote be obtained to amend or repeal certain provisions of our certificate of incorporation; and
- the ability of our board of directors to issue preferred stock without stockholder approval.

In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which limits the ability of stockholders owning in excess of 15% of our outstanding voting stock to merge or combine with us. Although we believe these provisions collectively provide for an opportunity to obtain higher bids by requiring potential acquirers to negotiate with our board of directors, they would apply even if an offer were considered beneficial by some stockholders. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management.

We do not intend to pay dividends for the foreseeable future.

We do not currently anticipate paying any cash dividends on our common stock in the foreseeable future. We currently anticipate that we will retain all of our available cash, if any, for use as working capital, repayment of debt and for other general corporate purposes. Consequently, stockholders must rely on sales of their common stock after price appreciation as the only way to realize any future gains on their investment.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our headquarters is located in Houston, Texas, where we lease approximately 118,000 square feet of office space. We also lease a number of smaller regional offices. We believe our existing facilities are sufficient for our current needs, particularly as we have pivoted to a hybrid workforce.

Item 3. Legal Proceedings

In the ordinary course of our business, we may be involved in various legal proceedings and claims. The outcomes of these matters are inherently unpredictable. We are not currently involved in any outstanding litigation that we believe, individually or in the aggregate, will have a material adverse effect on our business, results of operations or financial condition.

Item 4. Mine Safety Disclosures

Not applicable.

Part II

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

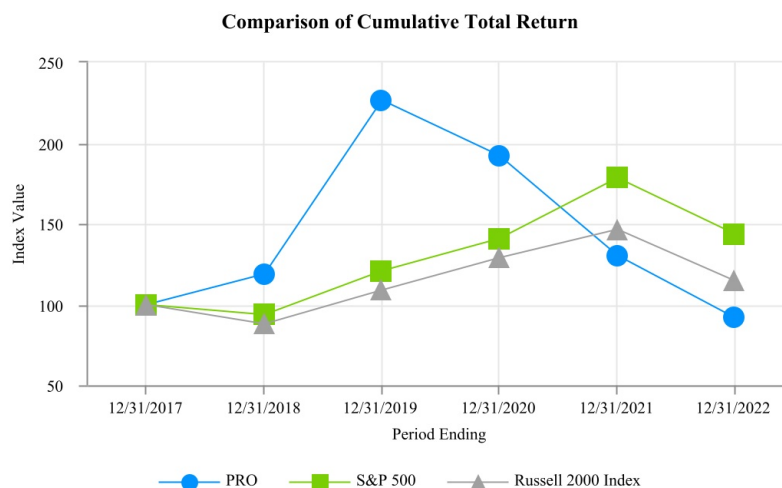
Market Information, Holders and Dividends

Our common stock is listed on the NYSE under the symbol "PRO". On February 9, 2023 there were 37 stockholders of record of our common stock. Since 2007, we have not declared or paid any dividends on our common stock. We currently expect to retain all remaining available funds and any future earnings for use in the operation and development of our business. Accordingly, we do not anticipate declaring or paying cash dividends on our common stock in the foreseeable future.

Performance Graph

The following shall not be deemed "soliciting material" or "filed" with the SEC, or incorporated by reference into any future filing under the Securities Act or Exchange Act, except to the extent that we specifically incorporate it by reference into such filing.

The graph below presents a five-year comparison of the relative investment performance of our common stock, the Standard & Poor's 500 Stock Index ("S&P 500"), and the Russell 2000 Index for the period commencing on December 31, 2017, and ending December 31, 2022. The graph is not meant to be an indication of our future performance.



- (1) The graph assumes that \$100 was invested on December 31, 2017 in our common stock, the S&P 500 and the Russell 2000 Index and further assumes all dividends were reinvested. No cash dividends have been paid on our common stock for the periods presented above.

Company/Index	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
PRO	\$ 100.00	\$ 118.71	\$ 226.54	\$ 191.95	\$ 130.40	\$ 91.72
S&P 500	\$ 100.00	\$ 93.76	\$ 120.84	\$ 140.49	\$ 178.27	\$ 143.61
Russell 2000 Index	\$ 100.00	\$ 87.82	\$ 108.66	\$ 128.61	\$ 146.23	\$ 114.70

Issuer Purchase of Equity Securities

On August 25, 2008, we announced that the Board of Directors authorized a stock repurchase program for the purchase of up to \$15.0 million of our common stock. Under the Board-approved repurchase program, share purchases may be made from time to time in the open market or through privately negotiated transactions depending on market conditions, share price, trading volume and other factors, and such purchases, if any, will be made in accordance with applicable insider trading and other securities laws and regulations. These repurchases may be commenced or suspended at any time or from time to time without prior notice.

During 2022, we did not make any purchases of our common stock under this program. As of December 31, 2022, \$10.0 million remains available under the stock repurchase program.

Recent Sales of Unregistered Securities

There were no unregistered sales of equity securities for the year ended December 31, 2022.

Item 6. Reserved

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

Executive Summary

In 2022, we continued to grow our subscription revenue by enabling our customers to leverage our AI-driven solutions to help them compete in the digital economy, while managing our business towards profitability during a challenging macroeconomic environment. Notable items for 2022 included:

- subscription revenue increased 15% and total revenue increased 10% as compared to prior year as our subscription bookings improved;
- gross revenue retention rates remained above 93% during the trailing twelve months ended December 31, 2022; and
- recurring revenue, which consists of subscription and maintenance and support revenue, accounted for 84% of our total revenue.

Key Performance Metrics

We regularly review the following key performance metrics to assess the health and trajectory of our overall business:

ARR. Annual recurring revenue ("ARR"), a non-GAAP financial measure, is defined, as of a specific date, as contracted recurring revenue, including contracts with a future start date, together with annualized overage fees incurred above contracted minimum transactions, and excluding perpetual and term license agreements. Subscription ARR is calculated in the same manner, but excludes maintenance and support ARR. ARR should be viewed independently of revenue, deferred revenue and other GAAP measures, and is not intended to be combined with any of these items. We adjust our reported ARR on an annual basis to reflect exchange rate changes. Our constant currency ARR is based on the actual currency rates set at the beginning of the year. The same rates are used to measure both 2022 and 2021 ARR. Total ARR on a constant currency basis as of December 31, 2022 was \$247.5 million, up from \$226.7 million as of December 31, 2021, an increase of 9%. Total ARR on an as reported basis as of December 31, 2022 was \$245.3 million, or approximately \$2.2 million lower than our constant currency ARR. Subscription ARR on a constant currency basis as of December 31, 2022 was \$229.0 million, up from \$195.1 million as of December 31, 2021, an increase of 17%. Subscription ARR on an as reported basis as of December 31, 2022 was \$227.0 million, or approximately \$2.0 million lower than our constant currency subscription ARR.

Net Cash used in Operating Activities. Net cash used in operating activities was \$23.9 million for the year ended December 31, 2022, as compared to \$18.6 million for the year ended December 31, 2021. The increase was primarily attributable to a higher annual incentive payment in 2022 as compared to prior year, partially offset by increased cash collections during the period.

Free Cash Flow. We define free cash flow, a non-GAAP financial measure, as net cash provided by (used in) operating activities, excluding severance payments, less capital expenditures (excluding expenditures for PROS new headquarters), purchases of other (non-acquisition-related) intangible assets and capitalized internal-use software development costs. We believe free cash flow may be useful to investors and other users of our financial information in evaluating the amount of cash generated by our business operations. Free cash flow used for the year ended December 31, 2022 was \$21.7 million, compared to \$20.2 million for the year ended December 31, 2021. The following is a reconciliation of free cash flow to the most comparable GAAP measure, net cash used in operating activities:

	Year Ended December 31,	
	2022	2021
Net cash used in operating activities	\$ (23,906)	\$ (18,555)
Severance	3,058	—
Purchase of property and equipment (excluding new headquarters)	(861)	(1,655)
Free cash flow	\$ (21,709)	\$ (20,210)

Factors Affecting Our Performance

Key factors and trends that have affected and we believe will continue to affect our operating results include:

- **Macroeconomic Environment.** We believe the combination of increased inflation, rising interest rates, volatile capital and financial markets, supply chain disruptions, tight labor markets, pricing volatility, the Russia-Ukraine conflict, and other macroeconomic conditions increases corporate focus on profitable growth. Despite this challenging environment,

we remain confident in our ability to help optimize shopping and selling experiences for our customers. For example, pricing volatility and inflation are catalysts for demand for our price management and optimization solutions. Uncertain macroeconomic and industry conditions in countries and regions in which we operate create a challenging selling environment for large enterprise technology deployment, which impacted the pace of our sales closure rates in the second half of 2022, and we believe in the near term will lead new customers to increasingly emphasize smaller scope initial purchases with faster implementations. While our revenue and earnings are relatively predictable as a result of our subscription-based business model, the broader implications of these macroeconomic events on our business, results of operations, cash flows and overall financial position, particularly in the long term, remain uncertain. Under this model, our lower subscription bookings during the pandemic will continue to adversely impact our subscription revenue growth rates due to the timing lag between subscription bookings and the revenue recognized on those bookings. However, despite the trailing impact of the pandemic on our prior revenue growth rates, we had double digit growth for both subscription revenue and total revenue in 2022. For a full discussion on the risks and uncertainties to our business, please see the "Risk Factors" section above.

- *Profitable Growth as a Priority.* We believe that our market opportunity is large and underpenetrated, and intend to continue investing in our business to create awareness for our solutions, acquire new customers, and expand within our existing customer base globally, while focusing on cash flow and profitability. We intend to continue investing for growth and also seek opportunities to mitigate the growth in our costs and reduce our existing cost structure. We also plan to continue investing in product development to enhance our existing technologies, including initiatives to accelerate customer time-to-value, improve efficiency, and provide out-of-the-box integration with third-party commerce solutions, and develop new applications and technologies.
- *Travel Industry Recovering.* Despite operational headwinds and regional variances in the timing of travel restrictions being lifted, the travel industry, particularly the airline industry, is recovering from the unprecedented disruption caused by the pandemic. While global capacity has not fully returned to pre-pandemic levels, demand for air travel continues to recover as restrictions have been lifted. Travel in North America has led this recovery with Asia Pacific lagging, particularly as China has only recently lifted international travel restrictions. The International Air Transport Association is forecasting airline industry profitability in 2023 with certain U.S.-based airlines already publicly reporting profitable quarters. Still, the rate of airline industry recovery could be impacted negatively if inflation impacts consumer disposable income or limits business travel. Despite this geographic variation, we expect airlines to increasingly prioritize technology investments as travel returns to pre-COVID levels.
- *Digital Purchasing Driving Technology Adoption.* We believe the long-term trends toward digital purchasing by both consumers and corporate buyers will increasingly drive demand for technology that provides fast, frictionless and personalized buying experiences across direct sales, partner, online, mobile and emerging channels. Buyers often prefer not to interact with sales representatives as their primary source of research, and increasingly prefer to buy online when they have already decided what to buy. For example, in the airline industry, the pandemic accelerated a long-term trend towards direct booking channels, in part due to a significant reduction in business travel, and we anticipate airlines continuing to invest in technology, including mobile device-enabled solutions, to enhance their ability to capture a greater percentage of bookings through their own channels such as their websites. We believe companies must adopt technologies which power these types of experiences across sales channels as they modernize their sales process to compete in digital commerce. Our AI-powered solutions enable buyers to move fluidly and with personalized experiences across our customers' sales channels, and our digital offer marketing solutions help our customers drive their buyers directly into their direct selling channels.
- *Cloud Migrations.* As we continue to migrate our on-premises customers from our legacy licensed solutions to our current cloud solutions, we expect our future maintenance and support revenue to continue to decline and subscription revenue to increase. We continue to encourage our customers to migrate to our cloud solutions as we have announced end of support dates for certain of our on-premises solutions.

Description of Key Components of our Operating Results

Revenue

We derive our revenues primarily from recurring revenue, which includes subscription and maintenance and support services. Recurring revenues accounted for 84% of our total revenue in 2022.

Subscription. Subscription services revenue primarily consists of fees that give customers access to one or more of our cloud applications with related customer support. We primarily recognize subscription revenue ratably over the contractual term of the arrangement beginning with commencement of service. Subscription revenue related to certain offerings, where fees are based on a number of transactions, are recognized on a usage basis.

Maintenance and support. Maintenance and support revenue includes customer support for our legacy on-premises software and the right to unspecified software updates and enhancements. We recognize revenue from maintenance arrangements ratably over the period in which the services are provided. Our maintenance and support contracts are generally one year in length, billed annually in advance, and non-cancelable.

Services. Services revenue primarily consists of fees for configuration services, consulting and training. We typically sell our services on either a fixed-fee or time-and-materials basis. Services revenue is generally recognized as the services are performed for time and material contracts, or on a proportional performance basis for fixed-price contracts. Training revenues are recognized as the services are performed.

Services revenue varies from period to period depending on different factors, including the level of services required to implement our solutions, the timing of services revenue recognition on certain subscription contracts and any additional services requested by our customers during a particular period.

Significant judgments are required in determining whether services contained in our customer subscription contracts are considered distinct, including whether the services are capable of being distinct and whether they are separately identifiable. Services deemed to be distinct are accounted for as a separate performance obligation and revenue is recognized as the services are performed. If services are determined not to be distinct, the services and the subscription are considered to be a single performance obligation and revenue is recognized over the contractual term of the subscription beginning on the date that subscription services are made available to the customer. The associated revenue is allocated between subscription and services.

Cost of Revenue

Cost of subscription. Cost of subscription consists of infrastructure costs to support our current subscription customer base including third-party hosting services and expenses related to operating our network infrastructure, including depreciation expense and operating lease payments, salaries and related expenses, amortization of capitalized software and an allocation of depreciation, amortization of certain intangible assets and allocated overhead.

Cost of maintenance and support. Cost of maintenance and support consists largely of employee-related costs and an allocation of depreciation, amortization of intangibles, and allocated overhead.

Cost of services. Cost of services includes those costs related to services and implementation of our solutions, primarily employee-related costs and third-party contractors, billable and non-billable travel and an allocation of depreciation and allocated overhead. Cost of providing services may vary from quarter to quarter depending on a number of factors, including the amount of services required to implement and configure our solutions.

Services gross profit varies period to period depending on different factors, including the level of services required to implement our solutions, our mix of employees and third-party contractors, our effective billable man-day rates, our use of third-party system integrators and the billable utilization of our services personnel.

Operating Expenses

Selling and marketing. Selling and marketing expenses primarily consist of employee-related costs, third-party contractors, sales commissions, sales and marketing programs such as lead generation programs, company awareness programs, our annual Outperform conference, participation in industry trade shows, and other sales and marketing programs, travel, amortization expenses associated with acquired intangible assets and allocated overhead. Sales commissions are deferred and amortized on a straight-line basis over the period of benefit, which we have determined to be five to eight years.

Research and development. Research and development expenses primarily consist of employee-related costs and third-party contractors who work on enhancements of existing solutions, the development of new solutions, scientific research, quality assurance and testing, security and an allocation of depreciation, facilities and allocated overhead.

Results of Operations

Comparison of year ended December 31, 2022 with year ended December 31, 2021

Revenue:

	For the Year Ended December 31,					
	2022			2021		
	Percentage of total			Percentage of total		
(Dollars in thousands)	Amount	revenue		Amount	revenue	Variance \$ Variance %
Subscription	\$ 204,041	74 %		\$ 178,006	71 %	\$ 26,035 15 %
Maintenance and support	28,592	10 %		35,111	14 %	(6,519) (19) %
Total subscription, maintenance and support	232,633	84 %		213,117	85 %	19,516 9 %
Services	43,504	16 %		38,306	15 %	5,198 14 %
Total revenue	\$ 276,137	100 %		\$ 251,423	100 %	\$ 24,714 10 %

Maintenance and support revenue. Maintenance and support revenue decreased primarily as a result of existing maintenance customers migrating to our cloud solutions and, to a lesser extent, customer maintenance churn. We expect maintenance revenue to continue to decline as we continue to migrate maintenance customers to our cloud solutions.

Services revenue. Services revenue increased primarily as a result of higher sales of professional services related to our subscription contracts and follow-on professional services to existing customers. Services revenue varies from period to period depending on different factors, including the level of professional services required to implement our solutions, the timing of services revenue recognition on certain subscription contracts and efficiencies in our solutions implementations requiring less professional services during a particular period.

Cost of revenue and gross profit.

	For the Year Ended December 31,							
	2022				2021			
	Amount		Percentage of total revenue		Amount		Percentage of total revenue	
(Dollars in thousands)							Variance \$	Variance %
Cost of subscription	\$	55,039	20	%	\$	53,418	21	%
Cost of maintenance and support		8,004	3	%		8,512	3	%
Total cost of subscription, maintenance and support		63,043	23	%		61,930	25	%
Cost of services		47,037	17	%		42,995	17	%
Total cost of revenue	\$	110,080	40	%	\$	104,925	42	%
Gross profit	\$	166,057	60	%	\$	146,498	58	%

Cost of subscription. Cost of subscription increased primarily due to an increase in intangibles amortization associated with the acquisition of EveryMundo and an increase in personnel costs to support our increased subscription customer base, including EveryMundo. The increase was partially offset by lower infrastructure costs driven by cost efficiencies and lower amortization expense for capitalized internal-use software. Our subscription gross profit percentage was 73% and 70% for the years ended December 31, 2022 and 2021, respectively.

Cost of maintenance and support. Cost of maintenance and support decreased primarily due to a decrease in personnel costs as a result of the need to support a declining maintenance customer base as we migrate customers to our subscription solutions. Maintenance and support gross profit percentages for the years ended December 31, 2022 and 2021, were 72% and 76%, respectively.

Cost of services. Cost of services increased primarily due to higher personnel costs to support the increase in our services revenue during the period and higher travel expenses. Services gross profit percentages for the years ended December 31, 2022 and 2021, were (8)% and (12)%, respectively. The increase in services gross profit percentages was primarily due to the increase in services revenues.

Operating expenses:

	For the Year Ended December 31,							
	2022			2021				
(Dollars in thousands)	Amount	Percentage of total revenue		Amount	Percentage of total revenue		Variance \$	Variance %
Selling and marketing	\$ 94,986	34	%	\$ 86,445	34	%	\$ 8,541	10 %
Research and development	93,412	34	%	82,268	33	%	11,144	14 %
General and administrative	54,202	20	%	49,742	20	%	4,460	9 %
Acquisition-related	—	—	%	2,386	1	%	(2,386)	(100) %
Impairment charges	1,551	1	%	—	—	%	1,551	— %
Total operating expenses	\$ 244,151	88	%	\$ 220,841	88	%	\$ 23,310	11 %

Selling and marketing expenses. Selling and marketing expenses increased primarily due to an increase in headcount associated with the EveryMundo acquisition and higher severance cost including the separation of our Chief Operations Officer in the first quarter of 2022. In addition, there was an increase in travel related expenses and intangibles amortization related to the EveryMundo acquisition.

Research and development expenses. Research and development expenses increased primarily due to an increase in headcount associated with the EveryMundo acquisition as well as an increase in noncash share-based compensation and severance cost.

General and administrative expenses. General and administrative expenses increased primarily due to an increase in employee-related costs and a decrease in bad debt recovery. The bad debt recovery was \$1.9 million for the year ended December 31, 2021 as a result of improved credit conditions with certain customers. In addition, our acquisition of EveryMundo also contributed to overall higher general and administrative expenses as compared to prior year.

Acquisition-related expenses. Acquisition-related expenses were \$2.4 million for the year ended December 31, 2021, and consisted primarily of advisory, legal, accounting and other professional fees, insurance and integration costs for our acquisition of EveryMundo.

Impairment of fixed assets. During the year ended December 31, 2022, we recorded a \$1.6 million impairment charge related to fixed assets. The impairment resulted from changes to our intentions for these assets in connection with a new agreement with a software vendor.

Non-operating expenses:

	For the Year Ended December 31,										
	2022					2021					
	Percentage of total					Percentage of total					
(Dollars in thousands)	Amount	revenue				Amount	revenue			Variance \$	Variance %
Convertible debt interest and amortization	\$ (6,304)	(2)	%		\$ (6,304)	(3)	%		\$ —	— %	
Other income, net	\$ 3,084	1	%		\$ 308	—	%		\$ 2,776	901 %	

Convertible debt interest and amortization. Convertible debt interest expense for the years ended December 31, 2022 and 2021, related to coupon interest and amortization of debt issuance costs attributable to our Notes.

Other income, net. The change in other income, net for the year ended December 31, 2022, primarily related to higher interest income during 2022 and a \$1.3 million net gain on equity investments recognized during the year, partially offset by the impact of foreign currency fluctuations.

Income tax provision:

(Dollars in thousands)	For the Year Ended December 31,		Variance \$	Variance %
	2022	2021		
Effective tax rate	(1.1)%	(1.1)%	n/a	— %
Income tax provision	\$ 932	\$ 870	\$ 62	7 %

Our tax provision for the year ended December 31, 2022 included both foreign income and withholding taxes. No tax benefit was recognized on jurisdictions with a projected loss for the year due to the valuation allowances on our deferred tax assets.

Our 2022 and 2021 effective tax rates had an unusual relationship to pretax loss from operations due to a valuation allowance on our net deferred tax assets. Our income tax provisions in 2022 and 2021 only included foreign income and withholding taxes, resulting in an effective tax rate of (1.1)%. The difference between the effective tax rates and the federal statutory rate of 21% for the years ended December 31, 2022 and 2021 was primarily due to the increase in our valuation allowance of \$16.6 million in each period.

As of December 31, 2022 and 2021, we had a valuation allowance on our net deferred tax assets of \$165.7 million and \$146.8 million, respectively. The increase in the valuation allowance was principally attributable to an additional valuation allowance recorded on our current year's tax loss and other deferred tax assets including capitalized research and development costs under Internal Revenue Code Section 174 as updated by the Tax Cuts and Jobs Act of 2017.

Comparison of year ended December 31, 2021 with year ended December 31, 2020

For a comparison of our results of operations for the years ended December 31, 2021 and 2020, see "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, filed with the SEC on February 18, 2022.

Liquidity and Capital Resources

At December 31, 2022, we had \$203.6 million of cash and cash equivalents and \$106.3 million of working capital as compared to \$227.6 million of cash and cash equivalents and \$128.7 million of working capital at December 31, 2021.

Our principal sources of liquidity are our cash and cash equivalents. In addition, we could access capital markets to supplement our liquidity position. Our material drivers or variants of operating cash flow are net income (loss), noncash expenses (principally share-based compensation, intangible amortization and amortization of debt issuance costs) and the timing of invoicing and cash collections from our customers. Our operating cash flows are also impacted by the timing of payments to our vendors and the payments of other liabilities.

We believe our existing cash and cash equivalents will provide adequate liquidity and capital resources to meet our operational requirements, anticipated capital expenditures and coupon interest payments for our Notes for the next twelve months. Our future working capital requirements depend on many factors, including the operations of our existing business, growth of our customer subscription services, future acquisitions we might undertake, expansion into complementary businesses, timing of adoption and implementation of our solutions and customer churn. Capital markets have tightened recently in response to the macroeconomic environment making new financing more difficult and/or expensive and we may not be able to obtain such financing on terms acceptable to us or at all.

Our 2024 Notes, with a principal amount of \$143.8 million, mature on May 15, 2024, unless redeemed or converted in accordance with their terms prior to such date.

The following table presents key components of our Consolidated Statements of Cash Flows for the years ended December 31, 2022, 2021 and 2020:

(Dollars in thousands)	For the Year Ended December 31,		
	2022	2021	2020
Net cash used in operating activities	\$ (23,906)	\$ (18,555)	\$ (49,389)
Net cash used in investing activities	(1,142)	(85,173)	(30,460)
Net cash provided by financing activities	1,069	2,471	102,914
Cash and cash equivalents (beginning of period)	227,553	329,134	306,077
Cash and cash equivalents (end of period)	\$ 203,627	\$ 227,553	\$ 329,134

Operating Activities

Net cash used in operating activities in 2022 was \$23.9 million and increased as compared to \$18.6 million in 2021. The \$5.4 million increase over last year was primarily attributable to a higher annual incentive payment in 2022 as compared to prior year, partially offset by increased cash collections during the period.

Investing Activities

Net cash used in investing activities for 2022 was \$1.1 million and decreased as compared to \$85.2 million in 2021. The decrease was primarily due to the payment for the acquisition of EveryMundo in November 2021. In addition, there was a decrease in capital expenditures and equity investments in 2022 as compared to prior year.

Financing Activities

Net cash provided by financing activities for 2022 was \$1.1 million and decreased as compared to \$2.5 million in 2021. The decrease was primarily due to payments for tax withholdings on vesting of employee share-based awards in 2022.

Stock Repurchases

In August 2008, our Board of Directors authorized a stock repurchase program for the purchase of up to \$15.0 million of our common stock. No shares were repurchased under the program during the years ended December 31, 2022, 2021 and 2020, respectively. As of December 31, 2022, \$10.0 million remained available in the stock repurchase program. The repurchase of stock, if continued, will be funded primarily with existing cash balances. The timing of any repurchases will depend upon various factors including, but not limited to, market conditions, the market price of our common stock and management's assessment of our liquidity and cash flow needs. *For additional information on the stock repurchase program see [Item 5](#), "Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities."*

Off-Balance Sheet Arrangements and Contractual Obligations

We do not have any relationships with unconsolidated entities or financial partnerships, such as variable interest entities, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Contractual Obligations

Our contractual obligations as of December 31, 2022 consist of obligations under our Notes, operating leases and various service agreements.

The following table sets forth our material contractual obligations, excluding imputed interest, as of December 31, 2022. For further information, see the associated Notes to Consolidated Financial Statements as referenced below:

(Dollars in thousands)	Payment due by period					Reference
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years	
Notes, including interest	\$ 312,726	\$ 4,813	\$ 151,163	\$ 156,750	\$ —	Note 16
Operating leases	50,732	10,131	9,349	8,001	23,251	Note 8
Purchase commitments	166,473	34,541	84,516	47,416	—	Note 18
Total contractual obligations	<u>\$ 529,931</u>	<u>\$ 49,485</u>	<u>\$ 245,028</u>	<u>\$ 212,167</u>	<u>\$ 23,251</u>	

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, costs and expenses, and related disclosures. On an ongoing basis, we evaluate our estimates and assumptions. Actual results could differ from those estimates.

We believe the critical accounting policies listed below affect significant judgment and estimates used in the preparation of our Consolidated Financial Statements.

Revenue Recognition

We derive our revenues primarily from subscription services, services and associated software maintenance and support services.

We determine revenue recognition through the following steps:

- identification of the contract, or contracts, with a customer;
- identification of the performance obligations in the customer contract(s);
- determination of the transaction price;
- allocation of the transaction price to each performance obligation in the customer contract(s); and
- recognition of revenue when, or as, we satisfy a performance obligation.

Subscription revenue

Subscription revenue primarily consists of subscription fees that give customers access to one or more of our cloud applications along with related customer support. We primarily recognize subscription revenue ratably over the contractual term of the arrangement beginning with commencement of service. Subscription revenue related to certain offerings, where fees are based on a number of transactions, are recognized on a usage basis.

Maintenance and support revenue

Maintenance and support revenue includes customer support for our on-premises software and the right to unspecified software updates and enhancements. We recognize revenue from maintenance arrangements ratably over the period in which the services are provided. Our maintenance and support contracts are generally one year in length, billed annually in advance, and non-cancelable.

Services revenue

Services revenue primarily consists of fees for configuration services, consulting and training. We typically sell our services on either a fixed-fee or time-and-materials basis. Services revenue is generally recognized as the services are performed for time and material contracts, or on a proportional performance basis for fixed-price contracts. Training revenues are recognized as the services are performed.

Significant judgments are required in determining whether services contained in our customer subscription contracts are considered distinct, including whether the services are capable of being distinct and whether they are separately identifiable. Services deemed to be distinct are accounted for as a separate performance obligation and revenue is recognized as the services are performed. If services are not determined to be distinct, the services and the subscription are determined to be a single performance obligation and revenue is recognized over the contractual term of the subscription beginning on the date subscription services are made available to the customer. The associated revenue is allocated between subscription and services.

Customer contracts with multiple performance obligations

A portion of our customer contracts contain multiple performance obligations. Significant judgment is required in determining whether multiple performance obligations contained in a single customer contract are capable of being distinct and are separately identifiable. An obligation determined to be distinct is accounted for as a separate performance obligation and revenue is recognized when, or as, we satisfy the performance obligation. If obligations are determined not to be distinct, those obligations are accounted for as a single, combined performance obligation. The transaction price is allocated to each performance obligation on a relative standalone selling price basis.

Deferred Costs

Sales commissions earned by our sales representatives are considered incremental and recoverable costs of obtaining a customer contract. Sales commissions are capitalized and amortized on a straight-line basis over the period of benefit, which we have determined to be five to eight years. We determined the period of benefit by taking into consideration our customer contracts, expected renewals of those customer contracts (as we currently do not pay an incremental sales commission for renewals), our technology and other factors. We also capitalize amounts earned by employees other than sales representatives who earn incentive payments under compensation plans tied to the value of customer contracts acquired.

Noncash Share-Based Compensation

Noncash share-based compensation expense is measured at the grant date based on the fair value of the award and is recognized as expense on a straight-line basis over the requisite service period, which is generally the vesting period.

To date, we have granted restricted stock units ("RSUs") and market stock units ("MSUs") from the 2017 Equity Stock Plan.

The fair value of the RSUs (time and performance-based) and the equity consideration stock awards, granted as part of the EveryMundo acquisition, is based on the closing price of our stock on the date of grant.

MSUs are performance-based awards that cliff vest based on our shareholder return relative to the total shareholder return of the Russell 2000 Index ("Index") over a three-year period. The maximum number of shares issuable upon vesting is 200% of the MSUs initially granted based on the average price of our common stock relative to the Index during the Performance Period. We estimate the fair value of MSUs on the date of grant using a Monte Carlo simulation model. The determination of the fair value of the MSUs is affected by our stock price and a number of assumptions including the expected volatilities of our stock and the Index, the risk-free interest rate and expected dividends. Our expected volatility at the date of grant was based on the historical volatilities of our stock and the Index over the Performance Period.

If factors change and we employ different assumptions, noncash share-based compensation expense may differ significantly from what we have recorded in the past. If there are any modifications or cancellations of the underlying unvested securities, we may be required to accelerate, increase or cancel any remaining unearned noncash share-based compensation expense. Future noncash share-based compensation expense and unearned noncash share-based compensation will increase to the extent we grant additional equity awards to employees.

We estimate the number of awards that will be forfeited and recognize expense only for those awards that ultimately are expected to vest. Significant judgment is required in determining the adjustment to noncash share-based compensation

expense for estimated forfeitures. Noncash share-based compensation expense in a period could be impacted, favorably or unfavorably, by differences between forfeiture estimates and actual forfeitures.

We record deferred tax assets for share-based compensation awards that will result in future deductions on our income tax returns, based on the amount of share-based compensation recognized at the statutory tax rate in the jurisdiction in which we will receive a tax deduction. Because the deferred tax assets we record are based upon the share-based compensation expenses in a particular jurisdiction, the aforementioned inputs that affect the fair values of our stock awards may also indirectly affect our income tax expense. In addition, differences between the deferred tax assets recognized for financial reporting purposes and the actual tax deduction reported on our income tax returns are recorded in our income tax (expense) income.

At December 31, 2022, we had \$68.1 million of total unrecognized compensation costs related to noncash share-based compensation arrangements for stock awards granted. These costs will be recognized over a weighted-average period of 2.5 years.

Accounting for Income Taxes

We estimate our income taxes based on the various jurisdictions where we conduct business and we use estimates in determining our provision for income taxes. We estimate separately our deferred tax assets, related valuation allowances, current tax liabilities and deferred tax liabilities. The calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax rules and the potential for future adjustment of our uncertain tax positions by the U.S. Internal Revenue Service or other taxing jurisdictions. We estimate our current tax liability and assess temporary differences that result from differing treatments of certain items for tax and accounting purposes. These differences result in deferred tax assets and liabilities, which we show on our balance sheet. At December 31, 2022, our deferred tax assets consisted primarily of temporary differences related to noncash share-based compensation, interest expense limited under Section 163(j), expense recognition of our lease obligations, Research and Experimentation ("R&E") tax credit carryforwards and net operating losses.

We review the realizability of our deferred tax asset on a quarterly basis, or whenever events or changes in circumstances indicate a review is required. In determining the requirement for a valuation allowance, the historical and projected financial results of the legal entity or consolidated group recording the net deferred tax asset are considered, along with any other positive or negative evidence. Since future financial results may differ from previous estimates, periodic adjustments to our valuation allowances may be necessary. We continually perform an analysis related to the realizability of our deferred tax assets. As a result, and after considering tax planning initiatives and other positive and negative evidence, we determine it is more likely than not our net deferred tax assets will not be realized. During 2022, there was not sufficient positive evidence to outweigh the current and historic negative evidence to determine it was more likely than not that our net deferred tax assets would not be realized. Therefore, we continue to have a valuation allowance against net deferred tax assets as of December 31, 2022.

We account for uncertain income tax positions recognized in our financial statements in accordance with the Income Tax Topic of the Accounting Standards Codification ("ASC"), issued by the FASB. This interpretation requires companies to use a prescribed model for assessing the financial recognition and measurement of all tax positions taken or expected to be taken in their tax returns. This guidance provides clarification on recognition, classification, interest and penalties, accounting in interim periods, disclosures and transition. *Please see [Note 15](#) to the Consolidated Financial Statements for more information.*

Business Combinations, Intangible Assets and Goodwill

We record tangible and intangible assets acquired and liabilities assumed in business combinations under the purchase method of accounting. The allocation of the purchase price in a business combination requires management to make significant estimates in determining the fair value of acquired assets and assumed liabilities, especially with respect to intangible assets. The excess of the purchase price in a business combination over the fair value of these tangible and intangible assets acquired and liabilities assumed is recorded as goodwill. Critical estimates in valuing certain intangible assets include, but are not limited to, projected revenue, discount rate, obsolescence rate, cost of sales, operating expenses and customer attrition rate. We estimate fair value primarily utilizing the income and market approaches, including the multi-period excess earnings method for certain intangible assets. Our estimates are inherently uncertain and subject to refinement. During the measurement period, which may be up to one year from the acquisition date, we may record adjustments to the fair value of these tangible and intangible assets acquired and liabilities assumed, with the corresponding offset to goodwill. Upon the conclusion of the measurement period or

final determination of the fair value of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to our Consolidated Statement of Comprehensive Income (Loss).

Amortization is recorded over the estimated useful lives ranging from two to eight years. We review our intangible assets subject to amortization to determine if any adverse conditions exist or a change in circumstances has occurred that would indicate impairment or a change in the remaining useful life. If the carrying value of an asset group exceeds its undiscounted cash flows, we will write down the carrying value of the intangible asset group to its fair value in the period identified. In assessing recoverability, we must make assumptions regarding estimated future cash flows and discount rates. If these estimates or related assumptions change in the future, we may be required to record impairment charges. If the estimate of an intangible asset's remaining useful life is changed, we will amortize the remaining carrying value of the intangible asset prospectively over the revised remaining useful life.

We assess goodwill for impairment as of November 30 of each fiscal year, or more frequently if events or changes in circumstances indicate the fair value of our reporting unit has been reduced below its carrying value. When conducting our annual goodwill impairment assessment, we use a two-step process. The first step is to perform an optional qualitative evaluation as to whether it is more likely than not the fair value of our reporting unit is less than its carrying value, using an assessment of relevant events and circumstances. In performing this assessment, we are required to make assumptions and judgments including, but not limited to, an evaluation of macroeconomic conditions as they relate to our business, industry and market trends, as well as the overall future financial performance of our reporting unit and future opportunities in the markets in which it operates. If we determine it is not more likely than not that the fair value of our reporting unit is less than its carrying value, we are not required to perform any additional tests in assessing goodwill for impairment. However, if we conclude otherwise or elect not to perform the qualitative assessment, we perform a second step for our reporting unit, consisting of a quantitative assessment of goodwill impairment. This quantitative assessment requires us to compare the fair value of our reporting unit with its carrying value. If the carrying amount exceeds the fair value, an impairment charge will be recognized, however, loss cannot exceed the total amount of goodwill allocated to the reporting unit.

Recent Accounting Pronouncements

See [Note 2](#) - Summary of Significant Accounting Policies to the Consolidated Financial Statements included in this report, regarding the impact of certain recent accounting pronouncements on our Consolidated Financial Statements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Exchange Risk

Our contracts are predominately denominated in U.S. dollars; however, we have contracts denominated in foreign currencies and therefore a portion of our revenue is subject to foreign currency risks. The primary market risk we face is from foreign currency exchange rate fluctuations. Our cash flows are subject to fluctuations due to changes in foreign currency exchange rates. The effect of an immediate 10% adverse change in exchange rates on foreign denominated receivables as of December 31, 2022, would have resulted in a \$0.6 million loss. We are also exposed to foreign currency risk due to our operating subsidiaries in France, United Kingdom, Canada, Germany, Ireland, Australia, Bulgaria, Singapore and United Arab Emirates. A hypothetical 10% adverse change in the value of the U.S. dollar in relation to the Euro, which is our single most significant foreign currency exposure, would have changed revenue for the year ended December 31, 2022 by approximately \$3.9 million. However, due to the relatively low volume of payments made and received through our foreign subsidiaries, we do not believe we have significant exposure to foreign currency exchange risks. Fluctuations in foreign currency exchange rates could harm our financial results in the future.

We currently do not use derivative financial instruments to mitigate foreign currency exchange risks. We continue to review this issue and may consider hedging certain foreign exchange risks through the use of currency futures or options in future years.

Exposure to Interest Rates

As of December 31, 2022, we had outstanding principal amounts of \$150.0 million and \$143.8 million of the 2027 and the 2024 Notes, respectively, which are fixed rate instruments. Therefore, our results of operations are not subject to fluctuations in interest rates. The fair value of the Notes may change when the market price of our stock fluctuates.

We believe we do not have any material exposure to changes in the fair value as a result of changes in interest rates due to the short term nature of our cash equivalents.

Item 8. Financial Statements and Supplementary Data

The consolidated financial statements required to be filed are indexed on page F-1 and are incorporated herein by reference. See *Item 15(a)(1) and (2)*.

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

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As of the end of the period covered by this report, we carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act. Based on that evaluation as of the period covered by this Annual Report on Form 10-K, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures were effective to ensure that information we are required to disclose in reports that we file or submit under the Exchange Act (i) is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and (ii) is accumulated and communicated to our management, including our Chief Executive Officer and our Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting during the most recent fiscal quarter 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

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act). 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 GAAP. Our internal control over financial reporting is a framework that includes policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on the financial statements.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has assessed the effectiveness of our internal control over financial reporting as of December 31, 2022, based on the criteria in Internal Control — Integrated Framework (2013) issued by COSO. Based on this evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2022 based upon the COSO criteria.

The effectiveness of our internal control over financial reporting as of December 31, 2022 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report, which is included herein.

Item 9B. Other Information

None.

Part III

Item 10. *Directors, Executive Officers and Corporate Governance*

The information required by this item is incorporated by reference from our proxy statement in connection with our 2023 Annual Meeting of Stockholders, which proxy statement will be filed with the SEC not later than 120 days after the close of our fiscal year ended December 31, 2022.

Item 11. *Executive Compensation*

The information required by this item is incorporated by reference from our proxy statement in connection with our 2023 Annual Meeting of Stockholders, which proxy statement will be filed with the SEC not later than 120 days after the close of our fiscal year ended December 31, 2022.

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

The information required by this item is incorporated by reference from our proxy statement in connection with our 2023 Annual Meeting of Stockholders, which proxy statement will be filed with the SEC not later than 120 days after the close of our fiscal year ended December 31, 2022.

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

The information required by this item is incorporated by reference from our proxy statement in connection with our 2023 Annual Meeting of Stockholders, which proxy statement will be filed with the SEC not later than 120 days after the close of our fiscal year ended December 31, 2022.

Item 14. *Principal Accountant Fees and Services*

The information required by this item is incorporated by reference from our proxy statement in connection with our 2023 Annual Meeting of Stockholders, which proxy statement will be filed with the SEC not later than 120 days after the close of our fiscal year ended December 31, 2022.

Part IV

Item 15. Exhibits and Financial Statements Schedules

(a)(1) Financial Statements

Reference is made to the Index to Financial Statements in the section entitled "Financial Statements and Supplementary Data" in Part II, Item 8 of this Annual Report on Form 10-K.

(a)(2) Financial Statement Schedules

Reference is made to Schedule II, Valuation and Qualifying Accounts, as indexed on page F-32.

Schedules not listed above have been omitted because they are not applicable or are not required or the information required to be set forth therein is included in the Consolidated Financial Statements or Notes thereto.

(a)(3) Exhibits

Exhibits are as set forth below in the Exhibit Index. Exhibits which are incorporated herein by reference can be inspected and copied at the public reference rooms maintained by the SEC in Washington, D.C., New York, New York, and Chicago, Illinois, and are also available to the public from commercial document retrieval services and at the website maintained by the SEC at <http://www.sec.gov>.

PROS Holdings, Inc.
Index to the Consolidated Financial Statements

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of PROS Holdings, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of PROS Holdings, Inc. and its subsidiaries (the "Company") as of December 31, 2022 and 2021, and the related consolidated statements of comprehensive income (loss), of stockholders' (deficit) equity and of cash flows for each of the three years in the period ended December 31, 2022, including the related notes and financial statement schedule listed in the accompanying index (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for convertible notes in 2021.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and

dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue recognition – Identifying distinct performance obligations within customer contracts

As described in Note 2 to the consolidated financial statements, for the year ended December 31, 2022, the Company recognized total revenue of \$276.1 million from customer contracts. A portion of the Company's customer contracts contain multiple performance obligations. Significant judgment is required in determining whether multiple performance obligations contained in a single customer contract are capable of being distinct and are separately identifiable. An obligation determined to be distinct is accounted for as a separate performance obligation and revenue for that separate performance obligation is recognized when, or as, the Company satisfies the performance obligation. If obligations are determined not to be distinct, those obligations are accounted for as a single, combined performance obligation. The transaction price is allocated to each performance obligation on a relative standalone selling price basis.

The principal considerations for our determination that performing procedures relating to revenue recognition - identifying distinct performance obligations within customer contracts is a critical audit matter are (i) the significant judgment by management when determining whether multiple performance obligations contained in a single customer contract are capable of being distinct and are separately identifiable, and (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating whether the distinct performance obligations within a single customer contract were appropriately identified by management.

Addressing the matter involved performing procedures and evaluating evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the revenue recognition process, including controls over management's identification of distinct performance obligations. These procedures also included, among others (i) examining customer contracts on a test basis to identify whether the performance obligations within a single customer contract were capable of being distinct and were separately identifiable and (ii) evaluating management's conclusions through tests of underlying information.

/s/ PricewaterhouseCoopers LLP

San Jose, California

February 15, 2023

We have served as the Company's auditor since 2002.

PROS Holdings, Inc.
Consolidated Balance Sheets
(In thousands, except share and per share amounts)

	December 31,	
	2022	2021
Assets:		
Current assets:		
Cash and cash equivalents	\$ 203,627	\$ 227,553
Trade and other receivables, net of allowance of \$ 609 and \$ 1,206 , respectively	48,178	40,581
Deferred costs, current	6,032	5,772
Prepaid and other current assets	9,441	9,623
Total current assets	267,278	283,529
Property and equipment, net	25,012	30,958
Operating lease right-of-use assets	17,474	25,732
Deferred costs, noncurrent	8,764	9,510
Intangibles, net	17,851	27,618
Goodwill	107,561	108,133
Other assets, noncurrent	9,012	9,003
Total assets	\$ 452,952	\$ 494,483
Liabilities and Stockholders' (Deficit) Equity:		
Current liabilities:		
Accounts payable and other liabilities	\$ 7,964	\$ 4,034
Accrued liabilities	12,854	12,631
Accrued payroll and other employee benefits	23,797	31,994
Operating lease liabilities, current	7,662	8,457
Deferred revenue, current	108,659	97,713
Total current liabilities	160,936	154,829
Deferred revenue, noncurrent	8,298	8,553
Convertible debt, net, noncurrent	289,779	288,287
Operating lease liabilities, noncurrent	28,184	38,034
Other liabilities, noncurrent	1,228	1,196
Total liabilities	488,425	490,899
Commitments and contingencies (Note 18)		
Stockholders' (deficit) equity:		
Preferred stock, \$ 0.001 par value, 5,000,000 shares authorized none issued	—	—
Common stock, \$ 0.001 par value, 75,000,000 shares authorized; 50,318,726 and 49,201,265 shares issued, respectively; 45,638,003 and 44,520,542 shares outstanding, respectively	50	49
Additional paid-in capital	590,475	546,693
Treasury stock, 4,680,723 common shares, at cost	(29,847)	(29,847)
Accumulated deficit	(590,898)	(508,652)
Accumulated other comprehensive loss	(5,253)	(4,659)
Total stockholders' (deficit) equity	(35,473)	3,584
Total liabilities and stockholders' (deficit) equity	\$ 452,952	\$ 494,483

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

PROS Holdings, Inc.
Consolidated Statements of Comprehensive Income (Loss)
(In thousands, except per share data)

	For the Year Ended December 31,		
	2022	2021	2020
Revenue:			
Subscription	\$ 204,041	\$ 178,006	\$ 170,473
Maintenance and support	28,592	35,111	44,692
Total subscription, maintenance and support	232,633	213,117	215,165
Services	43,504	38,306	37,259
Total revenue	276,137	251,423	252,424
Cost of revenue:			
Subscription	55,039	53,418	51,673
Maintenance and support	8,004	8,512	9,880
Total cost of subscription, maintenance and support	63,043	61,930	61,553
Services	47,037	42,995	43,080
Total cost of revenue	110,080	104,925	104,633
Gross profit	166,057	146,498	147,791
Operating expenses:			
Selling and marketing	94,986	86,445	87,182
Research and development	93,412	82,268	77,165
General and administrative	54,202	49,742	49,524
Acquisition-related	—	2,386	—
Impairment of fixed assets	1,551	—	—
Loss from operations	(78,094)	(74,343)	(66,080)
Convertible debt interest and amortization	(6,304)	(6,304)	(11,125)
Other income, net	3,084	308	897
Loss before income tax provision	(81,314)	(80,339)	(76,308)
Income tax provision	932	870	676
Net loss	(82,246)	(81,209)	(76,984)
Net loss per share:			
Basic and diluted	(1.82)	(1.83)	(1.78)
Weighted average number of shares:			
Basic and diluted	45,269	44,348	43,301
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustment	(594)	(1,228)	480
Other comprehensive (loss) income, net of tax	(594)	(1,228)	480
Comprehensive loss	\$ (82,840)	\$ (82,437)	\$ (76,504)

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

PROS Holdings, Inc.
Consolidated Statements of Cash Flows
(In thousands)

		Year Ended December 31,		
		2022	2021	2020
Operating activities:				
Net loss	\$	(82,246)	\$ (81,209)	\$ (76,984)
Adjustments to reconcile net loss to net cash provided by operating activities:				
Depreciation and amortization		14,967	12,060	14,334
Amortization of debt issuance costs		1,491	1,491	8,743
Share-based compensation		42,714	35,075	24,399
Provision for credit losses		(280)	(1,910)	4,783
Impairment of fixed assets		1,551	—	—
(Gain)/ Loss on equity investments, net		(1,308)	—	—
Changes in operating assets and liabilities:				
Accounts and unbilled receivables		(7,330)	12,560	10,450
Deferred costs		486	3,202	2,749
Prepaid expenses and other assets		1,712	1,828	(1,376)
Operating lease right-of-use assets and liabilities		(2,175)	1,534	16,974
Accounts payable and other liabilities		3,964	(515)	(4,817)
Accrued liabilities		26	(426)	(9,848)
Accrued payroll and other employee benefits		(8,191)	4,693	(7,106)
Deferred revenue		10,713	(6,938)	(31,690)
Net cash used in operating activities		(23,906)	(18,555)	(49,389)
Investing activities:				
Purchase of property and equipment		(861)	(2,796)	(28,493)
Purchase of equity securities		(281)	(2,895)	(281)
Acquisition of EveryMundo, net of cash acquired		—	(79,482)	—
Capitalized internal-use software development costs		—	—	(1,686)
Net cash used in investing activities		(1,142)	(85,173)	(30,460)
Financing activities:				
Proceeds from employee stock plans		2,722	3,111	2,824
Tax withholding related to net share settlement of stock awards		(1,653)	(352)	(20,481)
Payments of notes payable		—	(288)	—
Proceeds from issuance of convertible debt, net		—	—	146,925
Debt issuance costs related to convertible debt		—	—	(1,019)
Purchase of Capped Call		—	—	(25,335)
Net cash provided by financing activities		1,069	2,471	102,914
Effect of foreign currency rates on cash		53	(324)	(8)
Net change in cash and cash equivalents		(23,926)	(101,581)	23,057
Cash and cash equivalents:				
Beginning of period		227,553	329,134	306,077
End of period	\$	203,627	\$ 227,553	\$ 329,134
Supplemental disclosure of cash flow information:				
Cash paid during period for:				
Taxes	\$	(146)	\$ (403)	\$ (341)
Interest	\$	(4,938)	\$ (4,988)	\$ (1,680)
Noncash investing activities:				
Purchase of property and equipment accrued but not paid	\$	11	\$ 81	\$ 341

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

PROS Holdings, Inc.
Consolidated Statements of Stockholders' (Deficit) Equity
(In thousands, except share data)

	Common Stock			Treasury Stock		Accumulated Deficit	Accumulated other comprehensive loss	Total Stockholders' (Deficit) Equity
	Shares	Amount	Additional Paid-In Capital	Shares	Amount			
Balance at December 31, 2019	42,630,123	\$ 47	\$ 560,496	4,680,723	\$ (29,847)	\$ (361,789)	\$ (3,911)	\$ 164,996
Stock awards net settlement	765,801	1	(20,482)	—	—	—	—	(20,481)
Proceeds from employee stock plans	65,457	—	2,824	—	—	—	—	2,824
Equity component of convertible debt issuance, net	—	—	47,215	—	—	—	—	47,215
Purchase of Capped Call	—	—	(25,335)	—	—	—	—	(25,335)
Warrant exercise	163	—	—	—	—	—	—	—
Noncash share-based compensation	—	—	24,322	—	—	—	—	24,322
Other comprehensive income (loss)	—	—	—	—	—	—	480	480
Net loss	—	—	—	—	—	(76,984)	—	(76,984)
Balance at December 31, 2020	43,461,544	\$ 48	\$ 589,040	4,680,723	\$ (29,847)	\$ (438,773)	\$ (3,431)	\$ 117,037
Stock awards net settlement	977,915	1	(353)	—	—	—	—	(352)
Proceeds from employee stock plans	81,083	—	3,111	—	—	—	—	3,111
Cumulative effect of adoption of ASU 2020-06	—	—	(80,098)	—	—	11,330	—	(68,768)
Noncash share-based compensation	—	—	34,993	—	—	—	—	34,993
Other comprehensive income (loss)	—	—	—	—	—	—	(1,228)	(1,228)
Net loss	—	—	—	—	—	(81,209)	—	(81,209)
Balance at December 31, 2021	44,520,542	\$ 49	\$ 546,693	4,680,723	\$ (29,847)	\$ (508,652)	\$ (4,659)	\$ 3,584
Stock awards net settlement	1,010,875	1	(1,654)	—	—	—	—	(1,653)
Proceeds from employee stock plans	106,586	—	2,722	—	—	—	—	2,722
Noncash share-based compensation	—	—	42,714	—	—	—	—	42,714
Other comprehensive income (loss)	—	—	—	—	—	—	(594)	(594)
Net loss	—	—	—	—	—	(82,246)	—	(82,246)
Balance at December 31, 2022	45,638,003	\$ 50	\$ 590,475	4,680,723	\$ (29,847)	\$ (590,898)	\$ (5,253)	\$ (35,473)

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

PROS Holdings, Inc.
Notes to Consolidated Financial Statements

1. Organization and Nature of Operations

PROS Holdings, Inc., a Delaware corporation, through its operating subsidiaries (collectively, the "Company"), provides solutions that optimize shopping and selling experiences. PROS solutions leverage artificial intelligence ("AI"), self-learning and automation to ensure that every transactional experience is fast, frictionless and personalized for every shopper, supporting both business-to-business ("B2B") and business-to-consumer ("B2C") companies across industry verticals. Companies can use these selling, pricing, revenue optimization, distribution and retail, and digital offer marketing solutions to assess their market environments in real time to deliver customized prices and offers. The Company's solutions enable their customers to provide the buyers of their products the ability to move fluidly from one sales channel to another, whether direct, partner, online, mobile or other emerging channels, each with a personalized experience regardless of which channel is used. The Company's decades of data science and AI expertise are infused into its solutions and are designed to reduce time and complexity through actionable intelligence.

2. Summary of Significant Accounting Policies

Principles of Consolidation and Basis of Presentation

These Consolidated Financial Statements include the accounts of the Company and its wholly-owned subsidiaries. All significant intercompany transactions and balances have been eliminated in consolidation. The Consolidated Financial Statements have been prepared in accordance with generally accepted accounting principles in the United States of America ("GAAP"). Certain prior year amounts have been reclassified for consistency with the current year presentation. Such reclassifications impacted the classification of general and administrative expenses and research and development expenses. These insignificant reclassifications had no effect on the reported results of operations, cash flows, or financial position.

Changes in Accounting Policies

The Company has consistently applied the accounting policies described in this Note 2 to all periods presented in these Consolidated Financial Statements, except for the Company's adoption of certain accounting standards described in more detail under "*Recently adopted accounting pronouncements*" in this Note 2 below.

Dollar Amounts

The dollar amounts presented in the tabular data within these footnote disclosures are stated in thousands of dollars, except per share amounts, or as noted within the context of each footnote disclosure.

Use of Estimates

The preparation of these Consolidated Financial Statements in conformity with GAAP requires the Company to make certain estimates, judgments and assumptions that affect the reported amounts of assets, liabilities, revenues, costs and expenses during the reporting period. The complexity and judgment required in the Company's estimation process, as well as issues related to the assumptions, risks and uncertainties inherent in determining the nature and timing of satisfaction of performance obligations and determining the standalone selling price of performance obligations, affect the amounts of revenue, expenses, unbilled receivables and deferred revenue. Estimates are also used for, but not limited to, receivables, allowance for credit losses, the determination of the period of benefit for deferred commissions, operating lease right-of-use assets and operating lease liabilities, useful lives of assets, depreciation and amortization, fair value of assets acquired and liabilities assumed for business combinations, income taxes and deferred tax asset valuation, valuation of stock awards, other current liabilities and accrued liabilities. Numerous internal and external factors can affect estimates. Actual results could differ from those estimates and such differences could be material to the Company's consolidated financial position and results of operations.

Cash and Cash Equivalents

The Company considers all highly liquid investments with an original maturity of three months or less at the time of purchase, or the ability to be settled in cash within a period of three months, to be cash equivalents, except for commercial paper which is classified as short-term investments, if any. The Company has a cash management program that provides for the investment of excess cash balances, primarily in short-term money market instruments.

Trade and Other Receivables

Trade and other receivables are primarily comprised of trade receivables, net of allowance for credit losses, contract assets and unbilled receivables. The Company records trade accounts receivable for its unconditional rights to consideration arising from the Company's performance under contracts with customers. The Company's standard billing terms are generally within thirty to sixty days from the date of the invoice. The carrying value of such receivables, net of the allowance for credit losses, represents their estimated net realizable value. When developing its estimate of expected credit losses on trade and other receivables, the Company considers the available information relevant to assessing the collectability of cash flows, which includes a combination of both internal and external information relating to past events, current conditions, and future forecasts as well as relevant qualitative and quantitative factors that relate to the environment in which the Company operates.

Contract assets represent conditional rights to consideration that have been recognized as revenue in advance of billing the customer. Unbilled receivables represent unconditional rights to consideration arising from revenue that have been recognized in advance of billing the customer.

Prepaid Expenses and Other Assets

Prepaid expenses and other assets consist primarily of prepaid third-party software subscription and license fees, deferred project costs and prepaid taxes.

Property and Equipment, Net

Property and equipment are recorded at cost, less accumulated depreciation. Maintenance, repairs and minor replacements are charged to expense as incurred. Depreciation on property and equipment, with the exception of leasehold improvements, is recorded using the straight-line method over the estimated useful lives of the assets. Depreciation on leasehold improvements is recorded using the shorter of the lease term or useful life. When property is retired or disposed of, the cost and related accumulated depreciation are removed from the accounts and any resulting gains or losses are reflected in the Consolidated Statements of Comprehensive Income (Loss) in the period of disposal.

Internal-Use Software

Costs incurred to develop internal-use software during the application development stage are capitalized, stated at cost, and depreciated using the straight-line method over the estimated useful lives of the assets. Application development stage costs generally include salaries and personnel costs and third-party contractor expenses associated with internal-use software development, configuration and coding. Capitalization of such costs begins when the preliminary project stage is complete and ceases at the point in which the project is substantially complete and is ready for its intended purpose. Capitalized internal-use software is included in property and equipment, net in the Consolidated Balance Sheets.

Leases

The Company determines if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use ("ROU") assets, current operating lease liabilities and noncurrent operating lease liabilities in the Company's Consolidated Balance Sheet.

ROU assets represent the Company's right to use an underlying asset over the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. ROU assets and lease liabilities are recognized at the lease commencement date based on the estimated present value of lease payments over the lease term. The Company includes any anticipated lease incentives in the determination of lease liability.

The Company uses its estimated incremental borrowing rate, which is derived from information available at the lease commencement date, in determining the present value of lease payments. The Company gives consideration to its recent debt issuances as well as publicly available data for instruments with similar characteristics when determining its incremental borrowing rates.

The Company's lease terms will include options to extend the lease when it is reasonably certain the Company will exercise that option. Leases with a term of 12 months or less are not recorded on the Company's Consolidated Balance Sheet. The Company's lease agreements do not contain any residual value guarantees.

Deferred Costs

Sales commissions earned by the Company's sales representatives are considered incremental and recoverable costs of obtaining a customer contract. Sales commissions are capitalized and amortized on a straight-line basis over the period of benefit, which the Company has determined to be five to eight years. The Company determined the period of benefit by taking into consideration its customer contracts and expected renewals of those customer contracts (as the Company currently does not pay an incremental sales commission for contract renewals). The Company also capitalizes amounts earned by employees other than sales representatives who earn incentive payments under compensation plans that are also tied to the value of customer contracts acquired. There were no such amounts capitalized in the years ended December 31, 2022 and 2021. Amortization of deferred costs is included in selling and marketing expense in the Consolidated Statements of Comprehensive Income (Loss).

Deferred Implementation Costs

The Company capitalizes certain contract fulfillment costs, including personnel and other costs (such as hosting, employee salaries, benefits and payroll taxes), associated with contract arrangements where services are not distinct from other undelivered performance obligations in its customer contracts. The Company analyzes implementation costs and capitalizes those costs directly related to customer contracts that are expected to be recoverable. Deferred implementation costs are amortized ratably over the remaining contract term once the revenue recognition criteria for the respective performance obligation has been met and revenue recognition commences. Deferred implementation costs are included in prepaid and other current assets and other assets, noncurrent in the Consolidated Balance Sheets. Amortization of deferred implementation costs is included in cost of subscription and cost of services revenues in the Consolidated Statements of Comprehensive Income (Loss).

Deferred Revenue

Deferred revenue primarily consists of customer invoicing in advance of revenues being recognized. The Company generally invoices its customers annually in advance for subscription services and maintenance and support services. Deferred revenue anticipated to be recognized during the next twelve-month period is recorded as current deferred revenue and the remaining portion is recorded as noncurrent deferred revenue.

Impairment of Long-Lived Assets

Long-lived assets are reviewed for impairment whenever an event or change in circumstances indicates that the carrying amount of an asset or group of assets may not be recoverable. The impairment review includes comparison of future cash flows expected to be generated by the asset or group of assets with the associated assets' carrying value. If the carrying value of the asset or group of assets exceeds its expected future cash flows (undiscounted and without interest charges), an impairment loss is recognized to the extent that the carrying amount of the asset exceeds its fair value.

Business Combinations, Intangible Assets and Goodwill

The Company records tangible and intangible assets acquired and liabilities assumed in business combinations under the purchase method of accounting. The allocation of the purchase price in a business combination requires management to make significant estimates in determining the fair value of acquired assets and assumed liabilities, especially with respect to intangible assets. The excess of the purchase price in a business combination over the fair value of these tangible and intangible assets acquired and liabilities assumed is recorded as goodwill. Critical estimates in valuing certain intangible assets include, but are not limited to, projected revenue, discount rate, obsolescence rate, cost of sales, operating expenses and customer attrition rate. The Company estimates fair value primarily utilizing the income and market approaches, including the multi-period excess earnings method for certain intangible assets. Its estimates are inherently uncertain and subject to refinement. During the measurement period, which may be up to one year from the acquisition date, the Company may record adjustments to the fair value of these tangible and intangible assets acquired and liabilities assumed, with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the fair value of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the Consolidated Statement of Comprehensive Income (Loss).

Intangible assets that have finite lives are amortized over their useful lives and are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. During this review, the Company reevaluates the significant assumptions used in determining the original cost and estimated lives of the intangible assets. Although the assumptions may vary from asset to asset, they generally include operating results, changes in the use of the asset, cash flows and other indicators of value. Management then determines whether the remaining useful life continues to be appropriate or whether there has been an impairment of the intangible assets based primarily upon whether expected future undiscounted cash flows are sufficient to support the assets group's recovery. If impairment exists, the Company would adjust the carrying value of the assets to fair value, generally determined by a discounted cash flow analysis.

Goodwill represents the excess of the purchase consideration over the net of the acquisition-date fair value of identifiable assets acquired, including identifiable intangible assets, and liabilities assumed in connection with business combinations. Goodwill is not amortized but is assessed for impairment as of November 30 of each fiscal year, or more frequently if events or changes in circumstances indicate the fair value of the Company's sole reporting unit has been reduced below its carrying value. When conducting the annual goodwill impairment assessment, a two-step process is used. The first step is to perform an optional qualitative evaluation as to whether it is more likely than not that the fair value of the Company's sole reporting unit is less than its carrying value, using an assessment of relevant events and circumstances. In performing this assessment, the Company is required to make assumptions and judgments including but not limited to an evaluation of macroeconomic conditions as they relate to the business, industry and market trends, as well as the overall future financial performance of the reporting unit and future opportunities in the markets in which it operates. If it is determined that it is not more likely than not that the fair value of the reporting unit is less than its carrying value, no additional tests are required to be performed in assessing goodwill for impairment. However, if the Company concludes otherwise or elects not to perform the qualitative assessment, the Company performs a second step, consisting of a quantitative assessment of goodwill impairment. This quantitative assessment requires the Company to compare the fair value of its reporting unit with its carrying value. If the carrying amount exceeds the fair value, an impairment charge will be recognized, however, loss cannot exceed the total amount of goodwill allocated to the reporting unit. Based on the results of the qualitative review of goodwill performed as of November 30, 2022, the Company did not identify any indicators of impairment. As such, the quantitative assessment described above was not necessary.

Equity Investments

Investments in equity securities of privately held companies without readily determinable fair value, where the Company does not exercise significant influence over the investee, are recorded at cost, less impairment and adjusted for subsequent observable price changes obtained from orderly transactions for identical or similar investments issued by the same investee. Adjustments resulting from impairment, fair value, or observable price changes are accounted for in the Consolidated Statements of Comprehensive Income (Loss).

Financial Instruments

The carrying amount of the Company's financial instruments, which include cash equivalents, receivables and accounts payable, and equity investments approximates their fair values at December 31, 2022 and 2021. *For additional information on the Company's fair value measurements, see [Note 10](#) to the Consolidated Financial Statements.*

Convertible Senior Notes

Historically, in accounting for the issuance of the Notes, the Company separated each of the Notes into liability and equity components. The carrying amounts of the liability components were calculated by measuring the fair value of similar liabilities that did not have associated convertible features. The carrying amount of the equity components representing the conversion option were determined by deducting the fair value of the liability components from the par value of the respective Notes. These differences represented debt discounts that were amortized to interest expense over the respective terms of the Notes using the effective interest rate method. The equity components were not remeasured as long as they continued to meet the conditions for equity classification. In accounting for the issuance costs related to the Notes, the Company allocated the total amount of issuance costs incurred to the liability and equity components based on their relative values. Issuance costs attributable to the liability components were being amortized on a straight-line basis, which approximates the effective interest rate method, to interest expense over the respective terms of the Notes. The issuance costs attributable to the equity components were netted against the respective equity components in additional paid-in capital.

Effective January 1, 2021, the Company early adopted ASU 2020-06, *Debt - Debt with Conversion and Other Options ("Subtopic 470-20") and Derivatives and Hedging - Contracts in an Entity's Own Equity ("Subtopic 815-40")*; for the impact of adoption of the new standard, refer to *"Recently Adopted Accounting Pronouncements"* below.

Under the new standard, the Company records the principal amount of the Notes as a liability. Issuance costs attributable to the Notes are being amortized on a straight-line basis over the respective terms of the Notes and are presented as a direct deduction from convertible debt, net, noncurrent.

The 2024 Notes, with a principal amount of \$ 143.8 million, mature on May 15, 2024, unless redeemed or converted in accordance with their terms prior to such date. At December 31, 2022, the Company had \$ 203.6 million of cash and cash equivalents. The Company believes its existing cash and cash equivalents will provide adequate liquidity and capital resources to meet its operational requirements, anticipated capital expenditures and coupon interest payments for the Notes for the next twelve months. Capital markets have tightened recently in response to the macroeconomic environment making new financing more difficult and/or expensive and the Company may not be able to obtain such financing on terms acceptable to it or at all.

Research and Development

Research and development costs for software sold to customers are generally expensed as incurred. These costs include salaries and personnel costs, including employee benefits, third-party contractor expenses, software development tools, an allocation of facilities and depreciation expenses and other expenses in developing new solutions and upgrading and enhancing existing solutions.

Software Development Costs

Capitalization of software development costs for software to be sold, leased, or otherwise marketed begins upon the establishment of technological feasibility, which is generally the completion of a working prototype that has been certified as having no critical bugs and is a release candidate. Amortization begins once the software is ready for its intended use, generally based on the pattern in which the economic benefits will be consumed. To date, software development costs incurred between completion of a working prototype and general availability of the related product have not been material.

Treasury Stock

The Company is authorized to make treasury stock purchases in the open market pursuant to the share repurchase program, which was approved by its Board of Directors on August 28, 2008. The Company accounts for the purchase of treasury stock under the cost method. *For additional information on the Company's stock repurchase program, see [Note 12](#) to the Consolidated Financial Statements.* There were no treasury stock repurchases under the program for the years ended December 31, 2022, 2021 and 2020.

Revenue Recognition

The Company derives its revenues primarily from subscriptions, services, and associated software maintenance and support services.

The Company determines revenue recognition through the following steps:

- identification of the contract, or contracts, with a customer;
- identification of the performance obligations in the customer contract(s);
- determination of the transaction price;
- allocation of the transaction price to each performance obligation in the customer contract(s); and
- recognition of revenue when, or as, the Company satisfies a performance obligation.

Subscription revenue

Subscription revenue primarily consists of subscription fees that give customers access to one or more of the Company's cloud applications with related customer support. The Company generally recognizes subscription revenue ratably over the contractual term of the arrangement beginning with commencement of service. Subscription revenue related to certain offerings, where fees are based on a number of transactions, are recognized on a usage basis. The Company's subscription

contracts do not provide customers with the right to take possession of the software supporting the service and, as a result, are accounted for as service contracts. The Company's subscription contracts are generally one to five years in length, billed annually in advance, and non-cancelable.

Maintenance and support revenue

Maintenance and support revenue includes customer support for on-premises licenses and the right to unspecified software updates and enhancements. The Company recognizes revenue from maintenance and support arrangements ratably over the period in which the services are provided. The Company's maintenance and support contracts are generally one year in length, billed annually in advance, and non-cancelable.

Services revenue

Services revenue primarily consists of fees for configuration services, consulting and training. The Company typically sells its services either on a fixed-fee or time-and-material basis. Services revenue is generally recognized as the services are performed for time and material contracts, or on a proportional performance basis for fixed-price contracts. Training revenue is recognized as the services are rendered.

Significant judgments are required in determining whether services contained in the Company's customer subscription contracts are considered distinct, including whether the services are capable of being distinct and whether they are separately identifiable. Services deemed to be distinct are accounted for as a separate performance obligation on a relative standalone selling price basis and revenue is recognized as the services are performed. If services are determined not to be distinct, the services and the subscription are considered to be a single performance obligation and revenue is recognized over the contractual term of the subscription beginning on the date subscription services are made available to the customer. The associated revenue is allocated between subscription and services.

Customer contracts with multiple performance obligations

A portion of the Company's customer contracts contain multiple performance obligations. Significant judgment is required in determining whether multiple performance obligations contained in a single customer contract are capable of being distinct and are separately identifiable. An obligation determined to be distinct is accounted for as a separate performance obligation and revenue for that separate performance obligation is recognized when, or as, the Company satisfies the performance obligation. If obligations are determined not to be distinct, those obligations are accounted for as a single, combined performance obligation. The transaction price is allocated to each performance obligation on a relative standalone selling price basis.

Disaggregation of revenue

The Company categorizes revenue from external customers by geographic area based on the location of the customer's headquarters. *For additional information regarding the Company's revenue by geography, see [Note 19](#) to the Consolidated Financial Statements.*

Foreign Currency

The Company has certain contracts denominated in foreign currencies and therefore a portion of the Company's revenue is subject to foreign currency risks. Gains and losses from foreign currency transactions, such as those resulting from the settlement of receivables, are classified in other income, net included in the accompanying Consolidated Statements of Comprehensive Income (Loss).

The functional currency of PROS France SAS ("PROS France") is the Euro. The financial statements of this subsidiary are translated into U.S. dollars using period-end rates of exchange for assets and liabilities, historical rates of exchange for equity, and average rates of exchange for the period for revenue and expenses. Translation gains (losses) are recorded in accumulated other comprehensive income (loss) as a component of stockholders' equity (deficit).

Noncash Share-Based Compensation

The Company's Amended and Restated 2017 Equity Incentive Plan (the "2017 Stock Plan") provides for noncash share-based compensation through the grant of: (i) restricted stock awards; (ii) restricted stock unit awards - time, performance

and market-based ("RSUs"); (iii) stock options; (iv) stock appreciation rights ("SARs"); (v) phantom stock; and (vi) performance awards, such as market stock units ("MSUs"). To date, the Company has granted RSUs and MSUs from this plan.

The Company issues common stock from its pool of authorized stock upon exercise of stock options, settlement of SARs and MSUs or upon vesting of RSUs.

In November 2021, the Company granted inducement awards in an aggregate amount of 332,004 shares in accordance with NYSE Rule 303A.08. These inducement awards were in the form of RSUs granted to certain new employees in connection with the acquisition of EveryMundo.

As part of the EveryMundo acquisition in November 2021, the purchase agreement included equity consideration of 273,120 shares of the Company's common stock to be issued to the recipients contingent on their employment with the Company during a two-year period. Based on the underlying agreements, this portion of the consideration was determined to represent post-combination noncash share-based compensation expense from an accounting perspective as opposed to purchase consideration.

The following table presents the number of awards outstanding for each award type as of December 31, 2022 and 2021 (in thousands):

Award type	Year Ended December 31,	
	2022	2021
Restricted stock units (time-based)	2,235	2,145
Restricted stock units (performance-based)	—	140
Market stock units	216	126
EveryMundo Equity consideration	137	273

Restricted stock units. The fair value of the RSUs (time-based and performance-based) is based on the closing price of the Company's stock on the date of grant and is amortized over the vesting period. RSUs include (i) time-based awards and (ii) performance-based awards in which the number of shares that vest are based upon achievement of certain internal performance metrics set by the Company.

Market stock units. MSUs are performance-based awards that vest based upon the Company's relative shareholder return. The actual number of MSUs that will be eligible to vest is based on the total shareholder return of the Company relative to the total shareholder return of the Russell 2000 Index ("Index") over a 3-year period ending December 31, 2023 and December 31, 2024 ("Performance Period"), respectively. The MSUs will vest on January 31, 2024 and January 31, 2025, respectively. The maximum number of shares issuable upon vesting is 200 % of the MSUs initially granted based on the average price of the Company's common stock relative to the Index during the Performance Period. The Company estimates the fair value of MSUs on the date of grant using a Monte Carlo simulation model. The determination of the fair value of the MSUs is affected by the Company's stock price and a number of assumptions including the expected volatility of the Company's stock and the Index, its risk-free interest rate and expected dividends. The Company's expected volatility at the date of grant was based on the historical volatilities of the Company and the Index over the Performance Period.

Equity consideration. The fair value of the equity consideration stock awards is based on the closing price of the Company's stock on the date of grant and is amortized over the vesting period.

If factors change and the Company employs different assumptions, noncash share-based compensation expense may differ significantly from what has been recorded in the past. If there are any modifications or cancellations of the underlying unvested securities, the Company may be required to accelerate, increase or cancel any remaining unearned noncash share-based compensation expense. Future noncash share-based compensation expense and unearned noncash share-based compensation will increase to the extent that the Company grants additional equity awards to employees.

At December 31, 2022, there were an estimated \$ 68.1 million of total unrecognized compensation costs related to noncash share-based compensation arrangements. These costs will be recognized over a weighted average period of 2.5 years. *For further discussion of the Company's noncash share-based compensation plans, see [Note 14](#) to the Consolidated Financial Statements.*

Income Taxes

The Company uses the asset and liability method to account for income taxes, including recognition of deferred tax assets and liabilities for the anticipated future tax consequences attributable to differences between financial statement amounts and their respective tax basis. The Company reviews its deferred tax assets for recovery. A valuation allowance is established when the Company believes it is more likely than not that some portion of its deferred tax assets will not be realized. Changes in the valuation allowance from period to period are included in the Company's tax provision in the period of change.

The Company accounts for uncertain income tax positions recognized in an enterprise's financial statements in accordance with the income tax topic of the ASC issued by the FASB. This interpretation requires companies to use a prescribed model for assessing the financial recognition and measurement of all tax positions taken or expected to be taken in its tax returns. This guidance provides clarification on recognition, classification, interest and penalties, accounting in interim periods, disclosures and transition. The Company recognizes accrued interest and penalties related to income taxes, if any, as a component of income tax expense. For additional information regarding the Company's income taxes, see [Note 15](#) to the Consolidated Financial Statements.

Segment Reporting

The Company reports as one operating segment with the Chief Executive Officer ("CEO") acting as the Company's chief operating decision maker. The Company's CEO reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance. The Company has a single reporting unit, and there are no segment managers who are held accountable for operations, operating results or components below the consolidated unit level.

Earnings Per Share

The Company computes basic earnings (loss) per share by dividing net income (loss) attributable to common stockholders by the weighted average number of common shares outstanding. Diluted earnings (loss) per share is computed by giving effect to all dilutive potential common shares outstanding during the period using the treasury stock method and convertible notes using the if-converted method. Dilutive potential common shares consist of shares issuable upon the exercise of stock options, shares of unvested restricted stock units, market stock units and equity consideration, and settlement of stock appreciation rights, if any. When the Company incurs a net loss, the effect of the Company's outstanding stock options, stock appreciation rights, restricted stock units, market stock units, equity consideration and convertible notes are not included in the calculation of diluted earnings (loss) per share as the effect would be anti-dilutive. Accordingly, basic and diluted net loss per share are identical.

Recently Adopted Accounting Pronouncements

In October 2021, the FASB issued ASU 2021-08, *Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contract with Customers ("Topic 805")*, which amends ASC 805 to require acquiring entities to apply Topic 606 to recognize and measure contract assets and contract liabilities in a business combination. This new standard is effective for the Company's interim and annual periods beginning January 1, 2023, and earlier adoption is permitted. The Company early adopted Topic 805 in the fourth quarter of 2021 and there was no impact on the Company's Consolidated Financial Statements as of the adoption date. The Company applied the standard prospectively to the acquisition of EveryMundo which occurred in November 2021.

In August 2020, the FASB issued ASU 2020-06, *Debt - Debt with Conversion and Other Options ("Subtopic 470-20") and Derivatives and Hedging - Contracts in an Entity's Own Equity ("Subtopic 815-40")*, which simplifies the accounting for certain convertible instruments, amends the guidance on derivative scope exceptions for contracts in an entity's own equity, and modifies the guidance on diluted earnings per share calculations as a result of these changes. This new standard is effective for the Company's interim and annual periods beginning January 1, 2022, and earlier adoption is permitted on January 1, 2021. The Company may elect to apply the amendments on a retrospective or modified retrospective basis. The Company early adopted the new standard effective January 1, 2021 on the modified retrospective basis. The adoption decreased additional paid-in capital by \$ 80.1 million related to the equity conversion component of the outstanding convertible notes which was previously separated and recorded in equity, and increased convertible debt, net by \$ 68.8 million related to the removal of the debt discounts and adjustment of debt issuance cost recorded under the previous standard. The net cumulative effect of the adjustments of \$ 11.3 million was recorded as a decrease to the opening balance of the accumulated deficit as of January 1, 2021. As a result of the adoption, the noncash interest expense was lower for the year ended December 31, 2022 and will be lower for the remaining term of the outstanding convertible notes. The adoption had no impact on the Consolidated Statements of Cash Flows. Consolidated Financial Statements for the year ended December 31, 2020 remain as previously reported.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* ("Topic 326"), in order to improve financial reporting of expected credit losses on financial instruments and other commitments to extend credit. Topic 326 requires that an entity measure and recognize expected credit losses for financial assets held at amortized cost and replaces the incurred loss impairment methodology in current GAAP with a methodology that requires consideration of a broader range of information to estimate credit losses. The Company adopted Topic 326 as of January 1, 2020 using the modified retrospective method and there was no material impact on the Company's Consolidated Financial Statements as of the adoption date.

Recent Accounting Pronouncements

With the exception of the new standards discussed above, there have been no other recent accounting pronouncements or changes in accounting pronouncements during the year ended December 31, 2022, that are of significance or potential significance to the Company.

3. Business Combinations

EveryMundo

On November 30, 2021, the Company acquired EveryMundo LLC ("EveryMundo"), a privately held company based in Miami, Florida, for a cash consideration, net of cash acquired, of approximately \$ 79.5 million and an equity consideration of approximately \$ 10.0 million. Since the equity consideration is contingent on certain employees' continued employment with the Company for a two-year period, it was determined, based on accounting guidance, the related amounts should be treated as post-combination compensation and accordingly are not included as part of the purchase price allocation. EveryMundo is a digital offer marketing pioneer that enables brands to broaden their digital reach and deepen customer engagement, providing greater control over direct and indirect channels they participate in to help create superior brand experiences and foster brand loyalty over time.

Since the acquisition date and for the year ended December 31, 2021, the Company has included \$ 1.1 million of revenue and \$ 1.4 million of net loss related to EveryMundo in its Consolidated Statements of Comprehensive Income (Loss). During the years ended December 31, 2022 and 2021, the Company incurred acquisition-related costs of zero and \$ 2.4 million, respectively, consisting primarily of advisory, legal, accounting and other professional fees, and integration costs.

The final allocation of the purchase price for EveryMundo is as follows (in thousands):

Current assets	\$	2,193
Noncurrent assets		736
Intangibles		23,300
Goodwill		58,915
Current liabilities		(4,972)
Noncurrent liabilities		(542)
Purchase consideration	\$	79,630

The following are the identifiable intangible assets acquired (in thousands) with respect to the EveryMundo acquisition, and their respective useful lives:

	Amount	Weighted Average Useful Life (years)
Developed technology	\$ 15,700	5
Customer relationships	5,500	4
Trade name	2,100	8
Total	\$ 23,300	

The goodwill recognized was primarily attributable to the assembled workforce and expanded market opportunities from integrating EveryMundo's technology into the Company's product portfolio. The goodwill is deductible for U.S. federal income tax purposes.

The Company made a determination that \$ 2.8 million of deferred tax asset was assumed on the acquisition date. The deferred tax asset is comprised of excess tax basis in goodwill. A full valuation allowance of \$ 2.8 million was recorded offsetting the deferred tax asset as of the acquisition date.

Pro Forma Financial Information

The unaudited financial information in the table below summarizes the combined results of operations of the Company and EveryMundo, on a pro forma basis as though the Company had acquired EveryMundo on January 1, 2020. The pro forma information for all periods presented also includes the effect of business combination accounting resulting from the acquisition, including amortization charges from acquired intangible assets.

(in thousands, except earnings per share)	Year Ended December 31,	
	2021	2020
Total revenue	\$ 261,807	\$ 263,060
Net loss	(99,605)	(84,498)
Earnings per share - basic and diluted	\$ (2.25)	\$ (1.95)

4. Trade and Other Receivables, Net

Accounts receivable at December 31, 2022 and 2021, consists of the following (in thousands):

	December 31,	
	2022	2021
Accounts receivable	\$ 40,852	\$ 38,398
Unbilled receivables and contract assets	7,935	3,389
Total receivables	48,787	41,787
Less: Allowance for credit losses	(609)	(1,206)
Trade and other receivables, net	\$ 48,178	\$ 40,581

The bad debt (recovery) expense reflected in general and administrative expenses in the accompanying Consolidated Statements of Comprehensive Income (Loss) for the years ended December 31, 2022, 2021 and 2020, totaled approximately \$(0.3) million, \$(1.9) million and \$ 4.8 million, respectively.

5. Deferred Costs

Deferred costs, which primarily consist of capitalized sales commissions, were \$ 14.8 million and \$ 15.3 million as of December 31, 2022 and December 31, 2021, respectively. Amortization expense for the deferred costs was \$ 5.8 million, \$ 6.2 million and \$ 5.9 million for the year ended December 31, 2022, 2021 and 2020, respectively. There was no impairment loss in relation to the costs capitalized for the periods presented.

6. Deferred Implementation Costs

Deferred implementation costs, which related to certain customer contract fulfillment costs, were \$ 1.6 million and \$ 2.4 million as of December 31, 2022 and December 31, 2021, respectively. Amortization expense for the deferred implementation costs was \$ 1.2 million, \$ 1.2 million and \$ 1.8 million for the year ended December 31, 2022, 2021 and 2020, respectively. There was no impairment loss in relation to the costs capitalized for the periods presented.

7. Property and Equipment, Net

Property and equipment, net as of December 31, 2022 and 2021 consists of the following:

	Estimated useful life	December 31,	
		2022	2021
Furniture and fixtures	5 - 10 years	\$ 6,318	\$ 6,312
Computers and equipment	3 - 5 years	15,262	17,008
Software	3 - 6 years	4,422	7,879
Capitalized internal-use software development costs	3 years	11,746	11,908
Leasehold improvements	Shorter of lease term or useful life	21,918	21,867
Property and equipment, gross		59,666	64,974
Less: Accumulated depreciation and amortization		(34,654)	(34,016)
Property and equipment, net		\$ 25,012	\$ 30,958

Depreciation and amortization was approximately \$ 5.2 million, \$ 8.0 million and \$ 8.0 million for the years ended December 31, 2022, 2021 and 2020, respectively. During the years ended December 31, 2022, 2021 and 2020, the Company disposed of approximately \$ 3.1 million, \$ 1.5 million and \$ 8.3 million, respectively, of fully depreciated assets. During the years ended December 31, 2022, 2021 and 2020, the Company recognized no loss on disposal of assets. As of December 31, 2022 and 2021, the Company had approximately \$ 14.4 million and \$ 15.2 million, respectively, of fully depreciated assets in use.

During the years ended December 31, 2022 and 2021, the Company capitalized no internal-use software development costs related to its subscription solutions. As of December 31, 2022 and 2021, \$ 11.7 million and \$ 11.9 million, respectively, of capitalized internal-use software development costs were subject to amortization and \$ 10.9 million and \$ 10.1 million, respectively, of capitalized internal-use software development costs were included in accumulated depreciation and amortization for the years ended December 31, 2022 and 2021.

During the year ended December 31, 2022, the Company recorded a \$ 1.6 million impairment charge related to fixed assets. The impairment resulted from the Company's changed intentions for these assets in connection with a new agreement with a software vendor. The Company did not identify any impairment indicators and recorded no impairment charges in the years ended December 31, 2021 and 2020.

8. Leases

The Company has operating leases for data centers, computer infrastructure, corporate offices and certain equipment. These leases have remaining lease terms ranging from 1 year to 11 years. Some of these leases include options to extend for up to 15 years, and some include options to terminate within 1 year. The Company includes options in the lease terms when it is reasonably certain the Company will exercise that option.

As of December 31, 2022, the Company did not have any finance leases.

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

	Year Ended December 31,		
	2022	2021	2020
Operating lease cost	\$ 8,576	\$ 9,737	\$ 11,632
Variable lease cost	4,264	3,905	1,717
Sublease income	(222)	(108)	(375)
Total lease cost	\$ 12,618	\$ 13,534	\$ 12,974

Supplemental information related to leases was as follows (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Cash paid for amounts included in the measurement of lease liability:			
Cash paid for operating lease liabilities	\$ 8,423	\$ 8,828	\$ 7,562
Right-of-use asset obtained in exchange for operating lease liability	\$ 787	\$ 1,949	\$ 12,599

	December 31, 2022	December 31, 2021
Weighted average remaining lease term:		
Operating leases	8.5 years	8.2 years
Weighted average discount rate:		
Operating leases	7.63 %	7.32 %

In January 2022, an existing operating lease was modified due to a change in future payments. The result was a decrease in the related right-of-use asset and corresponding lease liability of \$ 2.7 million.

As of December 31, 2022, maturities of lease liabilities were as follows (in thousands):

Year Ending December 31,	Amount
2023	\$ 10,131
2024	5,208
2025	4,141
2026	4,036
2027	3,965
2028 and thereafter	23,251
Total operating lease payments	50,732
Less: Imputed interest	(14,886)
Total operating lease liabilities	\$ 35,846

9. Goodwill and Intangible Assets

The change in the carrying amount of goodwill for the years ended December 31, 2022 and 2021, was as follows (in thousands):

Balance as of December 31, 2020	\$ 50,044
Goodwill acquired	58,915
Foreign currency translation adjustments	(826)
Balance as of December 31, 2021	108,133
Foreign currency translation adjustments	(572)
Balance as of December 31, 2022	\$ 107,561

The goodwill balance related to PROS France is denominated in Euro and the goodwill balance related to PROS Travel Commerce, Inc. (formerly Vayant Travel Technologies, Inc.), Pros Travel Retail SAS (formerly Traveleer SAS) and EveryMundo is denominated in the U.S. dollar.

Intangible assets consisted of the following as of December 31, (in thousands):

	Weighted average useful life (years)	December 31, 2022		
		Gross Carrying Amount	Accumulated Amortization*	Net Carrying Amount
Developed technology	6	\$ 42,120	\$ 29,409	\$ 12,711
Maintenance relationships	8	3,374	3,374	—
Customer relationships	5	17,902	14,578	3,324
Trade name	8	2,100	284	1,816
Acquired technology	2	1,925	1,925	—
Total		<u>\$ 67,421</u>	<u>\$ 49,570</u>	<u>\$ 17,851</u>

*Cumulative foreign currency translation adjustments, reflecting movement in the currencies of the underlying entities, had an immaterial impact on intangible assets as of December 31, 2022.

	Weighted average useful life (years)	December 31, 2021		
		Gross Carrying Amount	Accumulated Amortization*	Net Carrying Amount
Developed technology	6	\$ 42,644	\$ 23,268	\$ 19,376
Maintenance relationships	8	3,470	3,452	18
Customer relationships	5	17,948	11,802	6,146
Trade name	8	2,100	22	2,078
Acquired technology	2	1,925	1,925	—
Total		<u>\$ 68,087</u>	<u>\$ 40,469</u>	<u>\$ 27,618</u>

*Cumulative foreign currency translation adjustments, reflecting movement in the currencies of the underlying entities, had an immaterial impact on intangible assets as of December 31, 2021.

Intangible asset amortization expense for the years ended December 31, 2022, 2021 and 2020 was \$ 9.8 million, \$ 4.0 million and \$ 6.3 million, respectively. As of December 31, 2022, the expected future amortization expense for the acquired intangible assets for each of the five succeeding years and thereafter was as follows (in thousands):

Year Ending December 31,	Amount
2023	\$ 6,183
2024	4,637
2025	3,736
2026	2,533
2027	263
2028 and thereafter	499
Total amortization expense	<u>\$ 17,851</u>

10. Fair Value Measurements

The Company adopted fair value measurements guidance for financial and nonfinancial assets and liabilities. The guidance defines fair value, establishes a framework for measuring fair value in GAAP and expands disclosures about fair value measurements.

The guidance defines fair value as the price that would be received to sell an asset, or paid to transfer a liability, in an orderly transaction between market participants. The guidance establishes a fair value hierarchy for valuation inputs that gives the highest priority to quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. The fair value hierarchy is as follows:

Level 1: Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;

Level 2: Quoted prices for similar assets or liabilities in markets that are not active or inputs which are observable, either directly or indirectly, for substantially the full term of the asset or liability; and

Level 3: Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable (i.e., supported by little or no market activity).

A portion of the Company's existing cash and cash equivalents are invested in short-term interest bearing obligations with original maturities less than 90 days, principally various types of money market funds. The Company does not enter into investments for trading or speculative purposes.

At December 31, 2022 and 2021, the Company had approximately \$ 168.1 million and \$ 203.3 million invested in treasury money market funds. The fair value of the treasury money market funds is determined based on quoted market prices, which represents level 1 in the fair value hierarchy as defined by Accounting Standard Codification ("ASC") 820, "*Fair Value Measurement and Disclosure*."

The fair value of the Company's Notes is classified in the level 2 hierarchy. See [Note 16](#) for further detail regarding the Notes.

As of December 31, 2022 and 2021, the Company had \$ 7.1 million and \$ 5.5 million, respectively, of equity securities in privately held companies and a venture fund, which are included in other assets, noncurrent in the Consolidated Balance Sheet. These investments are accounted for at cost, less impairment and adjusted for subsequent observable price changes obtained from orderly transactions for identical or similar investments issued by the same investee. The Company estimates the fair value of its equity investments by considering available information such as pricing in recent rounds of financing and any other readily available market data, which represents level 3 in the fair value hierarchy. An impairment charge to current earnings is recorded when the cost of the investment exceeds its fair value and if a qualitative assessment indicated that the investment is impaired.

During the third quarter of 2022, the Company identified an observable price change related to an equity investment without a readily determinable fair value and recorded a non-cash gain of \$ 3.3 million in other income, net in the Consolidated Statements of Comprehensive Income (Loss). During the fourth quarter of 2022, the Company identified an observable price change related to another equity investment. The change was determined to be a decrease in fair value below the carrying cost of the equity investment and the Company recorded an impairment loss of \$ 2.0 million in other income, net in the Consolidated Statements of Comprehensive Income (Loss). As of December 31, 2021 and 2020 the Company determined there were no impairments on its equity investments.

11. Deferred Revenue and Performance Obligations

Deferred Revenue

For the year ended December 31, 2022 and 2021, the Company recognized approximately \$ 93.5 million and \$ 95.2 million, respectively, of revenue that was included in the deferred revenue balances at the beginning of the respective periods and primarily related to subscription services, maintenance and support, and other services.

Performance Obligations

As of December 31, 2022, the Company expects to recognize approximately \$ 441.5 million of revenue from remaining performance obligations. The Company expects to recognize revenue on approximately \$ 206.3 million of these performance obligations over the next 12 months, with the balance recognized thereafter.

12. Stockholders' (deficit) equity

Stock Repurchase

On August 25, 2008, the Company's Board of Directors approved a stock repurchase program that authorized the Company to purchase up to \$ 15.0 million of the Company's outstanding shares of common stock. Under the board-approved repurchase program, share purchases may be made from time to time in the open market or through privately negotiated transactions depending on market conditions, share price, trading volume and other factors, and such purchases, if any, will be

made in accordance with applicable insider trading and other securities laws and regulations. These repurchases may be commenced or suspended at any time or from time to time without prior notice.

The Company did not repurchase any shares under this plan for the years ended December 31, 2022 and 2021. The remaining amount available to purchase common stock under this plan was \$ 10.0 million as of December 31, 2022.

13. Earnings Per Share

The following table sets forth the computation of basic and diluted earnings per share:

	For the Year Ended December 31,		
	2022	2021	2020
Numerator:			
Net loss	\$ (82,246)	\$ (81,209)	\$ (76,984)
Denominator:			
Weighted average shares (basic)	45,269	44,348	43,301
Dilutive effect of potential common shares	—	—	—
Weighted average shares (diluted)	45,269	44,348	43,301
Basic earnings per share	\$ (1.82)	\$ (1.83)	\$ (1.78)
Diluted earnings per share	\$ (1.82)	\$ (1.83)	\$ (1.78)

Dilutive potential common shares consist of shares issuable upon the vesting of RSUs, MSUs and equity consideration. Potential common shares determined to be antidilutive and excluded from diluted weighted average shares outstanding were approximately 2.3 million, 1.5 million and 1.4 million for the years ended December 31, 2022, 2021 and 2020, respectively. Potential common shares related to the Notes determined to be antidilutive and excluded from diluted weighted average shares outstanding were 5.8 million for each of the years ended December 31, 2022, 2021 and 2020.

14. Noncash Share-Based Compensation

Employee Noncash Share-based Compensation Plans

2017 Stock Plan. The Company's 2017 Stock Plan provides for the issuance of awards to employees, officers, directors and certain other individuals providing services to the Company who are eligible to receive awards. In May 2021, the Company's stockholders approved an amendment to the 2017 Stock Plan increasing the aggregate amount of shares available for issuance to 7,650,000 . The Company may provide these incentives through the grant of: (i) restricted stock awards; (ii) RSUs (time, performance and market-based); (iii) stock options; (iv) SARs; (v) phantom stock; and (vi) performance awards, such as MSUs. As of December 31, 2022, there were no outstanding equity awards under any of the previous Company stock plans.

As of December 31, 2022, the Company had outstanding equity awards to acquire 2,204,569 shares of its common stock held by the Company's employees, directors and consultants under the 2017 Stock Plan (assuming MSU performance at 100% of the MSUs initially granted), and inclusive of 1,988,883 RSUs and 215,686 MSUs. As of December 31, 2022, 2,983,140 shares remain available for grant under the 2017 Stock Plan. As of December 31, 2022, there were no options, SARs, restricted stock awards or phantom stock issued under the 2017 Stock Plan.

Inducement awards. In November 2021, the Company granted inducement awards in an aggregate amount of 332,004 shares in accordance with NYSE Rule 303A.08. These inducement awards were in the form of RSUs granted to certain new employees in connection with the acquisition of EveryMundo. As of December 31, 2022, the Company had 245,816 outstanding equity inducement awards (the inducement awards, together with the 2017 Stock Plan are referred to as the "Stock Plans").

Equity consideration. As part of the EveryMundo acquisition in November 2021, the purchase agreement included equity consideration of 273,120 shares of the Company's common stock to be issued to the recipients contingent on their employment with the Company during a two-year period. Based on the underlying agreements, this portion of the consideration was determined to represent post-combination noncash share-based compensation expense from an accounting perspective as opposed to purchase consideration. The grant date fair value of the equity consideration stock awards is \$ 36.32 and they vest in

equal annual installments over a two-year period from the grant date . As of December 31, 2022, the Company had 136,560 outstanding equity consideration shares.

Noncash share-based compensation expense for all noncash share-based payment awards granted is determined based on the grant date fair value of the award. The Company recognizes compensation expense, net of estimated forfeitures, which represents noncash share-based awards expected to vest on a straight-line basis over the requisite service period of the award, which is generally the vesting term. Noncash share-based awards typically vest over four years. The Company estimates forfeiture rates based on its historical experience for grant years where the majority of the vesting terms have been satisfied. Changes in estimated forfeiture rates are recognized through a cumulative catch-up adjustment in the period of change and thus impact the amount of noncash share-based compensation expense to be recognized in future periods.

Noncash share-based compensation expense is allocated to expense categories on the Consolidated Statements of Comprehensive Income (Loss). The following table summarizes noncash share-based compensation expense, net of amounts capitalized, for the years ended December 31, 2022, 2021 and 2020 (in thousands).

	For the Year Ended December 31,		
	2022	2021	2020
Share-based compensation:			
Cost of revenue	\$ 3,898	\$ 3,679	\$ 2,132
Operating expenses:			
Selling and marketing	12,360	10,407	6,536
Research and development	12,496	8,288	6,061
General and administrative	13,960	12,701	9,670
Total included in operating expenses	38,816	31,396	22,267
Total share-based compensation expense	\$ 42,714	\$ 35,075	\$ 24,399

At December 31, 2022, there were an estimated \$ 68.1 million of total unrecognized compensation costs related to noncash share-based compensation arrangements. These costs will be recognized over a weighted average period of 2.5 years.

RSUs (time-based)

The Company has granted time-based RSUs under the Stock Plans. Time-based RSUs granted to employees, directors and consultants have historically vested in equal annual installments over a one to four-year period from the grant date. RSUs granted in 2022 vest 25% after one year and in equal quarterly installments for the remaining term of the award which is typically three additional years.

The following table summarizes the Company's unvested time-based RSUs as of December 31, 2022, and changes during the year then ended (number of shares in thousands):

	Number of shares	Weighted average grant date fair value	Weighted average remaining contractual term (year)
Unvested at December 31, 2021	2,145	\$ 43.57	
Granted	1,416	30.03	
Vested	(869)	40.95	
Forfeited	(457)	39.49	
Unvested at December 31, 2022	2,235	\$ 36.39	2.60

The weighted average grant-date fair value of the time-based RSUs granted during the years ended December 31, 2022, 2021 and 2020 was \$ 30.03 , \$ 43.28 and \$ 52.62 , respectively. The total fair value as of the respective vesting date of time-based RSUs vested during the years ended December 31, 2022, 2021 and 2020 was \$ 24.6 million, \$ 32.9 million and \$ 46.7 million, respectively.

RSUs (performance-based)

During 2019 and 2020, the Company granted performance-based RSUs ("PRSUs") under the 2017 Stock Plan to certain executive employees. The actual number of PRSUs that were eligible to vest pursuant to these awards, up to a maximum of 200% of the PRSUs initially granted, was based upon achievement of certain internal performance metrics, as defined by each award's plan documents or individual award agreements. The shares earned from the 2019 PRSUs vested on January 15, 2022. No shares were earned from the 2020 PRSUs. The following table summarizes the Company's unvested PRSUs as of December 31, 2022, and changes during the year then ended (number of shares in thousands):

	Number of shares	Weighted average grant date fair value	Weighted average remaining contractual term (year)
Unvested at December 31, 2021	140	\$ 42.93	
Granted	—	—	
Vested	(75)	33.05	
Forfeited	(65)	54.23	
Unvested at December 31, 2022	—	\$ —	

The weighted average grant-date fair value of the performance-based RSUs granted during the year ended December 31, 2020 was \$ 54.23 . The total fair value as of the respective vesting date of performance-based RSUs vested during the year ended December 31, 2022 was \$ 2.1 million.

MSUs

In 2021 and 2022, the Company granted MSUs to certain executive employees under the Stock Plans. The MSUs are performance-based awards that vest based upon the Company's relative shareholder return. The actual number of MSUs that will be eligible to vest is based on the total shareholder return of the Company relative to the total shareholder return of the Index over the 3 -year Performance Period. The 2021 MSUs will vest on January 31, 2024 and the 2022 MSUs will vest on January 31, 2025. The MSUs maximum number of shares issuable upon vesting is 200 % of the MSUs initially granted. The Company did not grant any MSUs in 2020. The following table summarizes the Company's MSUs activity for the year ended December 31, 2022 (number of shares in thousands):

	Number of unvested awards	Weighted average grant date fair value	Weighted average remaining contractual term (year)
Unvested at December 31, 2021	126	\$ 56.05	
Granted	117	37.65	
Vested	—	—	
Forfeited	(27)	56.05	
Expired	—	—	
Unvested at December 31, 2022	216	\$ 43.34	1.63

The total fair value as of the respective vesting date of the MSUs vested during the years ended December 31, 2022, 2021 and 2020 was zero , \$ 10.7 million and \$ 12.7 million, respectively.

The Company estimates the fair value of MSUs on the date of grant using a Monte Carlo simulation model. The determination of the fair value of the MSUs is affected by the Company's stock price and a number of assumptions including the expected volatilities of the Company's stock and the Index, its risk-free interest rate and expected dividends. The Company's expected volatility at the date of grant was based on the historical volatilities of the Company and the Index over the Performance Period. The Company did not estimate a forfeiture rate for the MSUs due to the limited size, the vesting period and nature of the grantee population and the lack of history of granting this type of award. Significant assumptions used in the Monte Carlo simulation model for MSUs granted during the year ended December 31, 2022 and 2021 are as follows:

	For the Year Ended December 31,	
	2022	2021
Volatility	54.50 %	53.29 %
Risk-free interest rate	1.20 %	0.22 %
Expected award life in years	2.97	2.97
Dividend yield	— %	— %

Employee Stock Purchase Plan

The Company's Employee Stock Purchase Plan ("ESPP") provides for eligible employees to purchase shares on an after-tax basis in an amount between 1 % and 10 % of their annual pay: (i) on June 30 of each year at a 15 % discount of the fair market value of the Company's common stock on January 1 or June 30, whichever is lower, and (ii) on December 31 of each year at a 15 % discount of the fair market value of the Company's common stock on July 1 or December 31, whichever is lower. An employee may not purchase more than \$ 5,000 in either of the six-month measurement periods described above or more than \$ 10,000 annually. In May 2021, the Company's stockholders approved an amendment to the ESPP Plan increasing the aggregate amount of shares available for issuance under the ESPP to 1,000,000 . During the year ended December 31, 2022, the Company issued 106,586 shares under the ESPP. As of December 31, 2022, 387,125 shares remain authorized and available for issuance under the ESPP. As of December 31, 2022, the Company held approximately \$ 1.1 million on behalf of employees for future purchases under the ESPP, and this amount was recorded in accrued liabilities in the Company's Consolidated Balance Sheet.

15. Income Taxes

The income tax provision consisted of the following for the years ended December 31, 2022, 2021 and 2020 (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Current:			
Federal	\$ —	\$ —	\$ —
State and Foreign	932	870	676
	932	870	676
Deferred:			
Federal	—	—	—
State	—	—	—
Income tax provision	\$ 932	\$ 870	\$ 676

The differences between the effective tax rates reflected in the total provision for income taxes and the U.S. federal statutory rate of 21% for the years ended December 31, 2022, 2021 and 2020, respectively, were as follows (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Provision at the U.S. federal statutory rate	\$ (17,076)	\$ (16,870)	\$ (16,035)
Increase (decrease) resulting from:			
Nondeductible expenses	215	630	482
Statutory to GAAP income adjustment	238	(193)	109
Noncash share-based compensation	3,971	1,194	(3,268)
Other	442	624	460
Incremental benefits for tax credits	(1,976)	(2,494)	(2,391)
Change in tax rate/income subject to lower tax rates	(865)	571	(2,385)
Change related to prior tax years	(662)	759	(553)
Change in valuation allowance	16,645	16,649	24,257
Income tax provision	<u>\$ 932</u>	<u>\$ 870</u>	<u>\$ 676</u>

The Company's effective tax rate was (1.1)%, (1.1)% and (0.9)% for the years ended December 31, 2022, 2021 and 2020, respectively. During the year ended December 31, 2022, the Company's effective tax rate was impacted primarily by changes in valuation allowance.

The tax effects of temporary differences and other tax attributes that give rise to significant portions of the deferred tax assets and liabilities as of December 31, 2022 and 2021 are as follows (in thousands):

	Year Ended December 31,	
	2022	2021
Noncurrent deferred taxes:		
Property and equipment	\$ (812)	\$ (694)
Noncash share-based compensation	3,611	3,235
Disallowed interest expense	2,664	9,290
Capitalized software	(66)	(1,534)
Amortization	2,074	1,364
Operating lease right-of-use assets	(8,238)	(6,374)
Operating lease liabilities	12,305	10,914
R&E tax credit carryforwards	16,862	14,886
Capitalized research and development expenses	18,089	—
Deferred revenue	1,823	1,879
Federal Net Operating Losses ("NOLs")	92,960	92,960
State NOLs	3,589	3,165
State Credits	4,157	4,157
Foreign NOLs	15,381	11,759
Foreign tax credit carryforward	2,057	2,168
Other	(671)	(223)
Total noncurrent deferred tax assets	165,785	146,952
Less: Valuation allowance	(165,671)	(146,832)
Total net deferred tax asset	<u>\$ 114</u>	<u>\$ 120</u>

The net deferred tax asset is classified as other assets, noncurrent in the accompanying Consolidated Balance Sheets.

The Company continues to record a valuation allowance against its U.S. Federal, U.S. State, and France net deferred tax balances. This valuation allowance is evaluated periodically and will be reversed partially or in whole if business results and the economic environment have sufficiently improved to support realization of some or all of the Company's deferred tax assets. In performing the analysis throughout 2022, the Company determined that there was no sufficient positive evidence to outweigh the current and historic negative evidence to determine that it was more likely than not that the deferred assets would not be realized. Therefore, the Company continues to have a valuation allowance against net deferred tax assets as of December 31, 2022 and 2021.

The U.S. federal net operating losses, R&E tax credit and U.S. foreign tax credit carryforward amount available to be used in future periods, taking into account the Section 382 annual limitation and current year losses, is approximately \$ 443.2 million, \$ 21.0 million and \$ 2.1 million, respectively. The Company's net operating losses will begin to expire in 2024, R&E credits will begin to expire in 2031, and foreign tax credits began to expire in 2022. The U.S. net operating losses generated after January 1, 2018 have no expiration. Also included in foreign net operating losses are \$ 55.0 million of French carryforwards which have no expiration.

The Company has federal and state net operating loss carryforwards related to current and prior year operations and acquisitions. Internal Revenue Code Section 382 ("Section 382") places certain limitations on the annual amount of U.S. net operating loss carryforwards that can be utilized when a change of ownership occurs. The Company believes the past acquisitions were changes in ownership pursuant to Section 382, subjecting federal acquired net operating losses to limitations. According to French tax law, the net operating loss carryforwards are not subject to ownership change limitations.

Undistributed earnings of the Company's foreign subsidiaries are considered permanently reinvested and, accordingly, no provision for U.S. federal or state income taxes or non-U.S. withholding taxes has been provided thereon. The cumulative amount of positive undistributed earnings of the Company's non-U.S. subsidiaries, if any, was minimal for the years ended December 31, 2022 and 2021. The Company is presently investing in international operations located in Europe, North America, the United Arab Emirates, Australia, Hong Kong and Singapore. The Company is funding the working capital needs of its foreign operations through its U.S. operations. In the future, the Company plans to utilize its foreign undistributed earnings, as well as continued funding from its U.S. operations, to support its continued foreign investment.

For the year ended December 31, 2022, the Company had no balance in its reserve for unrecognized tax benefits. The balances for net unrecognized tax benefits for the years ended December 31, 2021 and 2020 were immaterial. The Company recorded immaterial amounts for interest and penalties to tax expense as of December 31, 2021 and 2020, respectively. During 2021, the Company determined that the statute of limitations concluded for specific positions and removed these positions from the uncertain tax positions. The Company continually monitors tax positions and will evaluate if any new positions need to be added during the next twelve months.

The following table sets forth the changes to the Company's unrecognized tax benefit for the year ended December 31, 2022, 2021 and 2020 (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Beginning balance	\$ —	\$ 14	\$ 14
Changes based on tax positions related to prior year	—	—	—
Changes due to settlement	—	(14)	—
Ending balance	\$ —	\$ —	\$ 14

The table above has been updated to reflect gross tax liability, exclusive of interest and penalties and other offsetting amounts.

16. Convertible Senior Notes

The Company issued \$ 143.8 million principal amount of the 2024 Notes in May 2019 and \$ 150.0 million principal amount of the 2027 Notes in September 2020. The interest rate for the 2024 Notes is fixed at 1 % per annum and interest is payable semi-annually in arrears on May 15 and November 15 of each year, commencing on November 15, 2019. The interest rate for the 2027 Notes is fixed at 2.25 % per annum and interest is payable semiannually in arrears in cash on March 15 and September 15 of each year, beginning on March 15, 2021. The effective interest rate related to the amortization of the liability component of the 2024 Notes and the 2027 Notes prior to the adoption of ASU 2020-06 was 6.6 % and 8.5 %, respectively. The 2024 Notes mature on May 15, 2024 and the 2027 Notes mature on September 15, 2027, unless redeemed or converted in

accordance with their terms prior to such date.

Each \$1,000 of principal of the 2024 Notes will initially be convertible into 15.1394 shares of the Company's common stock, which is equivalent to an initial conversion price of approximately \$ 66.05 per share. Each \$1,000 of principal of the 2027 Notes will initially be convertible into 23.9137 shares of the Company's common stock, which is equivalent to an initial conversion price of approximately \$ 41.82 per share. The initial conversion price for each of the Notes is subject to adjustment upon the occurrence of certain specified events.

The Notes are each general unsecured obligations and rank senior in right of payment to all of the Company's indebtedness that is expressly subordinated in right of payment to the Notes, rank equally in right of payment with all of the Company's existing and future liabilities that are not so subordinated, are effectively junior to any of the Company's secured indebtedness to the extent of the value of the assets securing such indebtedness and are structurally subordinated to all indebtedness and other liabilities of the Company's subsidiaries (including trade payables but excluding intercompany obligations owed to the Company or its subsidiaries).

On or after February 15, 2024 and June 15, 2027, respectively, to the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert all or any portion of their 2024 and 2027 Notes, respectively, regardless of the contingent conversion conditions described herein. Upon conversion, the Company will pay or deliver cash, shares of its common stock or a combination of cash and shares of its common stock, at its election, as described in the indenture governing the 2024 and 2027 Notes.

Holders may convert their 2024 and 2027 Notes at their option at any time prior to the close of business on the business day immediately preceding February 15, 2024 and June 15, 2027, respectively, only under the following circumstances:

- during the five consecutive business day period immediately following any five consecutive trading day period (the "Measurement Period") in which the trading price per 2024 and 2027 Note, respectively, for each day of that Measurement Period was less than 98% of the product of the last reported sale price of the Company's common stock and the conversion rate on each such day;
- during any calendar quarter commencing after the calendar quarter ending on June 30, 2019 and December 31, 2020, respectively, if the last reported sale price of the common stock for 20 or more trading days (whether or not consecutive) in a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day; or
- upon the occurrence of specified corporate events.

If a fundamental change (as defined in the relevant indenture governing the applicable series of Notes) occurs prior to the maturity date, holders of each of the Notes may require the Company to repurchase all or a portion of their notes for cash at a repurchase price equal to 100% of the principal amount at maturity of the Notes, plus any accrued and unpaid interest to, but excluding, the repurchase date.

In accordance with accounting guidance on embedded conversion features at the time of the Notes issuance, the Company valued and bifurcated the conversion options associated with each of the Notes from the respective host debt instrument, which is referred to as debt discount, and recorded the conversion option of each of the Notes in stockholders' equity at the time of the issuance of the Notes.

Effective January 1, 2021, the Company early adopted ASU 2020-06, *Debt - Debt with Conversion and Other Options and Derivatives and Hedging - Contracts in an Entity's Own Equity*. Upon adoption of the new standard, the Company removed the debt discount and adjusted the debt issuance cost which was previously allocated between the liability and the equity component, resulting in an increase of \$ 68.8 million to convertible debt, net. In addition, the Company recorded a reduction to additional paid-in capital of \$ 80.1 million related to the equity conversion component of the outstanding convertible notes which was previously separated and recorded in equity. The net cumulative impact of the adoption of the standard was recorded as a decrease to accumulated deficit.

As of December 31, 2022, the 2024 and 2027 Notes are not yet convertible, and their remaining life is approximately 16 months and 56 months, respectively.

As of December 31, 2022 and 2021, the fair value of the principal amount of the Notes was \$ 263.7 million and \$ 299.4 million, respectively. The estimated fair value was determined based on inputs that are observable in the market or that could be derived from, or corroborated with, observable market data, including the Company's stock price and interest rates, which represents level 2 in the fair value hierarchy.

The Notes consist of the following (in thousands):

	December 31, 2022	December 31, 2021
Liability component:		
Principal	\$ 293,750	\$ 293,750
Less: debt issuance cost, net of amortization	(3,971)	(5,463)
Net carrying amount	\$ 289,779	\$ 288,287

The following table sets forth total interest expense recognized related to the Notes (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Coupon	\$ 4,813	\$ 4,813	\$ 2,422
Amortization of debt issuance costs	1,491	1,491	733
Amortization of debt discount	—	—	7,970
Total	\$ 6,304	\$ 6,304	\$ 11,125

Capped Call Transactions

In May 2019 and in September 2020, in connection with the offering of the 2024 and 2027 Notes, respectively, the Company entered into privately negotiated capped call transactions (collectively, the "Capped Call") with certain option counterparties. The Capped Call transactions cover, subject to customary anti-dilution adjustments, the number of shares of the Company's common stock initially underlying the Notes, at a strike price that corresponds to the initial conversion price of the Notes, also subject to adjustment, and are exercisable upon conversion of the Notes. The Capped Call transactions are intended to reduce potential dilution to the Company's common stock and/or offset any cash payments the Company will be required to make in excess of the principal amounts upon any conversion of Notes, and to effectively increase the overall conversion price of the 2024 Notes from \$ 66.05 to \$ 101.62 per share and for the 2027 Notes from \$ 41.82 to \$ 78.90 per share. As the Capped Call transactions meet certain accounting criteria, they are recorded in stockholders' equity and are not accounted for as derivatives. The cost of the Capped Call was \$ 16.4 million and \$ 25.3 million for the 2024 and 2027 Notes, respectively, and was recorded as part of additional paid-in capital.

17. Credit Facility

The Company's \$ 50 million secured Credit Agreement ("Revolver") with the lenders party thereto and Wells Fargo Bank, National Association as agent for the lenders party thereto expired in March 2022. There were no outstanding borrowings under the Revolver prior to its expiration.

18. Commitments and Contingencies

Litigation

The Company is involved in various legal proceedings, claims and litigation which arise in the ordinary course of the business. The Company makes a provision for a liability relating to legal matters when it is both probable that a liability has been incurred and the amount of the loss can be reasonably estimated. These provisions are reviewed at least quarterly and adjusted to reflect the impacts of negotiations, settlements, rulings, advice of legal counsel and other information and events pertaining to a particular matter. The Company is not currently involved in any outstanding litigation that it believes, individually or in the aggregate, will have a material adverse effect on its business, financial condition, results of operations or cash flows.

Purchase Commitments

The purchase commitments consist of agreements to purchase goods and services entered into the ordinary course of business, mainly related to infrastructure platforms, business technology software and support, and other services. The following table summarizes the non-cancelable unconditional purchase commitments for each of the next five years and thereafter as of December 31, 2022 (in thousands):

Year Ending December 31,	Amount
2023	\$ 34,541
2024	40,385
2025	44,131
2026	47,416
2027	—
Thereafter	—
Total	\$ 166,473

Indemnification

The Company's software agreements generally include certain provisions for indemnifying customers against liabilities if the Company's software solutions infringe a third party's intellectual property rights. To date, the Company has not incurred any losses as a result of such indemnifications and has not accrued any liabilities related to such obligations in the Company's Consolidated Financial Statements.

19. Segment and Geographic Information

The Company operates as one segment with a single reporting unit. Operating segments are the components of an enterprise where separate financial information is evaluated regularly by the chief operating decision-maker, who is the Company's Chief Executive Officer, in deciding how to allocate resources and assessing financial performance. The Company's chief operating decision-maker allocates resources and assesses performance based upon discrete financial information at the consolidated level.

Revenue by Geography

The Company presents financial information on a consolidated basis and does not assess the profitability of its geographic regions. Accordingly, the Company does not attempt to comprehensively assign or allocate costs to these regions and does not produce reports for, or measure the performance of, its geographic regions based on any asset-based metrics.

International revenue for the years ended December 31, 2022, 2021 and 2020, amounted to approximately \$ 177.8 million, \$ 162.5 million and \$ 170.1 million, respectively, representing 64 %, 65 % and 67 %, respectively, of annual revenue.

The following geographic information is presented for the years ended December 31, 2022, 2021 and 2020. The Company categorizes geographic revenues based on the location of the customer's headquarters.

	Year Ended December 31,					
	2022		2021		2020	
	Revenue	Percent	Revenue	Percent	Revenue	Percent
The Americas:						
United States of America	\$ 98,361	36 %	\$ 88,892	35 %	\$ 82,299	32 %
Other	25,137	9 %	21,349	9 %	25,123	10 %
Subtotal	123,498	45 %	110,241	44 %	107,422	42 %
Europe	83,485	30 %	76,484	30 %	74,936	30 %
Asia Pacific	41,055	15 %	41,234	16 %	47,416	19 %
The Middle East	26,395	9 %	21,962	9 %	21,825	9 %
Africa	1,704	1 %	1,502	1 %	825	— %
Total revenue	\$ 276,137	100 %	\$ 251,423	100 %	\$ 252,424	100 %

20. Concentrations of Credit Risk

The Company's financial instruments that are exposed to concentrations of credit risk consist primarily of cash and cash equivalents, marketable securities and trade accounts receivable. The Company's deposits exceed federally insured limits. For the year ended December 31, 2022, no customer accounted for 10 % or more of trade accounts receivables. For the years ended December 31, 2022, 2021 and 2020, no single customer accounted for 10 % or more of revenue.

21. Related-Party Transactions

The Company currently has employment agreements with its executive officers. In the event of termination of employment other than for cause, the employment agreements provide separation benefits, including twelve to eighteen months of salary, as well as the vesting of certain equity awards.

22. Employee Retirement Savings Plan

The Company has a 401(k) savings plan for all eligible employees in the United States. Historically, the Company's matching contribution has been 50 % of the first 8 % of employee contributions, and the Company may also make discretionary contributions. Matching contributions by the Company in 2022, 2021 and 2020 totaled approximately \$ 3.9 million , \$ 3.5 million and \$ 4.3 million, respectively.

23. Severance and Other Related Costs

In October 2022, the Company reprioritized its investments to focus on supporting key growth areas of its business. As a result of this reprioritization, the Company incurred approximately \$ 4.0 million of severance, employee benefits, outplacement and related costs in the fourth quarter of 2022. These costs were recorded primarily as operating expenses in the Consolidated Statements of Comprehensive Income (Loss), mainly research and development, and sales and marketing. During the quarter ended December 31, 2022, cash payments of \$ 3.1 million were recorded for the incurred costs.

24. Subsequent Event

In early 2023, the Company made organizational changes to focus on supporting key growth areas of its business. As a result, the Company expects to incur approximately \$ 3.0 million of severance, employee benefits, outplacement and related costs in the first quarter of 2023.

Schedule II
Valuation and Qualifying Accounts

	Balance at beginning of period	Additions charged to costs and expenses	Deductions (1)	Other (2)	Balance at end of period
Allowance for credit losses					
2022	\$ 1,206	\$ 552	\$ (1,149)	\$ —	\$ 609
2021	\$ 4,122	\$ 161	\$ (3,077)	\$ —	\$ 1,206
2020	\$ 214	\$ 5,870	\$ (1,962)	\$ —	\$ 4,122
Valuation allowance					
2022	\$ 146,832	\$ 16,645	\$ —	\$ 2,194	\$ 165,671
2021	\$ 130,733	\$ 16,649	\$ —	\$ (550)	\$ 146,832
2020	\$ 106,476	\$ 24,375	\$ —	\$ (118)	\$ 130,733

(1) Deductions column represents the reversal of additions previously charged to costs and expenses and uncollectible accounts written off, net of recoveries.

(2) Other column represents the cumulative translation adjustment impact on the allowance.

Exhibit Index

Exhibit No.	Description	Provided Herewith	Incorporated by Reference	
			Form	Filing Date
2.1	Agreement and Plan of Merger dated as of November 30, 2021		8-K	11/30/2021
3.1	Amended and Restated Certificate of Incorporation.		S-1/A	6/15/2007
3.2	Amended and Restated Bylaws.		8-K	4/29/2020
4.1	Specimen certificate for shares of common stock.		S-1/A	6/11/2007
4.2	Indenture, dated May 7, 2019 between Registrant and Wilmington Trust, National Association, as trustee.		8-K	5/7/2019
4.3	Global Note, dated May 7, 2019 between Registrant and Wilmington Trust, National Association, as trustee.		8-K	5/7/2019
4.4	Indenture, dated September 15, 2020 between Registrant and Wilmington Trust, National Association, as trustee.		8-K	9/16/2020
4.5	Global Note, dated September 15, 2020 between Registrant and Wilmington Trust, National Association, as trustee.		8-K	9/16/2020
4.6	Description of Registered Securities.		10-K	2/19/2020
10.1+	Amended and Restated 2017 Equity Incentive Plan as amended.		DEF-14A	4/2/2021
10.2+	Form of Notice of Grant of Market Stock Units and Award Agreement under the 2017 Equity Incentive Plan (Form adopted in 2021).		10-K	2/12/2021
10.3+	Form of Notice of Grant of Stock Option and Award Agreement under the 2017 Equity Incentive Plan.		10-Q	8/3/2017
10.4+	Form of Notice of Grant of Performance Restricted Stock Units and Award Agreement under the 2017 Equity Incentive Plan.		10-Q	8/3/2017
10.5+	Form of Notice of Grant of Restricted Stock Units and Award Agreement under the 2017 Equity Incentive Plan.		10-Q	8/3/2017
10.6+	Form of Notice of Grant of Restricted Stock Units and Award Agreement under the 2017 Equity Incentive Plan (Form adopted in 2021).		10-K	2/12/2021
10.7+	Form of Notice of Grant of Restricted Stock Units and Award Agreement under the 2017 Equity Incentive Plan (Form adopted in 2022)		10-K	2/18/2022
10.8+	Form of Notice of Grant of Stock Appreciation Rights and Award Agreement under the 2017 Equity Incentive Plan.		10-Q	8/3/2017
10.9+	Form of Performance Restricted Stock Unit Agreement.		8-K	1/18/2019
10.10+	2013 Employee Stock Purchase Plan as amended.		DEF-14A	4/2/2021
10.11	Office Lease Agreement, dated November 30, 2018, by and between PROS, Inc., and Thor Kirby 3 Group, LLC.		8-K	12/4/2018
10.12+	Second Amended and Restated Employment Agreement, dated December 3, 2018, by and between PROS, Inc., Registrant, and Andres D. Reiner.		8-K	12/4/2018
10.13+	Amended and Restated Employment Agreement, dated December 3, 2018, by and between PROS, Inc., Registrant, and Stefan B. Schulz.		8-K	12/4/2018
10.14+	Form of Indemnification Agreement to be entered into among Registrant, its affiliates and its directors and officers.		10-K	2/15/2017
10.16	Form of Base Capped Call Confirmation.		8-K	5/7/2019
10.17	Form of Additional Capped Call Confirmation.		8-K	5/7/2019
10.18	Form of Base Capped Call Confirmation.		8-K	9/16/2020
21.1	List of Subsidiaries.	X		
23.1	Consent of PricewaterhouseCoopers LLP.	X		
24.1*	Power of Attorney.	X		
31.1	Certification of Chief Executive Officer Pursuant to Exchange Act Rule 13a-14(a)/15d-14(a).	X		
31.2	Certification of Chief Financial Officer Pursuant to Exchange Act Rule 13a-14(a)/ 15d-14(a).	X		
32.1**	Certifications of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. Section 1350.	X		

Exhibit No.	Description
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.
*	Reference is made to page F-39 of this Annual Report on Form 10-K.
**	This certification shall not be deemed "filed" for purposes of Section 18 of the Securities Act of 1934, or otherwise subject to the liability of that Section, nor shall it be deemed to be incorporated by reference into any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934.
+	Indicates a management contract or compensatory plan or arrangement.

Item 16. *Form 10-K summary*

Registrants may voluntarily include a summary of information required by Form 10-K under this Item 16. The Registrant has elected not to include such summary information.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Exchange Act, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on February 15, 2023.

PROS Holdings, Inc.

By: /s/ Andres Reiner
Andres Reiner
President and Chief Executive Officer

KNOW BY THESE PRESENT, that each person whose signature appears below constitutes and appoints each of Andres Reiner and Stefan Schulz, his attorney-in-fact, with the power of substitution, for him in any and all capacities, to sign any amendments to this report on Form 10-K and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of the attorney-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

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

Signatures	Title	Date
<u>/s/ Andres Reiner</u> Andres Reiner	President, Chief Executive Officer, and Director (Principal Executive Officer)	February 15, 2023
<u>/s/ Stefan Schulz</u> Stefan Schulz	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 15, 2023
<u>/s/ Scott Cook</u> Scott Cook	Senior Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 15, 2023
<u>/s/ William Russell</u> William Russell	Chairman of the Board	February 15, 2023
<u>/s/ Carlos Dominguez</u> Carlos Dominguez	Director	February 15, 2023
<u>/s/ Raja Hammoud</u> Raja Hammoud	Director	February 15, 2023
<u>/s/ Leland T. Jourdan</u> Leland T. Jourdan	Director	February 15, 2023
<u>/s/ Catherine Lesjak</u> Catherine Lesjak	Director	February 15, 2023
<u>/s/ Greg B. Petersen</u> Greg B. Petersen	Director	February 15, 2023
<u>/s/ Timothy V. Williams</u> Timothy V. Williams	Director	February 15, 2023

PROS Holdings, Inc.
List of Subsidiaries as of December 31, 2022

<u>Name of Entity</u>	<u>State/Country of Incorporation/Organization</u>
PROS Bulgaria EOOD	Bulgaria
PROS Canada Operations, Ltd.	Canada
PROS CPQ, Inc.	Illinois
PROS Ecuador S.A.S.	Ecuador
PROS Europe Limited	England and Wales
PROS France SAS	France
PROS Germany GmbH	Germany
PROS, Inc.	Delaware
PROS International Technology Limited	Ireland
PROS Middle East Technology Systems L.L.C.	United Arab Emirates
PROS Technology Australia Pty. Ltd.	Australia
PROS Travel Commerce, Inc.	Delaware
PROS Travel Retail SAS	France
EveryMundo, LLC	Florida
EveryMundo Pte. Ltd.	Singapore

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-256091) and Form S-8 (Nos. 333-261407, 333-256089, 333-231623, 333-219192 and 333-193867) of PROS Holdings, Inc. of our report dated February 15, 2023 relating to the financial statements, financial statement schedule and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP

San Jose, California

February 15, 2023

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Andres Reiner, certify that:

1. I have reviewed this annual report on Form 10-K of PROS Holdings, 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(s) 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(s) 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.

February 15, 2023

/s/ Andres Reiner

Andres Reiner

President and Chief Executive Officer

**CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Stefan Schulz, certify that:

1. I have reviewed this annual report on Form 10-K of PROS Holdings, 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(s) 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(s) 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.

February 15, 2023

/s/ Stefan Schulz

Stefan Schulz

Executive Vice President and Chief Financial Officer

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

I, Andres Reiner, certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the annual report of PROS Holdings, Inc., on Form 10-K for the period ended December 31, 2022 fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934 and the information contained in such Form 10-K fairly presents, in all material respects, the financial condition and results of operations of PROS Holdings, Inc.

February 15, 2023

/s/ Andres Reiner

Andres Reiner

President and Chief Executive Officer

I, Stefan Schulz, certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the annual report of PROS Holdings, Inc., on Form 10-K for the period ended December 31, 2022 fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934 and the information contained in such Form 10-K fairly presents, in all material respects, the financial condition and results of operations of PROS Holdings, Inc.

February 15, 2023

/s/ Stefan Schulz

Stefan Schulz

Executive Vice President and Chief Financial Officer

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 has been provided to PROS Holdings, Inc. and will be retained by PROS Holdings, Inc. and furnished to the Securities and Exchange Commission or its staff upon request. This certification "accompanies" the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.