

PEGASYSTEMS INC

FORM 10-K (Annual Report)

Filed 02/15/23 for the Period Ending 12/31/22

Address	ONE MAIN STREET CAMBRIDGE, MA, 02142-1531
Telephone	6173749600
CIK	0001013857
Symbol	PEGA
SIC Code	7374 - Services-Computer Processing and Data Preparation
Industry	Software
Sector	Technology
Fiscal Year	12/31

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

FORM 10-K

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

Commission File No. 1-11859

PEGASYSTEMS INC.

(Exact name of Registrant as specified in its charter)

Massachusetts

(State or other jurisdiction of incorporation or organization)

04-2787865

(IRS Employer Identification No.)

One Main Street, Cambridge, MA 02142

(Address of principal executive offices, including zip code)

(617) 374-9600

(Registrant's telephone number, including area code)

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

Title of each class
Common Stock, \$.01 par value per share

Trading symbol(s)
PEGA

Name of each exchange on which registered
NASDAQ Global Select Market

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 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 emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging company," in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company Emerging growth company

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

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

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

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

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

The aggregate market value of the Registrant's common stock held by non-affiliates, based upon the closing price of the Registrant's common stock on the NASDAQ Global Select Market of \$47.84, on June 30, 2022 was approximately \$2.0 billion.

There were 82,469,714 shares of the Registrant's common stock, \$0.01 par value per share, outstanding on February 6, 2023.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's definitive proxy statement related to its 2023 annual meeting of stockholders to be filed subsequently are incorporated by reference into Part III of this report.

PEGASYSTEMS INC.

ANNUAL REPORT ON FORM 10-K

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PART I

FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K (“Annual Report”), including without limitation, “Item 1. Business,” “Item 1A. Risk Factors,” “Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities,” and “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations,” along with other reports that we have filed with the Securities and Exchange Commission (“SEC”), external documents, and oral presentations, contains or incorporates forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995.

Words such as expects, anticipates, intends, plans, believes, will, could, should, estimates, may, targets, strategies, projects, forecasts, guidance, likely, and usually, or variations of such words and other similar expressions identify forward-looking statements, which are based on current expectations and assumptions.

Forward-looking statements deal with future events and are subject to risks and uncertainties that are difficult to predict, including, but not limited to:

- our future financial performance and business plans;
- the adequacy of our liquidity and capital resources;
- the continued payment of our quarterly dividends;
- the timing of revenue recognition;
- management of our transition to a more subscription-based business model;
- variation in demand for our products and services, including among clients in the public sector;
- reliance on key personnel;
- global economic and political conditions and uncertainty, including impacts from public health emergencies and the war in Ukraine;
- reliance on third-party service providers, including hosting providers;
- compliance with our debt obligations and covenants;
- the potential impact of our convertible senior notes and Capped Call Transactions;
- foreign currency exchange rates;
- the potential legal and financial liabilities and damage to our reputation due to cyber-attacks;
- security breaches and security flaws;
- our ability to protect our intellectual property rights, costs associated with defending such rights, intellectual property rights claims, and other related claims by third parties against us, including related costs, damages, and other relief that may be granted against us;
- our ongoing litigation with Appian Corp.;
- our client retention rate; and
- management of our growth.

These risks and others that may cause actual results to differ materially from those expressed in such forward-looking statements are described further in “Item 1A. Risk Factors” of this Annual Report and other filings we make with the SEC.

Except as required by applicable law, we do not undertake and expressly disclaim any obligation to update or revise these forward-looking statements publicly, whether due to new information, future events, or otherwise. The forward-looking statements in this Annual Report represent our views as of February 15, 2023.

ITEM 1. BUSINESS

Our Business

We develop, market, license, host, and support enterprise software that helps organizations build agility into their business so they can adapt to change. Our powerful low-code platform for workflow automation and artificial intelligence-powered decisioning enables the world's leading brands and government agencies to hyper-personalize customer experiences, streamline customer service, and automate mission-critical business processes and workflows. With Pega, our clients can leverage our intelligent technology and scalable architecture to accelerate their digital transformation. In addition, our client success teams, world-class partners, and clients leverage our Pega Express™ methodology to design and deploy mission-critical applications quickly and collaboratively.

To grow our business, we intend to:

- increase market share by developing and delivering a low-code platform for workflow automation and AI-powered decisioning for buyers in marketing, sales, service, operations, and IT that can work together seamlessly with maximum competitive differentiation;
- deepen and expand our relationships with existing clients;
- establish relationships with new clients; and
- continue to scale our marketing efforts to support how today's buyers discover, evaluate, and choose products and services.

Whether we are successful depends, in part, on our ability to:

- execute our marketing and sales strategies;
- appropriately manage our expenses as we grow our organization;
- effectively develop new products and enhance our existing products; and
- incorporate acquired technologies into our solutions and unified Pega Platform™.

Subscription transition

We are transitioning our business to sell software primarily through subscription arrangements. Until we fully complete our subscription transition, which we expect will occur in 2023, our operating results may be impacted. Operating performance, revenue mix, and new arrangements in each period can fluctuate based on client preferences for our perpetual and subscription offerings.

See risk factor "If we fail to manage our transition to a more subscription-based business model successfully, our results of operations and/or cash flows could be negatively impacted" in Item 1A of this Annual Report for additional information.

Our Products

Pega Infinity™

Software built on a Center-out™ Business Architecture



Pega Infinity™, the latest version of our software portfolio, helps build agility into our clients organizations so they can work smarter, unify experiences, and adapt to meet changing requirements.

Our applications and low-code platform intersect with and encompass several software markets, including:

- Customer Engagement, including Customer Relationship Management (“CRM”);
- Digital Process Automation (“DPA”), including Business Process Management (“BPM”), Workflow, and Dynamic Case Management (“DCM”);
- Low-code application development platforms (“LCAP”), including Multi-experience Development Platforms (“MXDP”);
- Robotic Process Automation (“RPA”);
- Business Rules Management Systems (“BRMS”);
- Decision Management, including predictive and adaptive analytics; and
- the Vertical-Specific Software (“VSS”) market of industry solutions and packaged applications.

1:1 Customer Engagement

Our omnichannel customer engagement applications are designed to maximize the lifetime value of customers and help reduce the costs of serving customers while ensuring a consistent, unified, and personalized customer experience. At the center of our customer engagement applications is the Pega Customer Decision Hub™, our real-time, AI-powered decision engine, which can predict a customer’s behavior and recommend the “next best action” to take across channels in real-time. It is designed to enable enterprises to improve customer acquisition and experience across inbound, outbound, and paid media channels. It incorporates Artificial Intelligence (“AI”) in the form of predictive and machine-learning analytics and business rules, and executes these decisions in real-time to evaluate the context of each customer interaction and dynamically deliver the most relevant action, offer, content, and channel.

Customer Service

The Pega Customer Service™ application simplifies customer service. It is designed to anticipate customer needs, connect customers to the right people and systems, automate or intelligently guide customer interactions, rapidly and continuously evolve the customer service experience, and allow enterprises to deliver consistent interactions across channels and improve employee productivity. The application consists of a contact center desktop, case management for customer service, chat, knowledge management, mobile field service, omnichannel self-service, AI-powered virtual assistants, and industry-specific processes (“Microjourney®”) and data models. For clients who want to extend intelligence and automation into the early stages of the customer journey, Pega Sales Automation™ automates and manages the entire sales process, from prospecting to product fulfillment. It allows enterprises to capture best practices and leverage AI to guide sales teams through the sales and customer onboarding processes.

Intelligent Automation

Pega Platform, our software for Intelligent Automation, boosts the efficiency of our clients’ processes and workflows. This technology allows organizations to take an end-to-end approach to transformation by using intelligence and design thinking to streamline processes and create better customer and employee experiences. Intelligent automation goes beyond traditional Business Process Management (BPM) to unify technologies such as Robotic Process Automation (“RPA”) and AI and enable organization-wide digital transformation. With its Intelligent Automation capabilities, the Pega Platform allows clients to break down silos, improve customer-centricity, add agility to legacy technology, and provide end-to-end automation to support the needs of customers and employees.

Our Capabilities

We drive better business outcomes for our clients in three ways:

- *1:1 Customer Engagement*: we enable clients to hyper-personalize interactions with their customers using our AI-powered decision engine, resulting in higher customer lifetime value.
- *Customer Service*: we enable clients to streamline customer service and deliver better service experiences for their customers and employees, resulting in higher customer satisfaction and loyalty with reduced costs.
- *Intelligent Automation*: we enable clients to automate mission-critical workflows, resulting in improved operational efficiency, faster time to value, and lower cost.

We deliver our solution through our Center-out Business™ Architecture, enabling clients to transcend channels and internal data silos to achieve quick wins and long-term transformation. This approach insulates business logic from back-end and front-end complexity, delivering consistent customer experiences and agility to the business.

The key aspects of this architecture are:

Centrally-managed AI-powered decisioning

Pega’s centrally-managed AI-powered decisioning ensures AI and business rules operate across all channels. Applications built on Pega’s low-code Platform leverage predictive and adaptive analytics to deliver personalized customer experiences and maximize business objectives. For example, Pega Customer Decision Hub, a centralized, always-on “customer brain,” unleashes the power of predictive analytics, machine learning, and real-time decisioning across our clients’ data, systems, and touchpoints - orchestrating engagement across customer interaction channels and optimizing processes for better efficiency.

End-to-end workflow automation aligned with business outcomes

We combine human-assisted robotic desktop automation and unattended robotic process automation with our unified workflow automation and case management capabilities. This combination provides our platform and applications the differentiated ability to automate customer-facing and back-office operational processes from “end to end,” connecting across organizational and system silos to connect customers and employees to outcomes seamlessly and easily.

Consistent omnichannel experiences

With centrally defined business and process logic, Pega provides dynamic, open APIs to keep front-end channels and business logic aligned for consistent customer experiences. By leveraging innovative user interface (UI) technology, Pega-powered processes and decisions can be easily embedded into existing front-ends or used as the basis for new employee-facing applications.

Insulation of back-end complexity

Pega’s architecture insulates case and decision logic from the complexity of back-end systems. Our data virtualization automatically pulls in needed data in a common structure, regardless of source. This capability allows clients the agility to build new experiences on existing systems, modernizing legacy systems without breaking existing processes.

A layered approach to managing variation

Pega’s Situational Layer Cake™ organizes logic into layers that map to the unique dimensions of a client’s business – customer types, lines of business, geographies, etc. This layered approach lets organizations manage variations of their businesses without duplicating logic. This capability allows initial deployments into a single department or region to seamlessly scale to manage the complexity of a global, multi-line enterprise.

In addition to our Center-out Business Architecture, Pega technology has been designed to be deployed rapidly, be easily changed, and scale across changing architecture needs.

Pega Express™ Methodology and low-code

Our solutions are designed to quickly improve targeted customer outcomes with out-of-the-box functionality that connects enterprise data and systems to customer experience channels. From there, organizations can scale one customer experience at a time to realize greater value while delivering increasingly consistent and personalized customer experiences. We prescribe a “Microjourney” approach to delivery that breaks customer journeys into discrete processes that drive meaningful outcomes, such as “inquiring about a bill” or “updating an insurance policy,” allowing us to combine design-thinking and out-of-the-box functionality to deliver rapid results and ensure the ability to enhance applications in the future.

Our approach leverages low-code to improve business and IT collaboration and bypass the error-prone and time-consuming process of manually translating requirements into code. Users design software in low-code visual models that reflect the needs of the business. The software application is created and optimized automatically and directly from the model, helping to close the costly gap between vision and execution. Changes to the code are made by altering the model, and application documentation is generated directly from the model.

Cloud choice

Pega Cloud® allows clients to develop, test, and deploy, on an accelerated basis, our applications and the Pega Platform using a secure, flexible internet-based infrastructure, minimizing cost while focusing on core revenue-generating competencies.

Clients can also manage the Pega deployment themselves using the cloud architecture they prefer. This multi-cloud approach of both Pega Cloud and client-managed cloud gives our clients the ability to select and change, as needed, the best cloud architecture for the security, data access, speed-to-market, and budget requirements of each application they deploy.

Our Services and Support

We offer services and support through our Global Client Success, Global Service Assurance, Global Client Support, and Pega Academy groups. We also use third-party contractors to assist us in providing these services.

- *Global Client Success* – Global Client Success guides our clients to maximize their investment in our technology and realize the business outcomes they are targeting. Within Global Client Success, our Client Innovation team helps clients transform and prototype their customer journeys through our Pega Catalyst™ offering, our Success team ensures our clients receive the maximum business value from their Pega investments, and our Pega Consulting team provides planning, design, implementation, and advisory and assurance services.
- *Global Service Assurance* – Global Service Assurance addresses risks to client success because of technical concerns. By providing technical staff dedicated to client success, we reduce the time to resolve technical issues, eliminate lengthy deliberations of technical resource logistics, and increase clients’ confidence in our technology and client service.
- *Global Client Support* – Global Client Support provides technical support for our products and Pega Cloud services. Support services include cloud service reliability management, online support community management, self-service knowledge, proactive problem prevention through information and knowledge sharing, problem tracking, prioritization, escalation, diagnosis, and resolution.

- *Pega Academy* – The success of our sales strategy for repeat sales to target clients depends on enablement and ecosystem engagement. We have increased our ability to train partners and clients to implement our technology and made it easier for individuals to stay current as it evolves. We offer instructor-led and online training to our employees, clients, and partners. We have also partnered with universities to provide our courseware as part of student curriculum to expand our ecosystem. Engagement is an important part of our strategy to create a broad ecosystem passionate about Pega technology.

Our Partners

We collaborate with global systems integrators and technology consulting firms that provide consulting services to our clients, as well as Independent Software Vendors (“ISVs”) and technology partners that extend clients’ investments with integrated solutions. In addition, Authorized Training Partners (“ATPs”) support Pega customers in local languages, while our Workforce Development Partners let clients outsource their recruiting. Strategic partnerships with these firms are important to our sales efforts because they influence buying decisions, identify sales opportunities, and complement our software with their domain expertise, solutions, and service capabilities. These partners may deliver strategic business planning, consulting, project management, training, and implementation services to our clients.

Our partners include well-respected major firms, such as Accenture PLC, Amazon.com, Inc., Areteans, Capgemini SA, Coforge, Cognizant Technology Solutions Corporation, EY, Google, HCL Infosys, Merkle, PwC, Tata Consultancy Services Limited, Tech Mahindra Limited, Virtusa Corporation, and Wipro Limited.

Our Markets

Target Clients

Our target clients are Global 2000 organizations and government agencies that require solutions to distinguish themselves in the markets they serve. Our solutions achieve and facilitate differentiation by increasing business agility, driving growth, improving productivity, attracting and retaining customers, and reducing risk. Along with our partners, we deliver solutions tailored to the specific industry needs of our clients.

Our clients represent many industries, including:

- *Financial services* – Pega’s low-code platform for AI-powered decisioning and workflow automation is used by financial services organizations for Customer Engagement, Onboarding and KYC, Lending, Customer Service, Payment Exceptions, Bank Operations and Managing Financial Crime. Our platform enables clients to increase loyalty and wallet share, reduce time and effort to close loans and open accounts, address compliance more effectively while simplifying customer experiences, resolve service requests across channels more quickly with less effort, and boost the efficiency of various back-office processes with fewer human touches.
- *Communications and media* – Pega’s low-code platform for AI-powered decisioning and workflow automation is used by communications and media organizations for Customer Engagement, Order Management, Customer Service, Service Assurance, Network Operations and Shared Services. Our platform enables clients to increase loyalty and wallet share, simplify experiences while accelerating revenues and processes, resolve service requests across channels more quickly with less effort, drive a faster, simpler repair experience, and boost efficiency of 5G, fiber and cloud processes.
- *Government* – Pega’s low-code platform for AI-powered decisioning and workflow automation is used by government agencies for Enterprise Modernization, Licensing, Investigative Case Management, Grants and Financial Management, Acquisition and Supply Chain Modernization, and Citizen Service. Our platform enables clients to modernize legacy systems and processes to meet the growing demands for improved constituent service, lower costs, reduced fraud, and greater transparency.
- *Healthcare* – Pega’s low-code platform for AI-powered decisioning and workflow automation is used by healthcare organizations for Consumer Engagement, Onboarding and Enrollment, Customer Service, Care Management Services and Core Admin. Our platform enables clients to improve member and patient outcomes, loyalty and retention, simplify experiences with reduced time and effort, resolve service requests faster and easier across channels, advance efficient flexible healthcare coordination, and deliver streamlined, modern experiences for members, providers and employees.
- *Insurance* – Pega’s low-code platform for AI-powered decisioning and workflow automation is used by insurance companies for Customer Engagement, Sales, Distribution, Underwriting, Policy Holder Service and Claims. Our platform enables clients to nurture and grow their book of business, increase agent sales effectiveness, power better partner performance and loyalty, automate application intake and processing with intelligence, personalize seamless policy lifecycle experiences, and improve claims handling efficiencies with more modern customer and employee experiences.
- *Consumer services* – Pega’s low-code platform for AI-powered decisioning and workflow automation is used by consumer services organizations for Customer Engagement, Supplier Onboarding, Customer Service, and Enterprise Operations in industries such as transportation, utilities, internet providers, retail, hospitality, and entertainment. Our platform enables clients to enable more personalized real-time next best action, accelerate onboarding with simplified experiences, automate resolution of customer requests across channels with increased digital self-servicing, and streamline operations to rapidly reduce cost, time, and risks while increasing customer satisfaction.

- *Manufacturing and high tech* – Pega’s low-code platform for AI-powered decisioning and workflow automation is used by manufacturers to streamline their complex global operations and create more value for their customers, dealers, distributors, and suppliers while directly managing the performance, uptime, and impact of their connected products, equipment, and experiences. Our platform enables clients to reduce the complexity of enterprise operations in domains like supply chain, order management, quality management, shared services, customer service, and aftermarket services, including warranty management and captive finance, while minimizing the constraints on digital transformation caused by legacy systems.

Competition

The markets for our offerings are intensely competitive, rapidly changing, and highly fragmented as current competitors expand their product offerings and new companies enter the market.

We compete in the CRM, including marketing, sales, and customer service, and DPA, including BPM, case management, decision management, robotic automation, co-browsing, social engagement, low-code application development, and mobile application development platform software markets, as well as in markets for the vertical applications we provide (e.g., Pega Know Your Customer™ for Financial Services, Pega Care Management™).

We also compete with clients’ internal information systems departments that seek to modify their existing systems or develop their own proprietary systems and professional service organizations that develop their own products or create custom software in conjunction with rendering consulting services.

Competitors vary in size, scope, and breadth of the products and services they offer and include some of the world’s largest companies, including Salesforce.com, Microsoft Corporation, Oracle Corporation, SAP SE, ServiceNow, and International Business Machines Corporation (“IBM”).

We have been most successful in competing for clients whose businesses are characterized by a high degree of change, complexity, or regulation.

We believe we are competitively differentiated because our unified Pega Platform is designed to allow client business and IT staff, using a single, intuitive user interface, to build and evolve enterprise applications in a fraction of the time it would take with disjointed architectures and tools offered by many of our competitors. In addition, our applications, built on the Pega Platform, provide the same flexibility and ability to adapt to our clients’ needs as the Pega Platform. We believe we compete favorably due to our expertise in our target industries and our long-standing client relationships. We believe we compete less favorably on some of the above factors against our larger competitors, many of which have greater sales, marketing, and financial resources, a more extensive geographical presence, and greater name recognition. In addition, we may be at a competitive disadvantage against our larger competitors with respect to our ability to provide expertise outside our target industries.

See risk factor "The market for our offerings is intensely and increasingly competitive, rapidly changing, and fragmented" in Item 1A of this Annual Report for additional information.

Intellectual Property

We rely primarily on a combination of copyright, patent, trademark, and trade secrets laws, as well as confidentiality procedures and contractual provisions to protect our intellectual property rights and our brand. We have obtained patents relating to our system architecture and products in strategic global markets. We enter into confidentiality, intellectual property ownership, and license agreements with our employees, partners, clients, and other third parties. To protect our proprietary rights, we also control access to and ownership of software, services, documentation, and other information. We also purchase or license technology that we incorporate into our services.

Sales and Marketing

We encourage our direct sales force and outside partners to co-market, pursue joint sales initiatives, and drive broader adoption of our technology, helping us grow our business more efficiently and focus our resources on continued innovation and enhancement of our solutions. In addition, strategic partnerships with management consulting firms and major systems integrators are important to our sales efforts because they influence buying decisions, help us identify sales opportunities, and complement our software and services with their domain expertise and consulting capabilities. We also partner with technology providers and application developers.

To support our sales efforts, we conduct a broad range of marketing programs, including awareness advertising, client and industry-targeted solution campaigns, trade shows, including our PegaWorld® iNspire user conference, solution seminars and webinars, industry analyst and press relations, web and digital marketing, community development, social media presence, and other direct and indirect marketing efforts. In addition, our consulting employees, business partners, and other third parties also conduct joint and separate marketing campaigns that generate sales leads. Our sales and marketing efforts are premised on the strength of our products, both as they exist currently and as they will continue to develop in the future through our research and development efforts.

Research and Development

Our research and development organization is responsible for product architecture, core technology development, product testing, and quality assurance. Our product development priority is to continue expanding our technology's capabilities and ensure we deliver superior cloud-native solutions. We intend to maintain and extend the support of our existing applications, and we may choose to invest in additional strategic applications that incorporate the latest business innovations. We also intend to maintain and extend the support for popular public and private cloud platforms, and integration options to facilitate easy and rapid deployment in diverse IT infrastructures. Our goal with all products is to enhance product capabilities, implementation ease, long-term flexibility, and improve client service.

Backlog

As of December 31, 2022, we expected to recognize approximately \$1.4 billion in revenue from backlog on existing contracts in future periods. See "Remaining performance obligations ("Backlog")" in Item 7 of this Annual Report for additional information.

Our People

As of January 31, 2023, we had 6,145 employees, of which 2,385 were based in the Americas, 1,457 were based in Europe, 1,953 were based in India, and 350 were based elsewhere in Asia-Pacific.

As a high-technology company, our people are critical to our success. We strive to be a place where people come to build a career in an equitable, inclusive, and diverse culture. We believe that cultivating our talent is at the heart of engaging, motivating, and retaining our workforce to support our clients and our business.

We evolve our corporate culture through various initiatives, including global equity, inclusion and belonging, employee engagement, pay equity, and employee development.

Diversity, Equity, Inclusion and Belonging ("DEIB")

We celebrate, welcome and foster diverse perspectives at Pega because we believe this will accelerate our ability to deliver innovative products and services to our clients. It is critical to strive for representation of diverse backgrounds, but it is even more critical to create an environment where all individuals are respected, valued and supported, have access to opportunities, and feel that they belong. Our commitment to DEIB begins with a highly skilled and diverse board, and includes inclusion and allyship programs amongst other investments. We are continuously expanding our sponsorship of formal employee resource groups and are proud to share our support for the following communities: women, veterans, Black, LGBTQIA+, Asian, Latinx, and persons with disabilities.

Employee Engagement, Health, and Well-Being

Our efforts to retain and attract diverse and passionate employees include providing competitive rewards packages and encouraging active two-way communication throughout the Company. We promote a culture of transparency, regularly seeking feedback to better understand and improve our employee experience, and are committed to fostering an environment where every team member feels connected at Pega.

We share the responsibility to preserve, strengthen, and evolve our culture while continuously reviewing the way we do things to propel us forward together. In addition to our employee survey and continuous feedback tools, we host regular sessions led by executive leadership team where any employee can ask any question.

We are committed to fostering an environment that supports our employees' health and overall well-being, with emphasis on physical, emotional, financial, and personal wellness. PegaUp!, our employee wellness program, includes awareness campaigns, fitness classes, guided meditation, as well as health, wellness, and in 2022, we implemented quarterly global Wellness Days when our entire company takes a break for a day to recharge.

Pay Equity

We compensate our employees for what they do and how they do it, regardless of their gender, race, or other characteristics. To deliver on that commitment, we benchmark and set pay ranges based on market data and consider individual factors, such as an employee's role and experience, job location, and job performance. We regularly review our compensation practices, in terms of our overall workforce and individual employees, to ensure our pay is fair and equitable against local markets.

Talent Cultivation

Talent Cultivation is at the foundation of our people strategy and enables us to provide innovative products and services to our clients. It is an ongoing, dynamic process that enables our employees to focus on both performance and development goals, receive continuous feedback, and drive their future path for growth. We invest in our employees' career growth and progression by providing a wide range of opportunities, including formal and informal development, mentoring, and coaching. Pega Academy helps employees, clients, and partners gain and rapidly advance Pega software skills. A series of leadership and management development programs equip our managers with the skills and knowledge to successfully build a culture of engagement and high performance. Additionally, we provide educational resources and classes, career training, and education reimbursement programs.

Corporate Information

Pegasystems Inc. was incorporated in Massachusetts in 1983. Our stock is traded on the NASDAQ Global Select Market under the symbol "PEGA." Our website is located at www.pegasystems.com, and our investor relations website is located at www.pegasystems.com/about/investors.

Available Information

We make available our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to these reports, free of charge, through our website as soon as reasonably practicable after we electronically file such material with or furnish such material to the SEC. We also make available on our website reports filed by our executive officers and directors on Forms 3, 4, and 5 regarding their ownership of our securities. Our Code of Conduct is available on our website in the “Governance” section.

The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at www.sec.gov.

ITEM 1A. RISK FACTORS

The risks and uncertainties described below are not the only ones we face. Events that we do not currently anticipate, or expect to be immaterial, may also materially adversely affect our results of operations, cash flows, and financial condition.

Risks Related to Our Business and Industry

If we fail to manage our transition to a more subscription-based business model successfully, our results of operations and/or cash flows could be negatively impacted.

We are transitioning to a more subscription-based business model, which impacts our revenue and cash flow. The subscription model prices and delivers our software differently than a perpetual license model. These changes reflect a significant shift from perpetual license sales in favor of providing our clients the right to access our software in a hosted environment or use downloaded software for a specified subscription period. The shift of our clients’ preference to subscription-based offerings requires a scalable organization and a considerable investment of technical, financial, legal, managerial, and sales resources. Until we fully complete our subscription transition, which we expect will occur in 2023, our operating results may be impacted. Operating performance, revenue mix, and new arrangements in each period can fluctuate based on client preferences for our perpetual and subscription offerings.

Market acceptance of our subscription-based offerings will depend on our ability to continue to:

- innovate and include new functionality and improve the usability of our products in a manner that addresses our clients’ needs and requirements; and
- optimally price our products considering marketplace conditions, competition, our costs, and client demand.

Our cloud-based subscription model also requires that we rely on third parties to host our software for our clients. We incur significant recurring third-party hosting expenses to deliver our Pega Cloud offering that we do not incur for our perpetual and term license products. These expenses may cause the gross margin we realize from our Pega Cloud sales to be lower than the gross margin we realize from our perpetual and term license products. If we are unable to meet these challenges effectively, our operating results and financial condition could be materially adversely affected.

The transition to a subscription-based business model gives rise to several risks, including:

- our revenues and cash flows may fluctuate more than anticipated in the near term;
- if the increased demand for our offerings does not continue, we could experience decreased profitability or losses and reduced or negative cash flow because of our continued significant investments in our Pega Cloud offering;
- if new or current clients desire only perpetual licenses, our subscription sales may trail our expectations;
- we may be unsuccessful in maintaining or implementing our target pricing or new pricing models, product adoption, and projected renewal rates, or we may select a target price or new pricing model that is not optimal and could negatively affect our sales or earnings;
- a failure to achieve the anticipated level of subscriptions may cause our revenue to decline and our business to be materially adversely affected on an ongoing basis due to lower-than-expected recurring revenue; and
- we may incur sales compensation costs at a higher than forecasted rate if the pace of our subscription transition is faster than anticipated.

The metrics our investors and we use to monitor our business model transition may evolve during the transition as significant trends emerge. Therefore, it may be difficult to accurately determine the impact of this transition on our business on a contemporaneous basis or to communicate the appropriate metrics to our investors clearly.

We may not achieve the key elements of our strategy and grow our business as anticipated.

We currently intend to grow our business by pursuing strategic initiatives consistent with becoming a Rule of 40 company, meaning a company with combined Annual Contract Value (“ACV”) growth rate and free cash flow margin of at least 40%. Key elements of our strategy include increasing our market share by developing and delivering robust solutions that can work together seamlessly with maximum differentiation and minimal customization, offering versatility in the Pega Platform and application deployment and licensing options to meet the specific needs of our clients, growing our network of partner alliances, and developing the talent and organizational structure capable of supporting our revenue and earnings growth targets. We may not achieve one or more of our key initiatives. Our success depends on our ability to manage our expenses as we appropriately grow our organization, successfully execute our marketing and sales strategies, successfully incorporate acquired technologies into our unified Pega Platform, and develop new products or product enhancements. If we are not able to execute these actions, our business may not grow as we anticipate, and our operating results and financial condition could be materially adversely affected.

We depend on key personnel, including our Chief Executive Officer, and must attract and retain qualified personnel in the future.

Our business is dependent on key, highly skilled technical, managerial, consulting, sales, and marketing personnel, including our Chief Executive Officer, who is also our founder and largest stockholder.

The loss of key personnel could be disruptive to our operations and materially adversely affect our financial performance. We do not carry, nor do we currently intend to obtain, significant key-person life insurance on officers or other employees. Our success will depend on attracting and retaining qualified personnel and, as needed, rapidly replacing and developing new management. The number of potential employees who have the extensive knowledge needed to develop, sell, and maintain our offerings is limited, and competition for their services is intense. There can be no guarantee that we will be able to attract and retain such personnel. If we are unable to do so, our business, operating results, and financial condition could be materially adversely affected. We have from time to time in the past experienced, and we expect to continue to experience in the future, difficulty in hiring and difficulty in retaining highly skilled employees with appropriate qualifications.

In addition, we believe our corporate culture has been a key contributor to our success. Shifting workforce priorities, including an increase in remote workers, may make it more difficult to maintain important aspects of our corporate culture, negatively affecting our ability to retain and recruit personnel essential to our success.

The timing of our license and Pega Cloud revenue is difficult to predict, which may cause our operating results to vary considerably.

A change in the size or volume of license and Pega Cloud arrangements, or a change in the mix between perpetual licenses, term licenses, and Pega Cloud arrangements, can cause our revenues and cash flows to fluctuate materially between periods. Revenue from subscription service arrangements, which includes Pega Cloud and maintenance, is typically recognized over the contract term, while revenue from license sales is recognized when the license rights become effective, typically upfront. Subscription licenses and services are typically billed and collected over the contract term, while perpetual license arrangements are generally billed and collected upfront when the license rights become effective.

Factors that may influence the predictability of our license and Pega Cloud revenue include:

- changes in clients’ budgets and decision-making processes that could affect both the timing and size of transactions;
- the timing of the execution of an agreement or our ability to deliver the products or services;
- changes in our business model; and
- our ability to execute our marketing and sales strategies.

We budget for our selling and marketing, product development, and other expenses based upon anticipated future bookings and revenue. If the timing or amount of revenue fails to meet our expectations, our financial performance is likely to be materially adversely affected because only a small portion of our expenses vary with revenue. Other factors that may cause our operating results to vary include changes in foreign currency exchange rates, income tax effects, and the impact of new accounting pronouncements.

As a result, period-to-period comparisons of our operating results are not necessarily meaningful and should not be relied upon to predict future performance. If our revenues and operating results do not meet the expectations of our investors or securities analysts or fall below guidance we may provide to the market, or due to other factors discussed elsewhere in this section, the price of our common stock may decline.

The number and value of license and Pega Cloud arrangements has been increasing, and we may not be able to sustain this growth unless our partners and we can provide sufficient high-quality consulting, training, and maintenance resources to enable our clients to realize significant business value from our software.

Our clients typically request consulting and training to assist them in implementing our license and Pega Cloud offerings. Our clients also usually purchase maintenance on our perpetual and term licenses. As a result, an increase in the number and value of license and Pega Cloud arrangements is likely to increase demand for consulting, training, and maintenance related to our offerings. Given that the number and value of our license and Pega Cloud arrangements has been growing, we will need to provide our clients with more consulting, training, and maintenance to enable them to realize significant business value from our software. We have been increasing our partner and client enablement through training to create an expanded ecosystem of people that are skilled in the implementation of our solutions. However, if our partners and we are unable to provide sufficient high-quality consulting, training, and maintenance resources, our clients may not realize sufficient business value from our offerings to justify follow-on sales, which could impact our future financial performance.

Further, some of our client engagements have high public visibility. If our partners or we encounter problems in helping these clients implement our license and Pega Cloud offerings or if there is negative publicity regarding these engagements (even if unrelated to our services or offerings), our reputation could be harmed and our future financial performance could be negatively impacted. Finally, the investments required to meet the increased demand for our consulting services could strain our ability to deliver our consulting engagements at desired profitability, thereby impacting our overall profitability and financial results.

We may not be able to maintain our retention rate for our subscription clients.

An increasing percentage of our revenue has been derived from our subscription offerings. Our clients have no obligation to renew their subscriptions, although historically, most have elected to do so. If our retention rate for those clients decreases, our business, operating results, and financial condition could be materially affected.

We are investing heavily in our business in anticipation of continued growth in license and Pega Cloud arrangements, and we may experience decreased profitability or losses and reduced or negative cash flow if we do not continue to increase the value of our license and Pega Cloud arrangements to balance our growth in expenses.

We expect to provide our clients with more cloud and maintenance support as our business grows and have been investing significantly in research and development to expand and improve the Pega Platform and applications. These investments have resulted in increased fixed costs that do not vary with the level of revenue. If the increased demand for our offerings does not continue, we could experience decreased profitability or losses and reduced or negative cash flow because of these increased fixed costs. Conversely, if we are unable to achieve an appropriate balance of sales and marketing personnel to meet future demand or research and development personnel to enhance our current products or develop new products, we may not be able to achieve our sales and profitability targets.

We rely on third-party relationships.

We have a number of relationships with third parties that are significant to our sales, marketing, support, and product development efforts, including hosting facilities for our Pega Cloud offering. We rely on software and hardware vendors, large system integrators, and technology consulting firms to supply marketing and sales opportunities for our direct sales force and to strengthen our offerings using industry-standard tools and utilities. We also have relationships with third parties that distribute our products. There can be no assurance that these companies, many of which have far greater financial and marketing resources than us, will not develop or market offerings that compete with ours in the future or will not otherwise end or limit their relationships with us. Further, the use of third-party hosting facilities requires us to rely on the functionality and availability of the third parties' services, as well as their data security, which despite our due diligence, may be or become inadequate, as further discussed below under the risk factor "We rely on third-party hosting providers to deliver our offerings, and any disruption or interference with our use of these services could adversely affect our business."

We face risks from operations and clients based outside of the United States.

We market our products and services to clients based outside of the U.S., representing 42% of our revenue over the last three years. We have established offices in the Americas, Europe, Asia, and Australia. We anticipate hiring additional personnel to accommodate increased international demand, and we may also enter into agreements with local distributors, representatives, or resellers. If we are unable to do one or more of these things in a timely and effective manner, the growth, if any, of our international operations may be restricted, and our business, operating results, and financial condition could be materially adversely affected.

Additional risks inherent in our international business activities include:

- laws and business practices favoring local competitors;
- compliance with multiple, conflicting, and changing governmental laws and regulations, including employment, tax, privacy, and data privacy and protection;
- increased tariffs and other trade barriers;
- the costs of localizing offerings for local markets, including translation into foreign languages and associated expenses;
- longer payment cycles and credit and collectability risk on our foreign trade receivables;
- difficulties in enforcing contractual and intellectual property rights;

- heightened fraud and bribery risks;
- treatment of revenue from international sources and changes to tax codes, including being subject to foreign tax laws, being liable for paying withholding, income or other taxes in foreign jurisdictions, and other potentially adverse tax consequences (including restrictions on repatriating earnings and the threat of “double taxation”);
- management of our international operations, including increased administrative and compliance expenses;
- heightened risks of political and economic instability; and
- foreign currency exchange rate fluctuations and controls.

There can be no assurance that one or more of these factors will not have a material adverse effect on our international operations and, consequently, on our business, operating results, and financial condition.

We are exposed to fluctuations in foreign currency exchange rates that could negatively impact our financial results and cash flows.

Because a significant portion of our business is conducted outside of the U.S., we face exposure to movements in foreign currency exchange rates. Our international sales are usually denominated in foreign currencies. The operating expenses of our foreign operations are also primarily denominated in foreign currencies, which partially offset our foreign currency exposure on our international sales. Our results of operations and cash flows are subject to fluctuations due to changes in foreign currency exchange rates, particularly changes in the U.S. dollar, the Euro, and the Australian dollar relative to the British Pound. These exposures may change over time as business practices evolve.

We have historically used but do not currently use foreign currency forward contracts to hedge our exposure to changes in foreign currency exchange rates. We may enter into hedging contracts again in the future if we believe it is appropriate.

Our realized gain or loss for foreign currency fluctuations will depend on the size and type of cross-currency exposures that we enter into, the currency exchange rates associated with these exposures and changes in those rates, whether we have entered forward contracts to offset these exposures, and other factors. All these factors could materially impact our operating results, financial condition, and cash flows.

Our consulting revenue is significantly dependent upon our consulting personnel implementing new license and Pega Cloud arrangements.

We derive a substantial portion of our consulting revenue from implementations of new license and Pega Cloud arrangements managed by our consulting personnel and consulting for partner and client-led implementation efforts. Our strategy is to support and encourage partner-led and client-led implementations to increase the breadth, capability, and depth of market capacity to deliver implementation services to our clients. Accordingly, if our consulting personnel’s involvement in future implementations decreases, this could materially adversely affect our consulting revenue.

We frequently enter into a series of license or Pega Cloud arrangements that each focus on a specific purpose or area of operations. If we are not successful in obtaining follow-on business from these clients, our financial performance could be materially adversely affected.

Once a client has realized the value of our software, we work with the client to identify opportunities for follow-on sales. However, we may not be successful in demonstrating this value for several reasons, including the performance of our products, the quality of the services and support provided by our partners and us, or external factors. Also, some of our smaller clients may have limited additional sales opportunities available. We may not obtain follow-on sales, or the follow-on sales may be delayed, and our future revenue could be limited.

We will need to acquire or develop new products, evolve existing ones, address defects or errors, and adapt to technology changes.

Technical developments, client requirements, programming languages, industry standards, and regulatory requirements frequently change in the markets in which we operate. The introduction of third-party solutions embodying new technologies and the emergence of new industry standards could make our existing and future software solutions obsolete and unmarketable. As a result, our success will depend upon our ability to enhance current products, address any product defects or errors, acquire or develop and introduce new products that meet client needs, keep pace with technology and regulatory changes, respond to competitive products, and achieve market acceptance. Product development requires substantial investments for research, refinement, and testing. We may not have sufficient resources to make the necessary product development investments. We may experience technical or other difficulties that will delay or prevent the successful development, introduction, or implementation of new or enhanced products. We may also experience technical or other challenges integrating acquired technologies into our existing platform and applications. Inability to introduce or implement new or enhanced products in a timely manner could result in loss of market share if competitors are able to provide solutions to meet client needs before we do, give rise to unanticipated expenses related to further development or modification of acquired technologies, and materially adversely affect our financial performance. We may also fail to anticipate adequately and prepare for the development of new markets and applications for our technology and the commercialization of emerging technologies such as blockchain and thereby fail to take advantage of new market opportunities or fall behind early movers in those markets.

The market for our offerings is intensely and increasingly competitive, rapidly changing, and fragmented.

We encounter significant competition from:

- customer engagement vendors, including Customer Relationship Management application vendors;
- Digital Process Automation vendors and platforms, including Business Process Management vendors, low-code application development platforms, and service-oriented architecture middleware vendors;
- case management vendors;
- decision management, data science, and Artificial Intelligence vendors, as well as vendors of solutions that leverage decision making and data science in managing customer relationships and marketing;
- robotic automation and workforce intelligence software providers;
- companies that provide application-specific software for financial services, healthcare, insurance, and other specific markets;
- mobile application platform vendors;
- co-browsing software providers;
- social listening, text analytics, and natural language processing vendors;
- commercialized open-source vendors;
- professional services organizations that develop their own products or create custom software in conjunction with rendering consulting services; and
- clients' in-house information technology departments, which may seek to modify their existing systems or develop their own proprietary systems.

Many of our competitors, such as Salesforce.com, Microsoft Corporation, Oracle Corporation, SAP SE, ServiceNow, and International Business Machines Corporation ("IBM"), have far greater resources than we do and may be able to respond more quickly and efficiently to new or emerging technologies, programming languages or standards, or changes in client requirements or preferences. Competitors may also be able to devote greater managerial and financial resources to develop, promote, and distribute products and to provide related consulting and training services.

We believe the principal competitive factors within our market include:

- product adaptability, scalability, functionality, and performance;
- proven success in delivering cost-savings and efficiency improvements;
- proven success in enabling improved customer interactions;
- ease-of-use for developers, business units, and end-users;
- timely development and introduction of new products and product enhancements;
- establishment of a significant base of reference clients;
- ability to integrate with other products and technologies;
- customer service and support;
- product price;
- vendor reputation; and
- relationships with systems integrators.

Competition for market share and pressure to reduce prices and make sales concessions is likely to increase. There can be no assurance that we will be able to compete successfully against current or future competitors or that the competitive pressures we face will not materially adversely affect our business, operating results, and financial condition.

See "Competition" in Item 1 of this Annual Report for additional information.

Our Chief Executive Officer is our largest stockholder and can exert significant influence over matters submitted to our stockholders, which could materially adversely affect our other stockholders.

As of December 31, 2022, our Chief Executive Officer beneficially owned approximately 48 percent of our outstanding common stock. As a result, he has the ability to exert significant influence over all matters submitted to our stockholders for approval, including the election and removal of directors and any merger, consolidation, or sale of our assets. This concentration of ownership may delay or prevent a change in control, impede a merger, consolidation, takeover, or other business combination involving us, discourage a potential acquirer from making a tender offer or otherwise attempting to obtain control of us, or result in actions that may be opposed by other stockholders.

If we are unsuccessful in the appeal of the trial court judgment in our litigation with Appian Corp., our operating results and financial condition would be adversely impacted.

We are currently party to litigation with Appian Corp. - see Part I, Item 3 “Legal Proceedings” and “Note 20. Commitments And Contingencies” in the “Notes to Consolidated Financial Statements” included in Part II, Item 8 of this Annual Report. On September 15, 2022, the circuit court of Fairfax County entered judgment for Appian in the amount of \$2,060,479,287 and awarding post-judgment interest. The Company filed a notice of appeal from the judgment the same day. On September 29, 2022, the court approved the \$25,000,000 letter of credit obtained by the Company to secure the judgment and suspended the judgment during the pendency of the Company’s appeal. Appellate briefing is currently in process. Although it is not possible to predict timing, this appeals process could potentially take years to complete.

We believe we have strong grounds to overturn the result in the trial court. But if we are ultimately unsuccessful in prevailing in the matter in its entirety or in substantially reducing any judgment, we may be required to incur additional debt or otherwise engage in capital markets transactions, which may include a public offering or private placement of our equity securities or a sale or license of assets. See below under the risk factor, “We may require additional capital in the future.” In addition, if we do not satisfy the judgment within 60 days following the expiration of the right to appeal, there may be an acceleration of liabilities under our Convertible Senior Notes due 2025 (the “Notes”) and our Credit Facility. We believe that we have the financial strength to pay these amounts if it ever becomes necessary, but it is possible that we may not be able to engage in financing activities on desirable terms, which could have a material adverse effect on our business, financial condition, and operating results. Further discussion of these risks is contained below under the heading “Risks Related to Our Financial Obligations and Indebtedness.”

Risks Related to Information Technology Resilience and Security

We face risks related to outages, data losses, and disruptions of our online services if we fail to maintain an adequate operations infrastructure.

The increasing user traffic for our Pega Cloud offering demands more computing power. It requires that we maintain an internet connectivity infrastructure that is robust and reliable within competitive and regulatory constraints that continue to evolve. Inefficiencies or operational failures, including temporary or permanent loss of client data, power outages, or telecommunications infrastructure outages, by our third-party service providers or us, could diminish the quality of our user experience resulting in contractual liability, claims by clients and others, damage to our reputation, loss of current and potential clients, and negatively impact our operating results and financial condition.

Security of our systems and global client data is a growing challenge. Cyber-attacks and security breaches may expose us to significant legal and financial liabilities.

High-profile security breaches at other companies have increased in recent years. Security industry experts and government officials have warned about the risks of hackers and cyber-attackers targeting information technology products and businesses. Threats to IT security can take a variety of forms. Individual hackers, groups of hackers, and sophisticated organizations, including state-sponsored organizations, or nation-states themselves, may take steps that threaten our clients and us.

Although we are not aware of having experienced any prior material data breaches, regulatory non-compliance incidents or cyber security incidents, we may in the future be impacted by such an event, exposing our clients and us to a risk of someone obtaining access to our information, to information of our clients or their customers, or to our intellectual property, disabling or degrading service, or sabotaging systems or information. Any such security breach could result in a loss of confidence in the security of our services, damage our reputation, disrupt our business, require us to incur significant costs of investigation, remediation and/or payment of a ransom, lead to legal liability, negatively impact our future sales, and result in a substantial financial loss. Additionally, our Pega Cloud offering provides provisioned, monitored, and maintained environments for individual clients to create and deploy Pega-based applications using an Internet-based infrastructure. These services involve storing and transmitting client data and other confidential information.

Our security measures and those of our clients may be breached because of third-party actions or that of employees, consultants, or others, including intentional misconduct by computer hackers, system errors, human errors, technical flaws in our products, or otherwise. Because we do not control the configuration of Pega applications by our clients, the transmissions between our clients and our third-party technology providers, the processing of data on the servers at third-party technology providers, or the internal controls maintained by our clients and third-party technology providers that could prevent unauthorized access or provide appropriate data encryption, we cannot fully ensure the complete integrity or security of such transmissions processing or controls. In addition, privacy, security, and data transmission concerns in some parts of the world may inhibit demand for our Pega Cloud offering or lead to requirements to provide our products or services in configurations that may increase the cost of serving such markets. The techniques used to obtain unauthorized access or sabotage systems change frequently and are generally only recognized once launched against a target. While we have invested in protecting our data and systems and clients' data to reduce these risks, there can be no assurance that our efforts will prevent breaches. We deal with security issues regularly and have experienced security incidents from time to time. Accordingly, there is a risk that a security breach will be successful, and such an event will be material. We carry data breach insurance coverage to mitigate the financial impact of a security breach, though this may prove insufficient in the event of a breach.

Our Pega Cloud offering involves hosting client applications on the servers of third-party technology providers. We also rely on third-party systems and technology, including encryption, virtualized infrastructure, and support, and employ a shared security model with our clients and third-party technology providers.

To defend against security threats, we need to continuously engineer products and services with enhanced security and reliability features, improve the deployment of software updates to address security vulnerabilities, apply technologies that mitigate the risk of attacks, and maintain a digital security infrastructure that protects the integrity of our network, products, and services. The cost of these steps could negatively impact our operating results.

We rely on third-party hosting providers to deliver our offerings, and any disruption or interference with our use of these services could adversely affect our business.

Our use of third-party hosting facilities requires us to rely on the functionality and availability of the third-party services and their data security, which, despite our due diligence, may be or become inadequate. Our continued growth depends in part on the ability of our existing and potential customers to use and access our cloud services or our website to download our software within an acceptable amount of time. We use third-party service providers for key infrastructure components, particularly when developing and delivering our cloud-based products. These service providers give us greater flexibility in efficiently delivering a more tailored, scalable customer experience and expose us to additional risks and vulnerabilities. Third-party service providers operate platforms we access and which are vulnerable to service interruptions. We may experience interruptions, delays, and outages in service and availability due to problems with our third-party service providers' infrastructure. This infrastructure's lack of availability could be due to many potential causes, including technical failures, power shortages, natural disasters, fraud, terrorism, or security attacks that we cannot predict or prevent. Such outages could trigger our service level agreements and the issuance of credits to our clients, which may impact our business and consolidated financial statements.

If we are unable to renew our agreements with our cloud service providers on commercially reasonable terms, an agreement is prematurely terminated, or we need to add new cloud services providers to increase capacity and uptime, we could experience interruptions, downtime, delays, and additional expenses related to transferring to and providing support for these new platforms. Any of the above circumstances or events may harm our reputation and brand, reduce our platforms' availability or usage, and impair our ability to attract new users, which could adversely affect our business, financial condition, and results of operations.

We may experience significant errors or security flaws in our products and services and could face privacy, product liability, and warranty claims.

Despite quality testing each release, our software frequently contains errors or security flaws, especially when first introduced or when new versions are released. Errors in our software could affect its ability to work with hardware or other software or delay the development or release of new products or new versions of our software. Additionally, detecting and correcting any security flaws can be time-consuming and costly. Errors or security flaws in our software could result in the inadvertent disclosure of confidential information or personal data relating to our clients, employees, or third parties. Software errors and security flaws in our products or services could expose us to privacy, product liability, or warranty claims and harm our reputation, which could impact our future sales of products and services. Typically, we enter into license agreements that contain provisions intended to limit the nature and extent of our risk of product liability and warranty claims. A court might interpret these terms in a limited way or hold part or all of them unenforceable. Also, there is a risk that these contract terms might not bind a party other than the direct client. Furthermore, some of our licenses with our clients are governed by non-U.S. law, and there is a risk that foreign law might give us less or different protection. Although we have not experienced any material product liability claims to date, a product liability suit or action claiming a breach of warranty, whether meritorious, could result in substantial costs and a diversion of management's attention and our resources.

Risks Related to Our Financial Obligations and Indebtedness

We have significant debt which may limit our business flexibility, access to capital, and/or increase our borrowing costs, which may adversely affect our operations and financial results.

As of December 31, 2022, we had \$600 million in aggregate principal indebtedness under our Notes and have outstanding letters of credit under our credit facility, including a \$25 million letter of credit obtained to secure the judgment in our litigation with Appian.

Our indebtedness may:

- limit our ability to borrow additional funds for working capital, capital expenditures, acquisitions, or other general business purposes;
- limit our ability to use our cash flow or obtain additional financing for future working capital, capital expenditures, acquisitions, or other general business purposes;
- require us to use a substantial portion of our cash flow from operations to make debt service payments;
- limit our flexibility to plan for, or react to, changes in our business and industry;
- place us at a competitive disadvantage compared to less leveraged competitors;
- dilute existing stockholders from the issuance of common stock if the Notes are converted; and
- increase our vulnerability to the impact of adverse economic and industry conditions.

Our ability to pay our debt when due or refinance our indebtedness, including the Notes, depends on our future performance, which is subject to economic, financial, competitive, and other factors beyond our control. Our business may not generate sufficient cash flow from operations to service our debt and make necessary investments in our business. Our ability to refinance our indebtedness will depend on the capital market conditions and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations. In turn, this could result in that and our other indebtedness becoming immediately payable in full which could materially adversely affect our financial condition, results of operation or cost of borrowing.

We may require additional capital in the future.

We may require additional capital in the future to finance our operations. If we raise funds through future issuance of equity or convertible debt securities, our existing stockholders could suffer significant dilution, and any new equity securities we issue could have rights, preferences, and privileges superior to those of holders of our common stock. Any future debt financing could involve restrictive covenants relating to our capital raising activities and other financial and operations matters, which may increase the risks related to our business and our ability to service and repay our indebtedness.

The conditional conversion feature of the Notes, if triggered, may adversely affect our financial condition and operating results.

Under certain circumstances, the noteholders may convert their Notes at their option prior to the scheduled maturity at the current conversion rate of 7.4045 shares of common stock per each \$1,000 principal amount of Notes or an effective conversion price of \$135.05 per share. Upon conversion of the Notes, unless we elect to deliver solely shares of our common stock to settle such conversion, we will be obligated to make cash payments. In addition, holders of our Notes will have the right to require us to repurchase their Notes upon the occurrence of a fundamental change (as defined in the indenture, dated as of February 24, 2020, between U.S. Bank National Association, as trustee (the “Trustee”) and us (the “Indenture”)), at a repurchase price equal to 100% of the principal amount of the Notes to be repurchased, plus accrued and unpaid interest, if any, to, but not including, the fundamental change repurchase date. Although it is our intention and we currently expect to settle the conversion value of the Notes in cash up to the principal amount and any excess in shares, there is a risk that we may not have enough available cash or be able to obtain financing at the time we are required to make repurchases of Notes surrendered therefor or Notes being converted. In addition, our ability to make payments may be limited by law, regulatory authority, or agreements governing our future indebtedness. Our failure to repurchase Notes when the Indenture requires the repurchase or to pay any cash payable on the Notes’ future conversions as required by the Indenture would constitute a default under the Indenture. A default under the Indenture or the fundamental change itself could also lead to a default under agreements governing our future indebtedness. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the Notes or make cash payments upon conversions thereof. In addition, even if holders of Notes do not elect to convert their Notes, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the Notes as a current rather than long-term liability, which would result in a material reduction of our net working capital.

The Capped Call Transactions may affect the value of the Notes and our common stock.

In connection with the Notes’ issuance, we entered into Capped Call Transactions with certain financial institutions (“option counterparties”). The Capped Call Transactions are generally expected to reduce the potential dilution of our common stock upon any conversion of the Notes and/or offset any cash payments we are required to make in excess of the principal amount of converted Notes, with such reduction and/or offset subject to a cap. From time to time, the option counterparties or their respective affiliates may modify their hedge positions by entering into or unwinding derivative transactions with respect to our common stock and/or purchasing or selling our common stock or other securities of ours in secondary market transactions before the maturity of the Notes. This activity could cause a decrease in the market price of our common stock.

We are exposed to counterparty risk for the Capped Call Transactions.

The option counterparties are financial institutions, and we are subject to the risk that one or more of the option counterparties may default or otherwise fail to perform, or may exercise certain rights to terminate, their obligations under the Capped Call Transactions. Our exposure to the credit risk of the option counterparties is not secured by any collateral. If an option counterparty becomes subject to insolvency proceedings, we will become an unsecured creditor with a claim equal to our exposure at the time under such transaction. Our exposure depends on many factors, but our exposure will generally increase if the market price or the volatility of our common stock increases. In addition, upon default or other failures to perform, or termination of obligations, by an option counterparty, we may suffer more dilution in our common stock than we currently anticipate. We can provide no guarantee as to the financial stability or viability of the option counterparties.

Provisions in the Notes’ Indenture may deter or prevent a business combination that may be favorable to our stockholders.

If a fundamental change occurs prior to the Notes’ maturity date, holders of the Notes will have the right, at their option, to require us to repurchase all or a portion of their Notes. In addition, if a “make-whole fundamental change” (as defined in the Indenture) occurs prior to the maturity date, we will in some cases be required to increase the conversion rate of the Notes for a holder that elects to convert its Notes in connection with such make-whole fundamental change.

Furthermore, the Indenture prohibits us from engaging in certain mergers or acquisitions unless, among other things, the surviving entity assumes our obligations under the Notes. These and other provisions in the Indenture could deter or prevent a third party from acquiring us even when the acquisition may be favorable to our stockholders.

Conversion of the Notes may dilute the ownership interest of existing stockholders.

If the Notes were converted, there would be dilution of the ownership interests of existing stockholders to the extent we deliver shares of our common stock upon conversion of any of the Notes. Any sales in the public market of the common stock issuable upon such conversion could adversely affect our common stock's prevailing market prices. In addition, the existence of the Notes may encourage short selling by market participants because the conversion of the Notes could be used to satisfy short positions, or anticipated conversion of the Notes into shares of our common stock could depress the price of our common stock.

We are required to comply with certain financial and operating covenants under our revolving credit facility. Failure to comply with these covenants could cause amounts borrowed to become immediately due and payable and/or prevent us from borrowing under the credit facility.

We must comply with specified financial and operating covenants under our credit facility and make payments, limiting our ability to operate our business as we otherwise might. Our failure to comply with any of these covenants or to meet any debt payment obligations could result in an event of default which, if not cured or waived, would result in any amounts outstanding, including any accrued interest and/or unpaid fees, becoming immediately due and payable. We might not have sufficient working capital or liquidity to satisfy any repayment obligations in the event of an acceleration of those obligations. In addition, if we are not in compliance with the financial and operating covenants under the credit facility at the time we wish to borrow funds, we will be unable to borrow funds. The financial and operating covenants under the credit facility may limit our ability to borrow funds or capital, including for strategic acquisitions, share repurchases, and other general corporate purposes.

Risks Related to Intellectual Property and Government Regulation

We face risks related to intellectual property claims or appropriation of our intellectual property rights.

We rely primarily on a combination of patent, copyright, trademark, and trade secrets laws, as well as intellectual property and confidentiality agreements to protect our proprietary rights. We also try to control access to and distribution of our technologies and other proprietary information. We have obtained patents in strategically important global markets relating to the architecture of our systems. We cannot be certain that such patents will not be challenged, invalidated, or circumvented, or that rights granted thereunder, or the claims contained therein will provide us with competitive advantages. Moreover, despite our efforts to protect our proprietary rights, unauthorized parties may attempt to copy aspects of our software or to obtain the use of information that we regard as proprietary. Although we generally enter into intellectual property and confidentiality agreements with our employees and strategic partners, despite our efforts our former employees may seek employment with our business partners, clients, or competitors, and there can be no assurance that the confidential nature of our proprietary information will be maintained. In addition, the laws of some foreign countries do not protect our proprietary rights as effectively as they do in the U.S. There can be no assurance that our means of protecting our proprietary rights will be adequate or that our competitors will not independently develop similar technology.

Other companies or individuals have obtained proprietary rights covering a variety of designs, processes, and systems. Third parties have claimed and may in the future claim that we have infringed or otherwise violated their intellectual property. We are currently party to litigation with Appian Corp. - see Part I, Item 3 "Legal Proceedings", "Note 20. Commitments And Contingencies" in the "Notes to Consolidated Financial Statements" included in Part II, Item 8 of this Annual Report and the preceding risk factor captioned "If we are unsuccessful in the appeal of the trial court judgment in our litigation with Appian Corp., our operating results and financial condition would be adversely impacted."

Although we attempt to limit the amount and type of our contractual liability for infringement or other violation of the proprietary rights of third parties and assert ownership of work product and intellectual property rights as appropriate, there are often exceptions, and limitations may not be applicable and enforceable in all cases. Even if limitations are found to be applicable and enforceable, our liability to our clients for these types of claims could be material given the size of certain of our transactions. We expect that software product developers, including us, will increasingly be subject to infringement and other intellectual property violation claims as the number of products and competitors in our industry segment grows and the functionality of products in different industry segments overlaps. As evidenced by our previously mentioned litigation with Appian Corp., depending on when and how asserted, these claims, with or without merit, are often time-consuming, result in costly litigation and subject us to significant liability for damages. It is also possible that these claims result in treble damages if we are found to have willfully infringed patents or copyrights, cause product shipment and delivery delays, require us to enter into royalty or licensing agreements, or preclude us from making and selling the infringing software, if such proprietary rights are found to be valid. Royalty or licensing agreements, if required, may not be available on terms acceptable to us or at all. Even if a license were available, we could be required to pay significant royalties, which would increase our operating expenses. As a result, we may be required to develop alternative non-infringing technology, which could require substantial effort and cost. If we cannot license or develop technology for any infringing aspect of our business, we would be forced to limit or stop sales of our software and may be unable to compete effectively, which could have a material effect upon our business, operating results, and financial condition.

Intellectual property rights claims by third parties are extremely costly to defend, could require us to pay significant damages, and could limit our ability to use certain technologies.

Companies in the software and technology industries, including some of our current and potential competitors, own large numbers of patents, copyrights, trademarks, and trade secrets and frequently enter into litigation based on allegations of infringement or other violations of intellectual property rights. In addition, many of these companies can dedicate greater resources to enforce their intellectual property rights and to defend claims that may be brought against them. The litigation may involve patent holding companies or other adverse patent owners that have no relevant product revenues and against which our patents may, therefore, provide little or no deterrence. Third parties have claimed and may claim in the future that we have misappropriated, misused, or infringed other parties' intellectual property rights, and, to the extent we gain greater market visibility, we face a higher risk of being the subject of intellectual property claims.

Any litigation regarding intellectual property could be costly and time-consuming and could divert the attention of our management and key personnel from our business operations. Significant judgments are required for the determination of probability and the range of the outcomes in any legal dispute, and the estimates are based only on the information available to us at the time. Due to the inherent uncertainties involved in claims, legal proceedings, and in estimating the losses that may arise, actual outcomes may differ from our estimates. Contingencies deemed not probable or for which losses were not estimable in one period may become probable, or losses may become estimable in later periods which may have a material impact on our results of operations and financial position. Intellectual property disputes could subject us to significant liabilities, require us to enter into royalty and licensing arrangements on unfavorable terms, prevent us from manufacturing or licensing certain of our products, cause severe disruptions to our operations or the markets in which we compete or require us to satisfy indemnification commitments to our customers. Any of these could seriously harm our business. We are currently party to litigation with Appian Corp. - see Part I, Item 3 "Legal Proceedings", "Note 20. Commitments And Contingencies" in the "Notes to Consolidated Financial Statements" included in Part II, Item 8 of this Annual Report and the preceding risk factor captioned "If we are unsuccessful in the appeal of the trial court judgment in our litigation with Appian Corp., our operating results and financial condition would be adversely impacted." While we continue to believe that we have the financial strength to pay these amounts if it ever becomes necessary, it is possible that we may not be able to engage in these activities on desirable terms, which could have a material adverse effect on our business, financial condition, and operating results.

Our success depends in part on maintaining and increasing our sales to clients in the public sector.

We derive a portion of our revenues from contracts with domestic and foreign governments and related agencies. We believe that our business's success and growth will continue to depend on our successful procurement of government contracts. Selling to government entities can be highly competitive, expensive, and time-consuming, often requiring significant upfront time and expense without any assurance that our efforts will produce any sales.

Factors that could impede our ability to maintain or increase the revenue derived from government contracts include:

- changes in fiscal or contracting policies;
- decreases in available government funding;
- changes in government programs or applicable requirements;
- the adoption of new laws or regulations or changes to existing laws or regulations;
- potential delays or changes in the government appropriations or other funding authorization processes;
- governments and governmental agencies requiring contractual terms that are unfavorable to us, such as most-favored-nation pricing provisions; and
- delays in the payment of our invoices by government payment offices.

The occurrence of any of those factors could cause governments and governmental agencies to delay or refrain from purchasing our software in the future or otherwise harm our business, results of operations, financial condition, and cash flows.

Further, to increase our sales to clients in the public sector, we must comply with laws and regulations relating to the formation, administration, performance, and pricing of contracts with the public sector, including U.S. federal, state, and local governmental bodies, which affect how our channel partners and we do business in connection with governmental agencies. These laws and regulations may impose added costs on our business, and failure to comply with these laws and regulations or other applicable requirements, including non-compliance in the past, could lead to claims for damages from our channel partners or government clients, penalties, termination of contracts, loss of intellectual property rights, and temporary suspension or permanent debarment from government contracting. Any such damages, penalties, disruptions, or limitations in our ability to do business with the public sector could have a material adverse effect on our business, results of operations, financial condition, and cash flows.

We are subject to increasingly complex U.S. and foreign laws and regulations, requiring costly compliance measures. Any failure to comply with these laws and regulations could subject us to, among other things, penalties and legal expenses that could harm our reputation or otherwise have a material adverse effect on our business, financial condition, and results of operations.

We are subject to extensive federal, state, and foreign laws and regulations, including but not limited to the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act, data privacy and security laws, and similar laws and regulations. The U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act, and similar foreign anti-bribery laws generally prohibit companies and their intermediaries from making improper payments to obtain or retain business. Similar laws and regulations exist in many other countries where we do or intend to do business.

Within recent years, there has been an increase in the scope and enforcement of data privacy laws in the jurisdictions in which we do business. The European Parliament adopted the General Data Protection Regulation (“GDPR”), effective May 2018, that extended the scope of European privacy laws to any entity that controls or processes personal data of European Union residents in connection with the offer of goods or services or the monitoring of behavior and imposes new compliance obligations concerning the handling of personal data. The California Consumer Privacy Act (“CCPA”), effective January 2020, requires, among other things, covered companies to provide new disclosure to consumers about such companies’ data collection, use and sharing practices, provide such consumers new ways to opt-out of certain sales or transfers of personal information, and provide consumers with additional causes of action. The CCPA was modified as of January 1, 2023 by the California Privacy Rights Act (“CPRA”) which expands California consumers’ rights with respect to sensitive personal information and which created a new state agency that is vested with authority to implement and enforce the CCPA and CPRA. Compliance with these varying regimes has caused and will cause us to incur additional costs, including as may result from any non-compliance or asserted non-compliance.

We have developed and implemented a compliance program based on what we believe are reasonable practices, including the background checking of our current partners and prospective clients and partners. We cannot guarantee, however, that we, our employees, our consultants, our partners, or our contractors are or will be compliant with all federal, state, and foreign regulations, particularly as we expand our operations outside of the U.S. If our representatives or we fail to comply with any of these laws or regulations, a range of fines, penalties, and/or other sanctions could be imposed on us, which could have a material adverse effect on our business, financial condition, and results of operations. Even if we are determined not to have violated these laws, government inquiries into these issues typically require the expenditure of significant resources and generate negative publicity, which could also harm our business. In addition, regulation of data privacy and security laws is increasing worldwide, including various restrictions on cross-border access or transfer of data, including personal data of our employees, our clients, and customers of our clients. Compliance with such regulations may increase our costs, and there is a risk of enforcement of such laws resulting in damage to our brand, as well as financial penalties and the potential loss of business, which could be significant.

Our tax exposures could be greater than anticipated.

The determination of our worldwide provision for income taxes and other tax liabilities requires estimation and significant judgment and there are many transactions and calculations where the ultimate tax determination is uncertain. Like many other multinational corporations, we are subject to tax in multiple U.S. and foreign jurisdictions. The determination of our tax liability is always subject to audit and review by applicable domestic and foreign tax authorities. We are undergoing inquiries, audits, and reviews by various taxing authorities. Any adverse outcome of any such audit or review could harm our business, and the ultimate tax outcome may differ from the amounts recorded in our financial statements and may materially affect our financial results in the period or periods for which such determination is made. While we have established reserves based on assumptions and estimates that we believe are reasonable to cover such eventualities, these reserves may prove insufficient.

In addition, our future income taxes could be materially adversely affected by a shift in our jurisdictional income mix, by changes in the valuation of our deferred tax assets and liabilities, because of changes in tax laws, regulations, or accounting principles, as well as by certain discrete items. In the United States, such tax law changes will include the impact of the currently enacted mandatory capitalization of research and experimentation expenses, effective for tax years beginning after December 31, 2021 unless the effective date is retroactively postponed by the United States Congress. Globally, the Organization for Economic Cooperation and Development Inclusive Framework on Base Erosion and Profit Shifting is advancing fundamental changes to the international corporate tax system creating new rules for allocating rights to tax global income and a global minimum tax.

Considering fiscal challenges in many jurisdictions, various levels of government are increasingly focused on tax reform and other legislative actions to increase tax revenue, including corporate income taxes. Several U.S. states have attempted to increase corporate tax revenues by taking an expansive view of corporate presence to attempt to impose corporate income taxes and other direct business taxes on companies that have no physical presence in their state, and taxing authorities in foreign jurisdictions may take similar actions. Many U.S. states are also altering their apportionment formulas to increase the amount of taxable income or loss attributable to their state from certain out-of-state businesses. Similarly, in Europe and elsewhere globally, various tax reform efforts underway are designed to increase the taxes paid by corporate entities.

If it becomes necessary or desirable to repatriate our foreign cash balances to the United States, we may be subject to increased taxes, other restrictions, and limitations.

As of December 31, 2022, \$48.8 million of our cash and cash equivalents were held in our foreign subsidiaries. If it becomes necessary or desirable to repatriate these funds, we may be required to pay federal, state, and local income and foreign withholding taxes upon repatriation. We consider the earnings of our foreign subsidiaries to be permanently reinvested. As a result, domestic and foreign taxes on such earnings have not been provided in our financial statements. It is not practical to estimate the amount of tax we would have to pay upon repatriation due to the complexity of the tax laws and other factors.

General Risk Factors

The provision in our amended and restated bylaws, requiring exclusive forum in certain courts in The Commonwealth of Massachusetts or the federal district court for the District of Massachusetts for certain types of lawsuits, may discourage lawsuits against us and our directors, officers, and employees.

Our amended and restated bylaws provide that unless we consent in writing to the selection of an alternative forum, the Business Litigation Section of the Superior Court of Suffolk County, Massachusetts (the “BLS”) or, if the BLS lacks jurisdiction, the federal district court for the District of Massachusetts, Eastern Division, shall be the exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, or other employees to us or our stockholders, (iii) any action asserting a claim arising pursuant to the Massachusetts Business Corporation Act (the “MBCA”), our articles of organization, or our bylaws (as each may be amended from time to time), or (iv) any action asserting a claim governed by the internal affairs doctrine.

The choice of forum provision may increase costs to bring a claim, discourage claims, or limit a stockholder’s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees, which may discourage such lawsuits against us or our directors, officers, and other employees. Alternatively, if a court were to find the choice of forum provision in our amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions. The exclusive forum provision in our amended and restated bylaws will not preclude or contract the scope of exclusive federal or concurrent jurisdiction for actions brought under the federal securities laws, including the Securities Exchange Act of 1934, as amended, or the Securities Act of 1933, as amended, or the respective rules and regulations promulgated thereunder.

Material adverse developments in global economic conditions, or the occurrence of certain other world events, could affect demand for our products, increase our costs of operation and harm our business.

Global economic uncertainty has produced, and continues to produce, substantial stress, volatility, illiquidity and disruption of global credit and other financial markets. Various factors contribute to the uncertain economic environment, including the level and volatility of interest rates, high inflation, the conflict between Russia and Ukraine, the continuing effects of the COVID-19 pandemic, an actual recession or fears of a recession, trade policies and tariffs, and geopolitical tensions. Economic uncertainty has and could continue to negatively affect the business and purchasing decisions of companies in industries in which our customers operate. As global economic conditions experience stress and negative volatility, or if there is an escalation in regional or global conflicts, the ability and willingness of our customers to make investments in technology may be impacted, which in turn may delay or reduce the purchases of our software and services and also impact the ability and willingness of our customers to pay amounts due to us or otherwise honor their contractual commitments. These clients may also become subject to increasingly restrictive regulatory requirements, which could limit or delay their ability to proceed with technology purchases and may result in longer sales cycles, increased price competition, and reductions in sales of our products and services. At the same time, factors such as inflation may increase our costs of operation. The combination of these factors could negatively impact our business, operating results, and financial condition.

Actual or threatened public health emergencies could harm our business.

Our business and operations could be adversely affected by health epidemics, including the current COVID-19 pandemic, impacting the markets and communities in which we, our partners and clients operate. The COVID-19 pandemic has caused significant disruption to the business and financial markets, and there remains uncertainty about the duration of this disruption on both a nationwide and global level, as well as the ongoing effect on our business. The full extent to which the COVID-19 pandemic will directly or indirectly impact our business, results of operations and financial condition will depend on future developments that are uncertain and unpredictable. We continue to monitor the COVID-19 situation and potential effects on our business and operations. While the spread and impact of COVID-19 has stabilized, there is no guarantee that a future outbreak of this or any other widespread epidemics will not occur.

The market price of our common stock has been and is likely to continue to be volatile.

The market price of our common stock may be highly volatile and fluctuate due to a variety of factors, some of which are related in complex ways.

Factors that may affect the market price of our common stock include:

- actual or anticipated fluctuations in our financial condition and operating results;
- variance in our financial performance from expectations of securities analysts;
- changes in our projected operating and financial results;
- changes in the prices of our products and professional services;
- changes in laws or regulations applicable to our products or services;
- announcements by our competitors or us of significant business developments, acquisitions, or new offerings;
- our involvement in any litigation or investigations by regulators, including litigation judgments, settlements, or other litigation-related costs;
- our sale of our common stock or other securities;
- changes in our Board of Directors, senior management, or key personnel;
- the trading volume of our common stock;
- price and volume fluctuations in the overall stock market;
- changes in the anticipated future size and growth rate of our market; and
- general economic, regulatory, political, and market conditions.

Broad market and industry fluctuations, as well as general economic, regulatory, political, and market conditions, may negatively impact the market price of our common stock. In the past, companies that have experienced volatility in the market price of their securities have been subject to securities class action litigation. We may be the target of this type of litigation in the future, which could result in substantial costs and divert our management's attention.

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

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

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

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

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our principal administrative, sales, marketing, support, and research and development operations are in Cambridge, Massachusetts, Waltham, Massachusetts, and Hyderabad, India. We also maintain offices elsewhere in the Americas, Europe, and the Asia-Pacific regions. All of our properties are leased. We believe we will be able to obtain future space as needed on acceptable and commercially reasonable terms.

See "Note 11. Leases" in Item 8 of this Annual Report for additional information.

ITEM 3. LEGAL PROCEEDINGS

The information set forth in "Note 20. Commitments And Contingencies" in the "Notes to Consolidated Financial Statements" included in Part II, Item 8 of this Annual Report is incorporated herein by reference.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market information

Our common stock is quoted on the NASDAQ Global Select Market under the symbol "PEGA."

Holders

As of February 6, 2023, we had 51 stockholders of record.

Dividends

During 2022, 2021, and 2020, we paid a quarterly cash dividend of \$0.03 per share of common stock. We currently expect to pay a quarterly cash dividend of \$0.03 per share, however, the Board of Directors may terminate or modify this dividend program without prior notice.

Issuer purchases of equity securities ⁽¹⁾

Common stock repurchased in the three months ended December 31, 2022:

<i>(in thousands, except per share amounts)</i>	Total Number of Shares Purchased ⁽²⁾	Average Price Paid per Share ⁽²⁾	Total Number of Shares Purchased as Part of Publicly Announced Share Repurchase Program	Approximate Dollar Value of Shares That May Yet Be Purchased at Period End Under Publicly Announced Share Repurchased Programs
October 1, 2022 - October 31, 2022	43	\$ 32.48	—	\$ 58,075
November 1, 2022 - November 30, 2022	44	\$ 35.55	—	\$ 58,075
December 1, 2022 - December 31, 2022	82	\$ 36.28	—	\$ 58,075
Total	<u>169</u>	\$ 35.13		

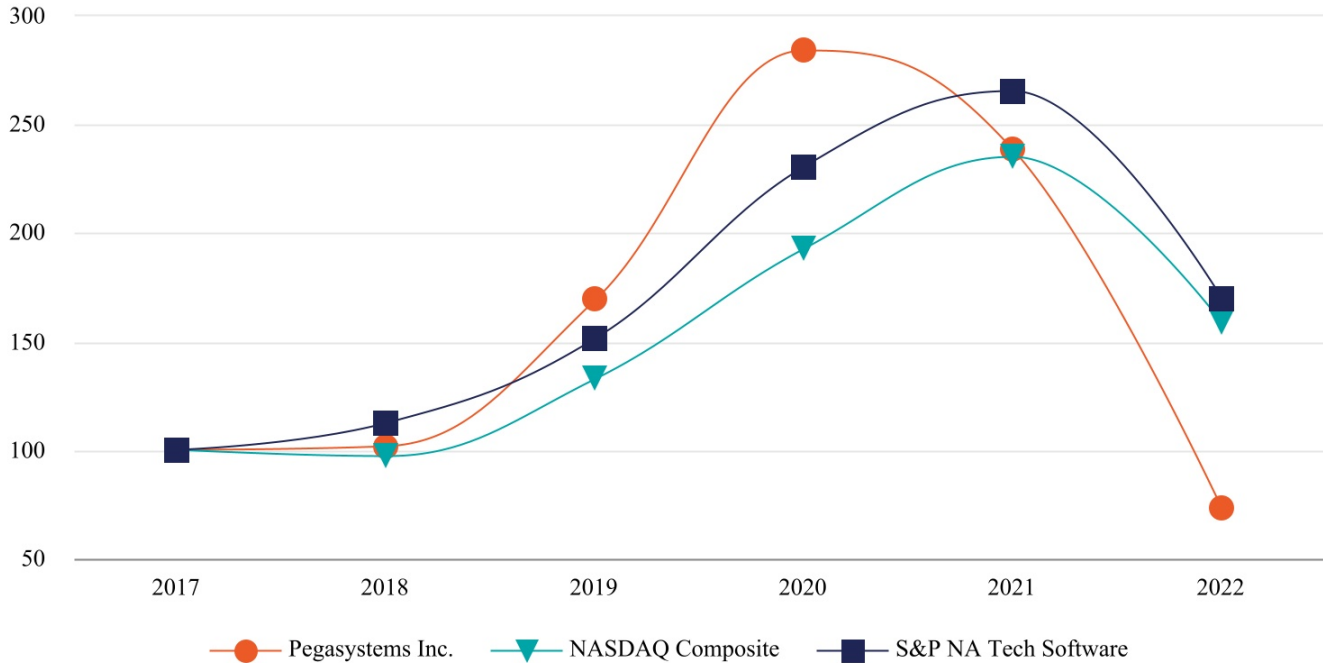
(1) See "Stock repurchase program" in Item 7 of this Annual Report for additional information.

(2) Shares withheld to cover the option exercise price and tax withholding obligations under the net settlement provisions of our stock compensation awards have been included in these amounts.

Stock performance graph and cumulative total stockholder return ⁽¹⁾

The following performance graph represents a comparison of the cumulative total stockholder return, assuming the reinvestment of dividends, for a \$100 investment on December 31, 2017 in our common stock, the Total Return Index for the NASDAQ Composite, a broad market index, and the Standard & Poor’s (“S&P”) North American Technology Sector - Software Index™ (“S&P NA Tech Software”), a published industry index.

Comparison of 5 Year Cumulative Total Return



	December 31,					
	2017	2018	2019	2020	2021	2022
Pegasystems Inc.	\$ 100.00	\$ 101.65	\$ 169.54	\$ 283.95	\$ 238.47	\$ 73.22
NASDAQ Composite	\$ 100.00	\$ 97.16	\$ 132.81	\$ 192.47	\$ 235.15	\$ 158.65
S&P NA Tech Software	\$ 100.00	\$ 112.64	\$ 151.60	\$ 230.28	\$ 265.50	\$ 169.86

(1) The graph lines merely connect measurement dates and do not reflect fluctuations between those dates.

ITEM 6. [RESERVED]

ITEM 7. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

BUSINESS OVERVIEW

We develop, market, license, host, and support enterprise software that helps organizations build agility into their business so they can adapt to change. Our powerful low-code platform for workflow automation and artificial intelligence-powered decisioning enables the world’s leading brands and government agencies to hyper-personalize customer experiences, streamline customer service, and automate mission-critical business processes and workflows. With Pega, our clients can leverage our intelligent technology and scalable architecture to accelerate their digital transformation. In addition, our client success teams, world-class partners, and clients leverage our Pega Express™ methodology to design and deploy mission-critical applications quickly and collaboratively.

Our target clients are Global 2000 organizations and government agencies that require solutions to distinguish themselves in the markets they serve. Our solutions achieve and facilitate differentiation by increasing business agility, driving growth, improving productivity, attracting and retaining customers, and reducing risk. Along with our partners, we deliver solutions tailored to the specific industry needs of our clients.

Subscription transition

We are transitioning our business to sell software primarily through subscription arrangements. Until we fully complete our subscription transition, which we expect will occur in 2023, our operating results may be impacted. Operating performance, revenue mix, and new arrangements in each period can fluctuate based on client preferences for our perpetual and subscription offerings. See risk factor "If we fail to manage our transition to a more subscription-based business model successfully, our results of operations and/or cash flows could be negatively impacted" in Item 1A of this Annual Report for additional information.

Ukraine

Our direct financial exposure to Ukraine, Russia, and Belarus is not material. In 2021, before Russia's invasion of Ukraine, we made a business decision to stop pursuing new clients in Russia and closed our local office. However, the ultimate impact of Russia's invasion of Ukraine on our business will depend on future developments, including the duration and spread of the conflict and the impact on our people, partners, clients, and vendors in neighboring countries and globally, all of which are uncertain and unpredictable.

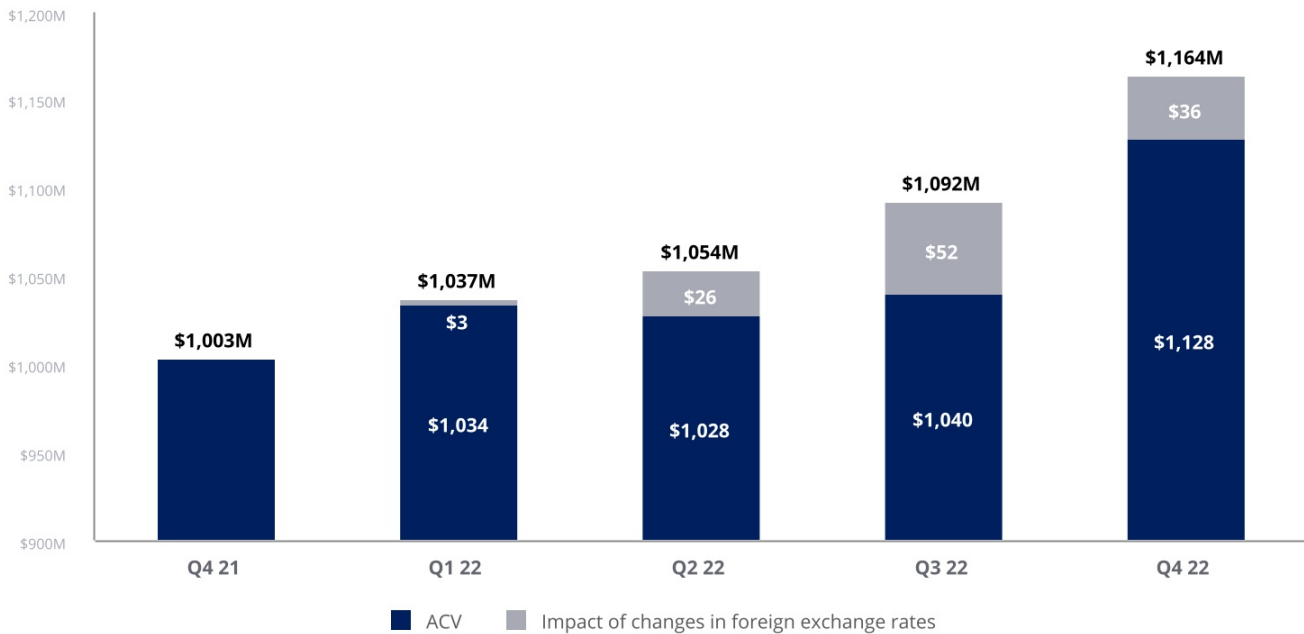
Performance metrics

We use performance metrics to analyze and assess our overall performance, make operating decisions, and forecast and plan for future periods, including:

Annual contract value ("ACV")

ACV represents the annualized value of our active contracts as of the measurement date. The contract's total value is divided by its duration in years to calculate ACV for subscription license and Pega Cloud contracts. Maintenance revenue for the quarter then ended is multiplied by four to calculate ACV for maintenance. ACV is a performance measure that we believe provides useful information to our management and investors, particularly during our subscription

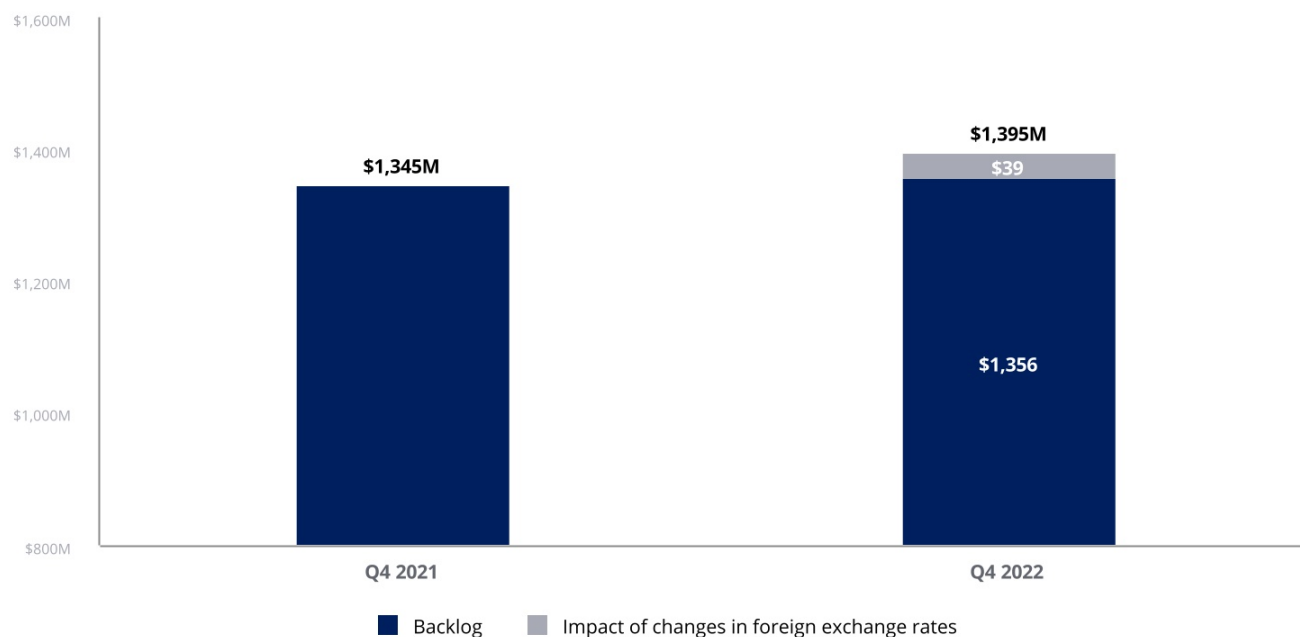
ACV Growth
13% (16% Constant Currency)
Since December 31, 2021



transition.

Remaining performance obligations (“Backlog”)

Backlog Growth
1% (4% Constant Currency)
Since December 31, 2021



Reconciliation of GAAP Backlog and Constant Currency Backlog

(in millions, except percentages)

	Q4 2022	1 Year Growth Rate
Backlog	\$ 1,356	1 %
Impact of changes in foreign exchange rates	39	3 %
Backlog - Constant Currency	\$ 1,395	4 %

Note: Constant currency measures are calculated by applying foreign exchange rates for the earliest period shown to all periods. The above constant currency measures reflect foreign exchange rates applicable as of Q4 2021. We believe that non-GAAP financial measures help investors understand our core operating results and prospects, consistent with how management measures and forecasts our performance without the effect of often one-time charges and other items outside our normal operations. The supplementary non-GAAP financial measures are not meant to be superior to or a substitute for financial measures prepared under U.S. GAAP.

Free Cash Flow ⁽¹⁾

	Year Ended December 31,		Change
	2022	2021	
(in thousands, except percentages)			
Cash provided by operating activities	\$ 22,336	\$ 39,118	(43)%
Investment in property and equipment	(35,379)	(10,456)	
Legal fees	41,789	11,390	
Interest on convertible senior notes	4,500	4,500	
Facilities	—	(18,000)	
Other	6,805	115	
Free cash flow	\$ 40,051	\$ 26,667	50 %
Total Revenue	\$ 1,317,845	\$ 1,211,653	
Free cash flow margin	3 %	2 %	

* not meaningful

(1) Our non-GAAP free cash flow measures reflect the following adjustments:

- **Investment in property and equipment:** Investment in property and equipment fluctuates in amount and frequency and is significantly affected by the timing and size of investments in our facilities. We believe excluding these amounts provides a useful comparison of our operational performance in different periods.
- **Legal Fees:** Includes legal and related fees arising from proceedings outside of the ordinary course of business. We believe excluding these expenses from our non-GAAP financial measures is useful to investors as the disputes giving rise to them are not representative of our core business operations and ongoing operating performance.
- **Interest on convertible senior notes:** In February 2020, we issued convertible senior notes with an aggregate principal amount of \$600 million, due March 1, 2025, in a private placement. We believe excluding the interest payments provides a useful comparison of our operational performance in different periods.
- **Facilities:** In February 2021, we agreed to accelerate our exit from our then Cambridge, Massachusetts headquarters to October 1, 2021, in exchange for a one-time payment from our landlord of \$18 million, which was received in October 2021. We believe excluding the impact from our non-GAAP financial measures is useful to investors as the modified lease, including the \$18 million payment, is not representative of our core business operations and ongoing operating performance.
- **Other:** We have excluded capital advisory fees and fees incurred due to the cancellation of in-person sales and marketing events. We believe excluding these amounts from our non-GAAP financial measures is useful to investors as the types of events giving rise to them are not representative of our core business operations and ongoing operating performance.

RESULTS OF OPERATIONS

Revenue

Subscription transition

We are transitioning our business to sell software primarily through subscription arrangements.

This transition has impacted revenue growth as revenue from subscription service arrangements, which includes Pega Cloud and maintenance, is typically recognized over the contract term, while revenue from license sales is recognized when the license rights become effective, typically upfront.

	2022		2021		Change	
Pega Cloud	\$ 384,271	29 %	\$ 300,966	25 %	\$ 83,305	28 %
Maintenance	317,564	24 %	320,257	26 %	(2,693)	(1)%
Subscription services	701,835	53 %	621,223	51 %	80,612	13 %
Subscription license	366,063	28 %	336,248	28 %	29,815	9 %
Subscription	1,067,898	81 %	957,471	79 %	110,427	12 %
Perpetual license	19,293	1 %	32,172	3 %	(12,879)	(40)%
Consulting	230,654	18 %	222,010	18 %	8,644	4 %
	<u>\$ 1,317,845</u>	<u>100 %</u>	<u>\$ 1,211,653</u>	<u>100 %</u>	<u>\$ 106,192</u>	<u>9 %</u>

The revenue change in 2022 generally reflects the impact of our subscription transition.

Other factors impacting our revenue include:

- The U.S. dollar has strengthened against foreign currencies in our operating markets, which reduced total revenue growth by approximately 4 percent.
- The decrease in maintenance revenue was primarily due to the continuing shift to Pega Cloud.
- The increase in consulting revenue was primarily due to an increase in consultant billable hours in North America.

Gross profit

	2022		2021		Change	
Pega Cloud	\$ 267,523	70 %	\$ 202,171	67 %	\$ 65,352	32 %
Maintenance	295,576	93 %	298,606	93 %	(3,030)	(1)%
Subscription services	563,099	80 %	500,777	81 %	62,322	12 %
Subscription license	363,421	99 %	333,859	99 %	29,562	9 %
Subscription	926,520	87 %	834,636	87 %	91,884	11 %
Perpetual license	19,118	99 %	31,943	99 %	(12,825)	(40)%
Consulting	3,572	2 %	8,711	4 %	(5,139)	(59)%
	<u>\$ 949,210</u>	<u>72 %</u>	<u>\$ 875,290</u>	<u>72 %</u>	<u>\$ 73,920</u>	<u>8 %</u>

The gross profit change in 2022 was primarily due to a shift in the revenue mix.

- The increase in Pega Cloud gross profit percent was primarily due to cost-efficiency gains as Pega Cloud grows and scales.
- The decrease in consulting gross profit percent was due to an increase in consultant availability.

Operating expenses

(Dollars in thousands)	2022		2021		Change	
	\$	% of Revenue	\$	% of Revenue	\$	%
Selling and marketing	\$ 624,789	47 %	\$ 625,886	52 %	\$ (1,097)	— %
Research and development	\$ 294,349	22 %	\$ 260,630	22 %	\$ 33,719	13 %
General and administrative	\$ 117,734	9 %	\$ 83,506	7 %	\$ 34,228	41 %
Restructuring	\$ 21,743	2 %	\$ —	— %	\$ 21,743	*

* not meaningful

- The decrease in selling and marketing was primarily due to a decrease in marketing programs of \$12.1 million, partially offset by an increase in professional services of \$4.9 million and an increase in facilities expense of \$4.9 million.
- The increase in research and development was primarily due to an increase in compensation and benefits of \$24.2 million, attributable to an increase in headcount and incentive compensation, and an increase in facilities expense of \$4.2 million. The increase in headcount reflects additional investments in developing our solutions.
- The increase in general and administrative was primarily due to an increase in compensation and benefits of \$8.4 million, an increase in facilities expense of \$2.9 million, and an increase in legal fees and related expenses arising from litigation proceedings outside the ordinary course of business of \$16.4 million. We have incurred and expect to continue to incur additional costs for these proceedings in 2023. See "Note 20. Commitments And Contingencies" in Item 8 and Item 1A. "Risk Factors" in this Annual Report for additional information.
- During the fourth quarter of 2022, management committed to a restructuring plan aligned with our target organization go-to-market strategy and commitment to be a Rule of 40 managed company. The plan resulted in a restructuring expense of \$21.7 million in 2022, primarily associated with severance and benefits for impacted employees and expenses incurred as a result of the closure of our Salem, New Hampshire office.

Other income and expenses

(Dollars in thousands)	2022	2021	Change	
Foreign currency transaction gain (loss)	\$ 4,560	\$ (6,459)	\$ 11,019	*
Interest income	1,643	704	939	133 %
Interest expense	(7,792)	(7,956)	164	2 %
(Loss) gain on capped call transactions	(57,382)	(23,633)	(33,749)	(143)%
Other income, net	6,579	89	6,490	7,292 %
	<u>\$ (52,392)</u>	<u>\$ (37,255)</u>	\$ (15,137)	(41)%

* not meaningful

- The increase in foreign currency transaction gain (loss) was primarily due to the impact of fluctuations in foreign currency exchange rates associated with foreign currency-denominated cash and receivables held by our subsidiary in the United Kingdom.
- The increase in interest income was primarily due to increases in market interest rates.
- The increase in (loss) gain on capped call transactions was due to fair value adjustments for our capped call transactions. See "Note 14. Fair Value Measurements" in Item 8 of this Annual Report for additional information.
- The increase in other income, net was due to gains on our venture investments.

Provision for (benefit from) income taxes

(Dollars in thousands)	2022	2021
Provision for (benefit from) income taxes	\$ 183,785	\$ (68,947)
Effective income tax rate (benefit rate)	114 %	(52)%

The change in the effective income tax rate (benefit rate) in 2022 was primarily due to the recognition of a full valuation allowance of \$188.3 million on our U.S. and U.K. deferred tax assets.

LIQUIDITY AND CAPITAL RESOURCES

<i>(in thousands)</i>	2022	2021
Cash (used in) provided by		
Operating activities	\$ 22,336	\$ 39,118
Investing activities	13,075	72,503
Financing activities	(46,989)	(121,843)
Effect of exchange rate on cash and cash equivalents	(3,333)	(1,712)
Net (decrease) in cash and cash equivalents	<u>\$ (14,911)</u>	<u>\$ (11,934)</u>

<i>(in thousands)</i>	December 31,	
	2022	2021
Held in U.S. entities	\$ 248,389	\$ 274,813
Held in foreign entities	48,832	87,966
Total cash, cash equivalents, and marketable securities	<u>\$ 297,221</u>	<u>\$ 362,779</u>

We believe that our current cash, cash flow from operations, borrowing capacity, and ability to engage in capital market transactions will be sufficient to fund our operations, stock repurchases, and quarterly cash dividends for at least the next 12 months and to meet our known long-term cash requirements. Whether these resources are adequate to meet our liquidity needs beyond that period will depend on our future growth, operating results, and the investments needed to support our operations. We may utilize available funds or seek external financing if we require additional capital resources.

If it becomes necessary or desirable to repatriate these funds, we may be required to pay federal, state, and local income and foreign withholding taxes upon repatriation. However, due to the complexity of income tax laws and regulations, it is impracticable to estimate the amount of taxes we would have to pay. See risk factor "If it becomes necessary or desirable to repatriate our foreign cash balances to the United States, we may be subject to increased taxes, other restrictions, and limitations" in Item 1A of this Annual Report for additional information.

Cash provided by operating activities

We are transitioning our business to sell software primarily through subscription arrangements. This transition has impacted and is expected to continue affecting our billings and cash collections. Subscription licenses and services are typically billed and collected over the contract term, while perpetual license arrangements are generally billed and collected upfront when the license rights become effective.

The change in cash provided by operating activities in 2022 was primarily due to our subscription transition and increased costs as we invested in research and development to support the development of our offerings, partially offset by strong client collections. In addition, in 2022 and 2021, we incurred \$34.6 million and \$18.2 million in legal fees and related expenses arising from proceedings that originated outside of the ordinary course of business. We expect to continue to incur additional costs for these proceedings. See "Note 20. Commitments And Contingencies" in Item 8 and Item 1A. "Risk Factors" in this Annual Report for additional information.

Investing activities

The change in cash provided by investing activities in 2022 was primarily driven by our investments in financial instruments and capital expenditures for our recently completed office in Waltham, Massachusetts. See "Note 11. Leases" in Item 8 of this Annual Report for additional information.

Financing activities

Debt financing

In February 2020, we issued \$600 million in aggregate principal amount of convertible senior notes, which mature on March 1, 2025.

In November 2019, and as since amended, we entered into a five-year \$100 million senior secured revolving credit agreement (the "Credit Facility") with PNC Bank, National Association. As of December 31, 2022, we had no outstanding cash borrowings under the Credit Facility but had \$27.3 million in outstanding letters of credit which reduce the available borrowing capacity. See "Note 12. Debt" in Item 8 of this Annual Report for additional information.

Stock repurchase program

Changes in the remaining stock repurchase authority:

<i>(in thousands)</i>	2022
December 31, 2021	\$ 22,583
Authorizations ⁽¹⁾	60,000
Repurchases ⁽²⁾	(24,508)
December 31, 2022	\$ 58,075

(1) On June 2, 2022, we announced that our Board of Directors extended the current stock repurchase program's expiration date to June 30, 2023.

(2) Purchases under this program have been made on the open market.

Common stock repurchases

<i>(in thousands)</i>	2022		2021	
	Shares	Amount	Shares	Amount
Repurchases paid	280	\$ 24,508	422	\$ 52,411
Repurchases unpaid at period end	—	—	10	1,199
Stock repurchase program	280	24,508	432	53,610
Tax withholdings for net settlement of equity awards	342	20,620	550	69,925
	622	\$ 45,128	982	\$ 123,535

During 2022 and 2021, instead of receiving cash from the equity holders for the exercise price of options, we withheld shares with a value of \$14.3 million and \$56.1 million, respectively. These amounts have been excluded from the table above.

Dividends

<i>(in thousands)</i>	2022	2021
Dividend payments to stockholders	\$ 9,834	\$ 9,761

We intend to pay a quarterly cash dividend of \$0.03 per share. However, the Board of Directors may terminate or modify the dividend program without prior notice.

Contractual obligations

As of December 31, 2022, our contractual obligations were:

<i>(in thousands)</i>	Payments due by period						Total
	2023	2024	2025	2026	2027 and thereafter	Other	
Convertible senior notes ⁽¹⁾	\$ 4,500	\$ 4,500	\$ 602,250	\$ —	\$ —	\$ —	\$ 611,250
Purchase obligations ⁽²⁾	21,708	18,525	20,471	14,646	14	—	75,364
Operating lease obligations	18,476	17,101	14,444	10,860	49,079	—	109,960
Investment commitments	1,000	—	—	—	—	—	1,000
Liability for uncertain tax positions ⁽³⁾	—	—	—	—	—	3,207	3,207
	\$ 45,684	\$ 40,126	\$ 637,165	\$ 25,506	\$ 49,093	\$ 3,207	\$ 800,781

(1) Includes principal and interest.

(2) Represents the fixed or minimum amounts due under purchase obligations for hosting services, software subscriptions, and sales and marketing programs.

(3) We are unable to reasonably estimate the timing of the cash outflow due to uncertainties in the timing of the effective settlement of tax positions.

A detailed discussion and analysis of the 2021 year-over-year changes can be found in "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" of our Annual Report on Form 10-K for the year ended December 31, 2021.

CRITICAL ACCOUNTING ESTIMATES AND SIGNIFICANT JUDGMENTS

Management's discussion and analysis of the financial condition and results of operations is based upon our consolidated financial statements, which have been prepared following accounting principles generally accepted in the U.S. and the rules and regulations of the U.S. Securities and Exchange Commission for annual financial reporting. Preparing these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. We base our estimates and judgments on historical experience, knowledge of current conditions, and beliefs about what could occur in the future, given the available information.

We believe that of our significant accounting policies, described in "Note 2. Significant Accounting Policies" in Item 8 of this Annual Report, the following accounting policies are most important to the portrayal of our financial condition and require the most subjective judgment. Accordingly, these are the policies we believe are the most critical to aid in fully understanding and evaluating our consolidated financial condition and results of operations. If actual results differ significantly from management's estimates and projections, there could be a material effect on our financial statements.

Revenue recognition

Our client contracts typically contain promises by us to provide multiple products and services. Specifically, contracts associated with Pega Platform sales and other software applications, sold as licenses to use functional intellectual property or as a cloud-based solution, typically include consulting services. Determining whether such products and services within a client contract are considered distinct performance obligations that should be accounted for separately requires significant judgment. Accordingly, we review client contracts to identify all separate promises to transfer goods and services that would be considered performance obligations. Judgment is also required in determining whether an option to acquire additional products and services within a client contract represents a material right that the client would not receive without entering into that contract.

A contract modification is a legally binding change to an existing contract's scope, price, or both. Contract modifications are reviewed to determine whether they should be accounted for as part of the original contract or as a separate contract. This determination requires significant judgment, which could impact the timing of revenue recognition. We typically account for contract modifications prospectively as a separate contract. The additional performance obligation(s) in our contract modifications are generally distinct and priced at their stand-alone selling price.

We allocate the transaction price to the distinct performance obligations, including options in contracts determined to represent a material right, based on each performance obligation's relative stand-alone selling price. Judgment is required in estimating stand-alone selling prices. We maximize the use of observable inputs by maintaining pricing analyses that consider our pricing policies, historical stand-alone sales when they exist, and historical renewal prices charged to clients. We have concluded that the stand-alone selling prices of certain performance obligations, specifically software licenses and Pega Cloud arrangements, are highly variable. In these instances, we estimate the stand-alone selling prices using the residual approach, determined based on the total transaction price minus the stand-alone selling price of other performance obligations promised in the contract. We update our stand-alone selling price analysis periodically, including a re-assessment of whether the residual approach used to determine the stand-alone selling prices for software licenses and Pega Cloud arrangements remains appropriate.

Changes in the assumptions or judgments used in determining the performance obligations in client contracts and stand-alone selling prices could significantly impact the timing and amount of revenue we report in a particular period.

See "Note 2. Significant Accounting Policies", "Note 4. Receivables, Contract Assets, And Deferred Revenue", and "Note 15. Revenue" in Item 8 of this Annual Report for additional information.

Goodwill and intangible assets impairment

Our goodwill and intangible assets arise from our previous business acquisitions.

- Goodwill is tested for impairment at least annually or as circumstances indicate its value may no longer be recoverable.
- We do not have any intangible assets with indefinite useful lives other than goodwill.
- We perform our annual goodwill impairment test as of November 30th. To assess if goodwill is impaired, we first perform a qualitative assessment to determine whether further impairment testing is necessary. If, based on the qualitative assessment, we consider it more-likely-than-not that our reporting unit's fair value is less than its carrying amount, we perform a quantitative impairment test. An excess of carrying value over fair value would indicate that goodwill may be impaired.
- We periodically reevaluate our business and have determined that we have one operating segment and one reporting unit. If our assumptions change in the future, we may be required to record impairment charges to reduce our goodwill's carrying value. Changes in the valuation of goodwill could materially impact our operating results and financial position.

We evaluate our intangible assets for impairment whenever events or changes in circumstances indicate that such assets' carrying amount may not be recoverable. In evaluating potential impairment of these assets, we specifically consider whether any indicators of impairment are present, including, but not limited to:

- whether there has been a significant adverse change in the business climate that affects the value of an asset;
- whether there has been a significant change in the extent or way an asset is used; and
- whether it is expected that the asset will be sold or disposed of before the end of its originally estimated useful life.

If indicators of impairment are present, we compare the estimated undiscounted cash flows that the asset is expected to generate to the carrying value. The key assumptions of the cash flow model involve significant subjectivity. If such assets are impaired, an impairment is measured by the amount the asset's carrying value exceeds its fair value.

As of December 31, 2022, we had \$81.4 million of goodwill and \$10.9 million of intangible assets. Changes in the valuation of long-lived assets could materially impact our operating results and financial position. To date, there have been no impairments of goodwill or intangible assets.

See "Note 2. Significant Accounting Policies" and "Note 7. Goodwill And Other Intangible Assets" in Item 8 of this Annual Report for additional information.

Accounting for income taxes

Significant judgment is required to determine our provision for income taxes and income tax assets and liabilities, including evaluating uncertainties in applying accounting principles and complex tax laws. Accordingly, changes in tax laws or our interpretation of tax laws and the resolution of any tax audits could significantly impact our financial statements.

We regularly assess the need for a valuation allowance against our deferred tax assets. The future realization of our deferred tax assets ultimately depends on sufficient taxable income within the available carryback or carryforward periods. Changes in our valuation allowance impact income tax expense in the period of adjustment. Our deferred tax valuation allowance requires significant judgment and uncertainties, including assumptions about future taxable income based on historical and projected information.

We recognize deferred tax assets to the extent that we believe that they are more likely than not to be realized. In making such a determination, we consider all available objective and verifiable negative and positive evidence, including future reversals of existing taxable temporary differences, our firm contractual backlog, projected future taxable income (including the impact of enacted legislation), tax-planning strategies and results of recent operations. In 2022, we determined that the objectively and verifiable negative evidence outweighed the positive evidence, and we recorded a full valuation allowance of \$188.3 million on our U.S. and U.K. deferred tax assets.

We assess our income tax positions and record tax benefits based on management's evaluation of the facts, circumstances, and information available at the reporting date. For those tax positions where it is more-likely-than-not that a tax benefit will be sustained, we record the largest amount of tax benefit with a greater than 50 percent likelihood of being realized upon ultimate settlement with a taxing authority having full knowledge of all relevant information. For those income tax positions where it is not more-likely-than-not that a tax benefit will be sustained, no tax benefit is recognized in the financial statements.

As a global company, we use significant judgment to calculate and provide for income taxes in each of the tax jurisdictions in which we operate. In the ordinary course of our business, transactions and calculations occur whose ultimate tax outcome cannot be certain. Some of these uncertainties arise due to transfer pricing for transactions with our subsidiaries, the determination of tax nexus, and tax credit estimates. In addition, the calculation of acquired tax attributes and the associated limitations are complex. We estimate our exposure to unfavorable outcomes related to these uncertainties and the probability of such outcomes.

Although we believe our estimates are reasonable, there is no guarantee that the final tax outcome will not be different from what is reflected in our historical income tax provisions, returns, and accruals. Such differences, or changes in estimates relating to potential differences, could have a material impact on our income tax provision and operating results in the period in which such a determination is made.

See "Note 2. Significant Accounting Policies" and "Note 18. Income Taxes" in Item 8 of this Annual Report for additional information.

Capped call transactions

In February 2020, we issued Convertible Senior Notes (the "Notes") with an aggregate principal amount of \$600 million, due March 1, 2025, in a private placement. We also entered into privately negotiated capped call transactions ("Capped Call Transactions") with certain financial institutions. The Capped Call Transactions cover 4.4 million shares (representing the number of shares for which the Notes are initially convertible) of our common stock and are generally expected to reduce potential dilution of our common stock upon any conversion of the Notes.

The Capped Call Transactions are accounted for as derivative instruments and do not qualify for the Company's own equity scope exception in ASC 815 since, in some cases of early settlement, the settlement value of the Capped Call Transactions, calculated following the governing documents, may not represent a fair value measurement. Applying the accounting framework for the Capped Call Transactions requires the exercise of judgment and the determination of the fair value of the Capped Call Transactions requires us to make significant estimates and assumptions.

The fair value of the Capped Call Transactions at the end of each reporting period is determined using a Black-Scholes option-pricing model. The valuation model uses various market-based inputs, including stock price, remaining contractual term, expected volatility, risk-free interest rate, and expected dividend yield. Management applies judgment when determining expected volatility. We consider the underlying equity security's historical and implied volatility levels. As of December 31, 2022, a hypothetical 10% increase in our stock price would have increased the fair value of the capped call to \$3.6 million, while a hypothetical 10% decrease in our stock price would have decreased the fair value of the capped call to \$1.7 million.

See "Note 2. Significant Accounting Policies", "Note 12. Debt", and "Note 14. Fair Value Measurements" in Item 8 of this Annual Report for additional information.

Loss Contingencies

We are subject to various claims, including claims with customers and vendors, pending and potential legal actions for damages, investigations relating to governmental laws and regulations, and other matters arising out of the normal conduct of our business. When a loss is considered probable and reasonably estimable, we record a liability in the amount of our best estimate for the ultimate loss. However, the likelihood of a loss with respect to a particular contingency is often difficult to predict and determining a meaningful estimate of the loss or a range of loss may not be practicable based on the information available and the potential effect of future events and decisions by third parties that will determine the ultimate resolution of the contingency. Moreover, it is common for such matters to be resolved over many years, during which time relevant developments and new information must be reevaluated at least quarterly to determine both the likelihood of potential loss and whether it is possible to reasonably estimate a range of possible loss. When a material loss is reasonably possible or probable, but a reasonable estimate cannot be made, disclosure of the proceeding is provided. Legal fees are recognized as incurred when the legal services are provided.

We review all contingencies at least quarterly to determine whether the likelihood of loss has changed and to assess whether a reasonable estimate of the potential loss or range of the loss can be made.

See "Note 2. Significant Accounting Policies" and "Note 20. Commitments And Contingencies" in Item 8 of this Annual Report for additional information.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market risk represents the risk of loss that may affect us due to adverse financial market price and rate changes.

Foreign currency exposure

Translation risk

Our foreign operations' operating expenses are primarily denominated in foreign currencies. However, our international sales are also primarily denominated in foreign currencies, which partially offsets our foreign currency exposure.

A hypothetical 10% strengthening in the U.S. dollar against other currencies would result in the following impact:

	2022	2021	2020
(Decrease) in revenue	(3)%	(4)%	(4)%
Increase (decrease) in net income	2 %	1 %	12 %

Remeasurement risk

We experience fluctuations in transaction gains or losses from the remeasurement of monetary assets and liabilities denominated in currencies other than the functional currency of the entities in which they are recorded.

We are primarily exposed to changes in foreign currency exchange rates associated with the Australian dollar, Euro, and U.S. dollar-denominated cash and cash equivalents, accounts receivable, unbilled receivables, and intercompany receivables and payables held by our U.K. subsidiary, a British pound functional entity.

A hypothetical 10% strengthening in the British pound exchange rate against the Australian dollar, Euro, and U.S. dollar would result in the following impact:

	December 31, 2022	December 31, 2021	December 31, 2020
<i>(in thousands)</i> Foreign currency (loss) gain	\$ (10,164)	\$ (8,352)	\$ (7,782)

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of Pegasystems Inc.
Cambridge, Massachusetts

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Pegasystems Inc. and subsidiaries (the "Company") as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive (loss), stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2022, and the related notes (collectively referred to as the "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 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 COSO.

Basis for Opinions

The Company's management is responsible for these 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 the accompanying Management's report on and changes in internal control over financial reporting. Our responsibility is to express an opinion on these financial statements and an opinion 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 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 financial statements included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures to respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. 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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the 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 - Software License Arrangements — Refer to Note 2 to the financial statements

Critical Audit Matter Description

The Company generates revenue from multiple sources, including software license revenue primarily derived from license sales of the Company's Pega Platform and other software applications, maintenance revenue from client support, and services revenue primarily derived from cloud sales of the Company's hosted Pega Platform and other software applications and consulting services.

The Company's license and cloud contracts with clients ("arrangements") often contain multiple performance obligations. These performance obligations may be included in the same contract or negotiated separately. Additionally, the Company enters into amendments to previously executed contracts which constitute contract modifications. Certain complex arrangements require that management performs a detailed analysis of the contractual terms and the application of more complex accounting guidance. Factors with potentially significant judgements include:

- Identification of the complete client arrangement
- Accounting treatment of contract modifications
- Valuation and allocation of identified material rights
- Allocation of arrangement consideration to bundled fixed price work orders

Given the accounting complexity and the management judgment necessary to properly identify, classify, and account for performance obligations, auditing such estimates involved a high degree of auditor judgment when performing audit procedures and evaluating the license and cloud revenue arrangements.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to license and cloud revenue arrangements included the following, among others:

- We tested the effectiveness of controls over revenue recognition, including those over the identification of performance obligations included in the transaction, accounting treatment of contract modifications, valuation and allocation of identified material rights, and allocation of arrangement consideration.
- We selected a sample of client arrangements, and performed the following:
 - Evaluated whether the Company properly identified the terms of the arrangements and considered all arrangement terms that may have an impact on revenue recognition.
 - Evaluated whether the Company appropriately identified all performance obligations in the arrangement and whether the methodology to allocate the transaction price to the individual performance obligations was appropriately applied.
 - Tested the accuracy of management's calculation of revenue for each performance obligation by developing an expectation for the revenue to be recorded in the current period and comparing it to the Company's recorded balances.
 - Evaluated management's assessment of any ongoing negotiations with clients and bundling with statements of work.
 - Analyzed the proper accounting treatment for any contract modifications based on 1) whether the additional products and services are distinct from the products and services in the original arrangement, and 2) whether the amount of consideration expected for the added products and services reflects the stand-alone selling price of those products and services.
 - Evaluated management's determination of whether certain renewal clauses, additional product offers, or additional usage offers represent material rights included in the contract and whether they were properly valued based on the incremental discount provided and the probability of the right being exercised.
 - For contracts with a performance obligation of bundled fixed price services, evaluated whether management reasonably estimated the number of hours that each project will require and independently recalculated the stand-alone selling price for each bundled fixed price service.
 - Obtained evidence of delivery of the elements of the arrangement to the client.

/s/ Deloitte & Touche LLP

Boston, Massachusetts

February 15, 2023

We have served as the Company's auditor since 2000.

PEGASYSTEMS INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except per share amounts)

	December 31, 2022	December 31, 2021
Assets		
Current assets:		
Cash and cash equivalents	\$ 145,054	\$ 159,965
Marketable securities	152,167	202,814
Total cash, cash equivalents, and marketable securities	297,221	362,779
Accounts receivable	255,150	182,717
Unbilled receivables	213,719	226,714
Other current assets	80,388	68,008
Total current assets	846,478	840,218
Unbilled receivables	95,806	129,789
Goodwill	81,399	81,923
Other long-term assets	333,989	541,601
Total assets	<u>\$ 1,357,672</u>	<u>\$ 1,593,531</u>
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$ 18,195	\$ 15,281
Accrued expenses	50,355	63,890
Accrued compensation and related expenses	127,728	120,946
Deferred revenue	325,212	275,844
Other current liabilities	17,450	9,443
Total current liabilities	538,940	485,404
Convertible senior notes, net	593,609	590,722
Operating lease liabilities	79,152	87,818
Other long-term liabilities	15,128	13,499
Total liabilities	<u>1,226,829</u>	<u>1,177,443</u>
Commitments and contingencies (Note 20)		
Stockholders' equity:		
Preferred stock, \$0.01 par value, 1,000 shares authorized; none issued	—	—
Common stock, \$0.01 par value, 200,000 shares authorized; 82,436 and 81,712 shares issued and outstanding as of December 31, 2022 and 2021, respectively	824	817
Additional paid-in capital	229,602	145,810
(Accumulated deficit) retained earnings	(76,513)	276,449
Accumulated other comprehensive (loss)		
Net unrealized gain on available-for-sale securities, net of tax	517	686
Foreign currency translation adjustments	(23,587)	(7,674)
Total stockholders' equity	<u>130,843</u>	<u>416,088</u>
Total liabilities and stockholders' equity	<u>\$ 1,357,672</u>	<u>\$ 1,593,531</u>

See notes to consolidated financial statements.

PEGASYSTEMS INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share amounts)

	Year Ended December 31,		
	2022	2021	2020
Revenue			
Subscription services	\$ 701,835	\$ 621,223	\$ 504,977
Subscription license	366,063	336,248	266,352
Perpetual license	19,293	32,172	28,558
Consulting	230,654	222,010	217,630
Total revenue	<u>1,317,845</u>	<u>1,211,653</u>	<u>1,017,517</u>
Cost of revenue			
Subscription services	138,736	120,446	98,886
Subscription license	2,642	2,389	2,644
Perpetual license	175	229	284
Consulting	227,082	213,299	209,099
Total cost of revenue	<u>368,635</u>	<u>336,363</u>	<u>310,913</u>
Gross profit	949,210	875,290	706,604
Operating expenses			
Selling and marketing	624,789	625,886	545,693
Research and development	294,349	260,630	236,986
General and administrative	117,734	83,506	67,452
Restructuring	21,743	—	—
Total operating expenses	<u>1,058,615</u>	<u>970,022</u>	<u>850,131</u>
(Loss) from operations	(109,405)	(94,732)	(143,527)
Foreign currency transaction gain (loss)	4,560	(6,459)	3,704
Interest income	1,643	704	1,223
Interest expense	(7,792)	(7,956)	(19,356)
(Loss) gain on capped call transactions	(57,382)	(23,633)	31,697
Other income, net	6,579	89	1,370
(Loss) before provision for (benefit from) income taxes	(161,797)	(131,987)	(124,889)
Provision for (benefit from) income taxes	183,785	(68,947)	(63,516)
Net (loss)	<u>\$ (345,582)</u>	<u>\$ (63,040)</u>	<u>\$ (61,373)</u>
(Loss) per share			
Basic	\$ (4.22)	\$ (0.77)	\$ (0.76)
Diluted	\$ (4.22)	\$ (0.77)	\$ (0.76)
Weighted-average number of common shares outstanding			
Basic	81,947	81,387	80,336
Diluted	81,947	81,387	80,336

See notes to consolidated financial statements.

PEGASYSTEMS INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE (LOSS)
(in thousands)

	Year Ended December 31,		
	2022	2021	2020
Net (loss)	\$ (345,582)	\$ (63,040)	\$ (61,373)
Other comprehensive (loss) income, net of tax			
Unrealized (loss) gain on available-for-sale securities	(169)	640	46
Foreign currency translation adjustments	(15,913)	(4,680)	10,234
Total other comprehensive (loss) income, net of tax	(16,082)	(4,040)	10,280
Comprehensive (loss)	\$ (361,664)	\$ (67,080)	\$ (51,093)

See notes to consolidated financial statements.

PEGASYSTEMS INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands, except per share amounts)

	Common Stock		Additional paid-in capital	Retained earnings (accumulated deficit)	Accumulated other comprehensive (loss)	Total stockholders' equity
	Number of shares	Amount				
January 1, 2020	79,599	\$ 796	\$ 140,523	\$ 410,919	\$ (13,228)	\$ 539,010
Equity component of convertible senior notes, net	—	—	61,604	—	—	61,604
Repurchase of common stock	(278)	(3)	(28,271)	—	—	(28,274)
Issuance of common stock for stock compensation plans	1,536	16	(75,578)	—	—	(75,562)
Issuance of common stock under the employee stock purchase plan	33	—	3,039	—	—	3,039
Stock-based compensation	—	—	103,115	—	—	103,115
Cash dividends declared (\$0.12 per share)	—	—	—	(9,667)	—	(9,667)
Other comprehensive income	—	—	—	—	10,280	10,280
Net (loss)	—	—	—	(61,373)	—	(61,373)
December 31, 2020	80,890	\$ 809	\$ 204,432	\$ 339,879	\$ (2,948)	\$ 542,172
Cumulative-effect adjustment from adoption of ASU 2020-06, net	—	—	(61,604)	9,399	—	(52,205)
Repurchase of common stock	(432)	(5)	(53,605)	—	—	(53,610)
Issuance of common stock for stock compensation plans	1,153	12	(69,937)	—	—	(69,925)
Issuance of common stock under the employee stock purchase plan	101	1	10,553	—	—	10,554
Stock-based compensation	—	—	115,971	—	—	115,971
Cash dividends declared (\$0.12 per share)	—	—	—	(9,789)	—	(9,789)
Other comprehensive (loss)	—	—	—	—	(4,040)	(4,040)
Net (loss)	—	—	—	(63,040)	—	(63,040)
December 31, 2021	81,712	\$ 817	\$ 145,810	\$ 276,449	\$ (6,988)	\$ 416,088
Repurchase of common stock	(280)	(2)	(24,506)	—	—	(24,508)
Issuance of common stock for stock compensation plans	754	7	(20,627)	—	—	(20,620)
Issuance of common stock under the employee stock purchase plan	250	2	9,170	—	—	9,172
Stock-based compensation	—	—	122,229	—	—	122,229
Cash dividends declared (\$0.12 per share)	—	—	(2,474)	(7,380)	—	(9,854)
Other comprehensive (loss)	—	—	—	—	(16,082)	(16,082)
Net (loss)	—	—	—	(345,582)	—	(345,582)
December 31, 2022	82,436	\$ 824	\$ 229,602	\$ (76,513)	\$ (23,070)	\$ 130,843

See notes to consolidated financial statements.

PEGASYSTEMS INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,		
	2022	2021	2020
Operating activities			
Net (loss)	\$ (345,582)	\$ (63,040)	\$ (61,373)
Adjustments to reconcile net (loss) to cash provided by (used in) operating activities			
Stock-based compensation	122,210	115,947	103,068
Deferred income taxes	168,890	(75,336)	(59,777)
Loss (gain) on capped call transactions	57,382	23,633	(31,697)
Amortization of deferred commissions	53,471	41,387	33,302
Lease expense	15,940	13,277	16,248
Amortization of intangible assets and depreciation	18,780	28,593	21,348
Foreign currency transaction (gain) loss	(4,560)	6,459	(3,704)
Other	157	7,730	15,007
Change in operating assets and liabilities:			
Accounts receivable, unbilled receivables, and contract assets	(51,157)	(11,957)	(32,321)
Other current assets	(9,133)	17,209	(12,959)
Other current liabilities	529	(18,726)	37,945
Deferred revenue	62,578	41,279	43,661
Deferred commissions	(53,857)	(71,451)	(55,175)
Other long-term assets and liabilities	(13,312)	(15,886)	(14,136)
Cash provided by (used in) operating activities	<u>22,336</u>	<u>39,118</u>	<u>(563)</u>
Investing activities			
Purchases of investments	(41,015)	(79,121)	(326,549)
Proceeds from maturities and called investments	66,583	105,977	28,811
Sales of investments	23,808	61,096	1,424
Payments for acquisitions, net of cash acquired	(922)	(4,993)	—
Investment in property and equipment	(35,379)	(10,456)	(25,369)
Cash provided by (used in) investing activities	<u>13,075</u>	<u>72,503</u>	<u>(321,683)</u>
Financing activities			
Proceeds from issuance of convertible senior notes	—	—	600,000
Purchase of capped calls related to convertible senior notes	—	—	(51,900)
Payment of debt issuance costs	—	—	(14,527)
Proceeds from employee stock purchase plan	9,172	10,554	3,039
Dividend payments to stockholders	(9,834)	(9,761)	(9,628)
Common stock repurchases for tax withholdings for net settlement of equity awards	(20,620)	(69,925)	(75,562)
Common stock repurchases under stock repurchase program	(25,707)	(52,711)	(27,974)
Cash (used in) provided by financing activities	<u>(46,989)</u>	<u>(121,843)</u>	<u>423,448</u>
Effect of exchange rate changes on cash and cash equivalents	<u>(3,333)</u>	<u>(1,712)</u>	<u>2,334</u>
Net (decrease) increase in cash and cash equivalents	<u>(14,911)</u>	<u>(11,934)</u>	<u>103,536</u>
Cash and cash equivalents, beginning of period	159,965	171,899	68,363
Cash and cash equivalents, end of period	<u>\$ 145,054</u>	<u>\$ 159,965</u>	<u>\$ 171,899</u>
Supplemental disclosures			
Interest paid on convertible notes	\$ 4,500	\$ 4,500	\$ 2,338
Income taxes paid (refunded)	\$ 7,645	\$ (4,552)	\$ 3,377
Non-cash investing and financing activity:			
Investment in property and equipment included in accounts payable and accrued liabilities	\$ 9,914	\$ 2,143	\$ 825
Dividends payable	\$ 2,474	\$ 2,454	\$ 2,428

See notes to consolidated financial statements.

PEGASYSTEMS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. BASIS OF PRESENTATION

Business

The Company develops, markets, licenses, hosts, and supports enterprise software that helps organizations build agility into their business. The Company's low-code platform for workflow automation and artificial intelligence-powered decisioning enables clients to personalize customer experiences, streamline customer service, and automate business processes and workflows. The Company provides consulting, training, support, and hosting services to facilitate the use of its software.

Management estimates and reporting

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America ("U.S.") requires management to make estimates and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the periods presented. Actual results could differ from those estimates. Accounts with reported amounts based on significant estimates and judgments include, but are not limited to, revenue, unbilled receivables, deferred revenue, deferred income taxes, deferred commissions, income taxes payable, convertible senior notes, capped call transactions, intangible assets, and goodwill.

Principles of consolidation

The Company's consolidated financial statements reflect Pegasystems Inc. and subsidiaries in which the Company holds a controlling financial interest. All intercompany accounts and transactions were eliminated in consolidation.

Reclassifications

Certain prior period amounts reported in our consolidated financial statements and notes thereto have been reclassified to conform to the current year presentation. Such reclassifications did not affect total revenues, (loss) from operations, or net (loss).

2. SIGNIFICANT ACCOUNTING POLICIES

Revenue

The Company's revenue is primarily derived from:

- Subscription services, composed of revenue from Pega Cloud and maintenance. Pega Cloud is the Company's hosted Pega Platform and software applications. Maintenance revenue is earned from providing client support, software upgrades, and bug fixes or patches.
- Subscription license, composed of revenue from term license arrangements for the Company's Pega Platform and software applications. Term licenses represent functional intellectual property and are delivered separately from maintenance and services.
- Perpetual license, composed of revenue from perpetual license arrangements for the Company's Pega Platform and software applications. Perpetual licenses represent functional intellectual property and are delivered separately from maintenance and services.
- Consulting, primarily related to new software license implementations, training, and reimbursable costs.

Performance obligations

The Company's software license and Pega Cloud arrangements often contain multiple performance obligations. If a contract contains multiple performance obligations, the Company accounts for each distinct performance obligation separately. The transaction price is allocated to the separate performance obligations on a relative stand-alone selling price basis. Any discounts or expected potential future price concessions are considered when determining the total transaction price. The Company's policy is to exclude sales and similar taxes collected from clients from the determination of transaction price.

The Company's typical performance obligations are:

Performance obligation	How stand-alone selling price is typically determined	When performance obligation is typically satisfied	When payment is typically due	Income statement line item
Perpetual license	Residual approach	Upon transfer of control to the client, defined as when the client can use and benefit from the license (point in time)	Effective date of the license	Perpetual license
Term license	Residual approach	Upon transfer of control to the client, defined as when the client can use and benefit from the license (point in time)	Annually, or more frequently, over the term of the license	Subscription license
Maintenance	Consistent pricing relationship as a percentage of the related license and observable in stand-alone renewal transactions ⁽¹⁾	Ratably over the term of the maintenance (over time)	Annually, or more frequently, over the term of the maintenance	Subscription services
Pega Cloud	Residual approach	Ratably over the term of the service (over time)	Annually, or more frequently, over the term of the service	Subscription services
Consulting - time and materials	Observable hourly rate for time and materials-based services in similar geographies	Based on hours incurred to date (over time)	Monthly	Consulting
Consulting - fixed price	Observable hourly rate for time and materials-based services in similar geographies multiplied by estimated hours for the project	Based on hours incurred as a percentage of total estimated hours (over time)	As contract milestones are achieved	Consulting

(1) Technical support and software updates are considered distinct services but accounted for as a single performance obligation, as they have the same pattern of transfer to the client.

The Company utilizes the residual approach for software license and Pega Cloud performance obligations since the selling price is highly variable and the stand-alone selling price is not discernible from past transactions or other observable evidence. Periodically, the Company reevaluates whether the residual approach remains appropriate. As required, the Company evaluates its residual approach estimate compared to all available observable data before concluding the estimate represents its stand-alone selling price.

If the contract grants the client the option to acquire additional products or services, the Company assesses whether the option represents a material right to the client that the client would not receive without entering into that contract. Discounts on options to purchase additional products and services greater than discounts available to similar clients are accounted for as an additional performance obligation.

During most of each client contract term, the amount invoiced is generally less than the amount of revenue recognized to date, primarily because we transfer control of the performance obligation related to the software license at the inception of the contract term. A significant portion of the total contract consideration is typically allocated to the license performance obligation. Therefore, the Company's contracts often result in the recording of unbilled receivables and contract assets throughout most of the contract term. The Company records an unbilled receivable or contract asset when revenue recognized on a contract exceeds the billings. The Company recognizes an impairment on receivables and contract assets if, after contract inception, it becomes probable that payment is not collectible. The Company reviews receivables and contract assets on an individual basis for impairment.

Variable consideration

The Company's arrangements can include variable fees, such as the option to purchase additional usage of a previously delivered software license. The Company may also provide pricing concessions to clients, a business practice that gives rise to variable fees. For variable fees arising from the client's acquisition of additional usage of a previously delivered software license, the Company applies the sales and usage-based royalties guidance related to a license of intellectual property and recognizes the revenue in the period the underlying sale or usage occurs. The Company includes variable fees in the determination of total transaction price if it is not probable that a significant future reversal of revenue will occur. The Company uses the expected value or most likely value amount, whichever is more appropriate for specific circumstances, to estimate variable consideration, and the estimates are based on the level of historical price concessions offered to clients. The variable consideration related to pricing concessions and other forms of variable consideration, including usage-based fees, have not been material to the Company's consolidated financial statements.

Significant financing components

The Company generally does not intend to provide financing to its clients, as financing arrangements are not contemplated as part of the negotiated terms of contracts between the Company and its clients. Although there may be an intervening period between the delivery of the license and the payment, typically in term license arrangements, the purpose of that timing difference is to align the client's payment with the timing of the use of the software license or service.

In certain circumstances, however, there are instances where revenue recognition timing differs from the timing of payment due to extended payment terms or fees that are non-proportional to the associated usage of software licenses. In these instances, the Company evaluates whether a significant financing component exists. This evaluation includes determining the difference between the consideration the client would have paid when the performance obligation was satisfied and the amount of consideration paid. Contracts that include a significant financing component are adjusted for the time value of money at the rate inherent in the contract, the client's borrowing rate, or the Company's incremental borrowing rate, depending upon the recipient of the financing.

During 2022, 2021, and 2020, significant financing components were not material.

Contract modifications

The Company assesses contract modifications to determine:

- if the additional products and services are distinct from the products and services in the original arrangement; and
- if the amount of consideration expected for the added products and services reflects the stand-alone selling price of those products and services.

A contract modification meeting both criteria is accounted for as a separate contract. If a contract modification does not meet both criteria, it is accounted for as either:

- a prospective basis as a termination of the existing contract and the creation of a new contract; or
- a cumulative catch-up basis.

Deferred commissions

The Company recognizes an asset for the incremental costs of obtaining a client contract, primarily related to sales commissions. The Company expects to benefit from those costs for more than one year, as the Company primarily pays sales commissions on the initial contract. As a result, there are no commensurate commissions paid on contract renewals. Deferred commissions are allocated to each performance obligation within the contract and amortized according to the transfer of underlying goods and services within those contracts and expected renewals. The expected benefit period is determined based on the length of the client contracts, client attrition rates, the underlying technology lifecycle, and the competitive marketplace's influence on the products and services sold. Deferred costs allocated to maintenance and deferred costs for Pega Cloud arrangements are amortized over an average expected benefit period of 4.5 years. Deferred costs allocated to software licenses, and any expected renewals of term software licenses within the 4.5 years expected benefit period, are amortized at the point in time control of the software license is transferred. Deferred costs allocated to consulting are amortized over a period consistent with the pattern of transfer of control for the related services.

Financial instruments

The principal financial instruments held by the Company consist of cash equivalents, marketable securities, receivables, capped call transactions, and accounts payable. The Company considers debt securities readily convertible to known amounts of cash with maturities of three months or less from the purchase date to be cash equivalents. Interest is recorded when earned. The Company's investments are classified as available-for-sale and are carried at fair value. Unrealized gains and losses considered temporary are recorded as a component of accumulated other comprehensive (loss), net of related income taxes. The Company reviews all investments for reductions in fair value that are other-than-temporary. When such reductions occur, the investment cost is adjusted to fair value by recording a loss on investments in the consolidated statements of operations. Gains and losses on investments are calculated based on the specific investment.

See "Note 4. Receivables, Contract Assets, And Deferred Revenue", "Note 12. Debt", and "Note 14. Fair Value Measurements" for additional information.

Property and equipment

Property and equipment are recorded at cost. Depreciation and amortization are computed using the straight-line method over the estimated useful life of each asset, which are three years for computer equipment and five years for furniture and fixtures. Leasehold improvements are amortized over the lesser of the lease's term or the useful life of the asset. Repairs and maintenance costs are expensed as incurred.

Leases

All of the Company's leases are operating leases, primarily composed of office space leases. The Company accounts for a contract as a lease when it has the right to control the asset for a period of time while obtaining substantially all of the asset's economic benefits. The Company determines the initial classification and measurement of its operating right of use assets and lease liabilities at the lease commencement date and thereafter if modified. Fixed lease costs are recognized on a straight-line basis over the lease term. Variable lease costs are recognized in the period in which the obligation for those payments is incurred. The Company combines lease and non-lease components when determining lease costs for its office space leases. The lease liability includes lease payments related to options to extend or renew the lease term if the Company is reasonably certain it will exercise those options. The Company's leases do not contain material residual value guarantees or restrictive covenants.

Loss contingencies and legal costs

The Company accrues loss contingencies when it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated.

Significant judgments are required to determine the probability and the range of the outcomes, and the estimates are based only on the information available to us at the time. Due to the inherent uncertainties involved in claims, legal proceedings, and in estimating the losses that may arise, actual outcomes may differ from the Company's estimates. Contingencies deemed not probable or for which losses were not estimable in one period may become probable, or losses may become estimable in later periods which may have a material impact on the Company's results of operations and financial position. As additional information becomes available, the Company reassesses the potential liability from pending claims and litigation and may revise its estimates. Regardless of the outcome, legal disputes can have a material effect on the Company because of defense and settlement costs, diversion of management resources and other factors. Legal costs are expensed as incurred.

Internal-use software

The Company capitalizes and amortizes certain direct costs associated with computer software developed or purchased for internal use incurred during the application development stage. Costs related to preliminary project activities and post-implementation activities are expensed as incurred. The Company amortizes capitalized software costs generally over three to five years, commencing on the date the software is placed into service.

Goodwill

Goodwill represents the residual purchase price paid in a business combination after the fair value of all identified assets and liabilities have been recorded. Goodwill is not amortized. The Company has a single reporting unit. The Company performed a qualitative assessment as of November 30, 2022, 2021, and 2020, and concluded that there was no impairment since it was not more-likely-than-not that the fair value of its reporting unit was less than its carrying value.

Intangible and long-lived assets

The Company's intangible assets are amortized using the straight-line method over their estimated useful life. The Company evaluates its long-lived tangible and intangible assets for impairment whenever events or changes in circumstances indicate that such assets' carrying amount may not be recoverable. Impairment is assessed by comparing the undiscounted cash flows expected to be generated by the long-lived tangible or intangible assets to their carrying value. If impairment exists, the Company calculates the impairment by comparing the carrying value to its fair value as determined by discounted expected cash flows.

Cash equivalents

Cash equivalents include money market funds and other investments with original maturities of three months or less.

Business combinations

The Company uses its estimates and assumptions to assign a fair value to the tangible and intangible assets acquired and liabilities assumed at the acquisition date. The Company's 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. In addition, uncertain tax positions and tax-related valuation allowances are initially established in connection with a business combination as of the acquisition date. The Company reevaluates these estimates and assumptions quarterly as new information arises and records any adjustments to the Company's preliminary estimates to goodwill provided that the Company is within the measurement period. 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 Company's consolidated statements of operations.

Research and development and software development costs

Research and development costs are expensed as incurred. Capitalization of computer software developed for resale begins upon the establishment of technological feasibility, generally demonstrated by a working model or an operative version of the computer software product. Such costs have not been material to date, as technological feasibility is established within a short time frame from the software's general availability. As a result, no costs were capitalized in 2022, 2021, or 2020.

Stock-based compensation

The Company recognizes stock-based compensation expense associated with equity awards based on the award's fair value at the grant date. Stock-based compensation is recognized over the requisite service period, which is generally the vesting period of the equity award and is adjusted each period for anticipated forfeitures. See "Note 16. Stock-Based Compensation" for a discussion of the Company's key assumptions when determining the fair value of its equity awards at the grant date.

Foreign currency translation and remeasurement

The translation of assets and liabilities for the Company's subsidiaries with functional currencies other than the U.S. dollar are made at period-end exchange rates. Revenue and expense accounts are translated at the average exchange rates during the period transactions occur. The resulting translation adjustments are reflected in accumulated other comprehensive (loss). Realized and unrealized exchange gains or losses from transactions and remeasurement adjustments are reflected in foreign currency transaction gain (loss) in the accompanying consolidated statements of operations.

Accounting for income taxes

The Company uses the asset and liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are determined based on temporary differences between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. The Company regularly assesses the need for a valuation allowance against its deferred tax assets. Future realization of the Company's deferred tax assets ultimately depends on sufficient taxable income within the available carryback or carryforward periods. Taxable income sources include taxable income in prior carryback years, future reversals of existing taxable temporary differences, the Company's firm contractual backlog, tax planning strategies, and projected future taxable income. The Company records a valuation allowance to reduce its deferred tax assets to an amount it believes is more-likely-than-not to be realized. Changes in the valuation allowance impact income tax expense in the period of adjustment. The Company recognizes excess tax benefits when realized, as a reduction of the provision for income taxes.

The Company assesses its income tax positions and records tax benefits based on management's evaluation of the facts, circumstances, and information available at the reporting date. For those tax positions where it is more-likely-than-not that a tax benefit will be sustained, the Company records the largest amount of tax benefit with a greater than 50 percent likelihood of being realized upon ultimate settlement with a taxing authority having full knowledge of all relevant information. For those income tax positions where it is not more-likely-than-not that a tax benefit will be sustained, no tax benefit is recognized in the financial statements. The Company classifies liabilities for uncertain tax positions as non-current liabilities unless the uncertainty is expected to be resolved within one year. The Company classifies interest and penalties on uncertain tax positions as income tax expense.

As a global company, significant judgment must be used to calculate and provide for income taxes in each of the tax jurisdictions in which it operates. In the ordinary course of the Company's business, there are transactions and calculations undertaken whose ultimate tax outcome cannot be certain. Some of these uncertainties arise because of transfer pricing for transactions with the Company's subsidiaries and nexus and tax credit estimates. In addition, the calculation of acquired tax attributes and the associated limitations are complex.

For additional information, see "Note 18. Income Taxes".

Advertising expense

Advertising costs are expensed as incurred. Advertising expenses were \$6.6 million, \$11.8 million, and \$8.7 million during 2022, 2021, and 2020, respectively.

3. MARKETABLE SECURITIES

(in thousands)	December 31, 2022				December 31, 2021			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Government debt	\$ 2,960	\$ —	\$ (52)	\$ 2,908	\$ 2,000	\$ —	\$ (10)	\$ 1,990
Corporate debt	151,906	—	(2,647)	149,259	201,659	2	(837)	200,824
	<u>\$ 154,866</u>	<u>\$ —</u>	<u>\$ (2,699)</u>	<u>\$ 152,167</u>	<u>\$ 203,659</u>	<u>\$ 2</u>	<u>\$ (847)</u>	<u>\$ 202,814</u>

As of December 31, 2022, marketable securities' maturities ranged from January 2023 to November 2024, with a weighted-average remaining maturity of 0.5 years.

4. RECEIVABLES, CONTRACT ASSETS, AND DEFERRED REVENUE

Receivables

(in thousands)	December 31, 2022	December 31, 2021
Accounts receivable	\$ 255,150	\$ 182,717
Unbilled receivables	213,719	226,714
Long-term unbilled receivables	95,806	129,789
	<u>\$ 564,675</u>	<u>\$ 539,220</u>

Unbilled receivables

Unbilled receivables are client-committed amounts for which revenue recognition precedes billing, and billing is solely subject to the passage of time.

Unbilled receivables by expected billing date:

(Dollars in thousands)

	December 31, 2022	
1 year or less	\$ 213,719	69 %
1-2 years	81,280	26 %
2-5 years	14,526	5 %
	<u>\$ 309,525</u>	<u>100 %</u>

Unbilled receivables by contract effective date:

(Dollars in thousands)

	December 31, 2022	
2022	\$ 150,597	49 %
2021	109,024	35 %
2020	30,763	10 %
2019	11,621	4 %
2018 and prior	7,520	2 %
	<u>\$ 309,525</u>	<u>100 %</u>

Major clients

Clients that represented 10% or more of the Company's total accounts receivable and unbilled receivables:

	December 31, 2022	December 31, 2021
Client A		
Accounts receivable	*	1 %
Unbilled receivables	*	15 %
Total receivables	<u>*</u>	<u>10 %</u>

* Client accounted for less than 10% of receivables.

Contract assets

Contract assets are client-committed amounts for which revenue recognized exceeds the amount billed to the client, and billing is subject to conditions other than the passage of time, such as the completion of a related performance obligation.

(in thousands)

	December 31, 2022	December 31, 2021
Contract assets ⁽¹⁾	\$ 17,546	\$ 12,530
Long-term contract assets ⁽²⁾	16,470	10,643
	<u>\$ 34,016</u>	<u>\$ 23,173</u>

(1) Included in other current assets.

(2) Included in other long-term assets.

Deferred revenue

Deferred revenue consists of billings and payments received in advance of revenue recognition.

(in thousands)

	December 31, 2022	December 31, 2021
Deferred revenue	\$ 325,212	\$ 275,844
Long-term deferred revenue ⁽¹⁾	3,552	5,655
	<u>\$ 328,764</u>	<u>\$ 281,499</u>

(1) Included in other long-term liabilities.

The change in deferred revenue in 2022 was primarily due to new billings in advance of revenue recognition and \$276.7 million of revenue recognized during the period included in deferred revenue as of December 31, 2021.

5. DEFERRED COMMISSIONS

(in thousands)

	December 31,	
	2022	2021
Deferred commissions ⁽¹⁾	\$ 130,195	\$ 135,911

(1) Included in other long-term assets.

<i>(in thousands)</i>	2022	2021	2020
Amortization of deferred commissions ⁽¹⁾	\$ 53,471	\$ 41,387	\$ 33,302

(1) Included in selling and marketing expenses.

6. PROPERTY AND EQUIPMENT ⁽¹⁾

<i>(in thousands)</i>	December 31,	
	2022	2021
Leasehold improvements	\$ 35,049	\$ 31,203
Computer equipment	27,292	26,115
Furniture and fixtures	5,993	5,565
Computer software purchased	9,724	8,566
Computer software developed for internal use	19,869	19,463
Fixed assets in progress	37,342	4,262
	<u>135,269</u>	<u>95,174</u>
Less: accumulated depreciation	(80,213)	(68,337)
	<u>\$ 55,056</u>	<u>\$ 26,837</u>

(1) Included in other long-term assets.

<i>(in thousands)</i>	2022	2021	2020
Depreciation expense	\$ 14,687	\$ 24,606	\$ 17,378

7. GOODWILL AND OTHER INTANGIBLE ASSETS

Goodwill

<i>(in thousands)</i>	2022	2021
January 1,	\$ 81,923	\$ 79,231
Acquisition	—	2,701
Currency translation adjustments	(524)	(9)
December 31,	<u>\$ 81,399</u>	<u>\$ 81,923</u>

Intangibles

Intangible assets are recorded at cost and amortized using the straight-line method over their estimated useful lives:

		December 31, 2022		
<i>(in thousands)</i>	Useful Lives	Cost	Accumulated Amortization	Net Book Value ⁽¹⁾
Client-related	4-10 years	\$ 63,076	\$ (58,623)	\$ 4,453
Technology	2-10 years	68,056	(61,621)	6,435
Other	1-5 years	5,361	(5,361)	—
		<u>\$ 136,493</u>	<u>\$ (125,605)</u>	<u>\$ 10,888</u>

⁽¹⁾ Included in other long-term assets.

		December 31, 2021		
<i>(in thousands)</i>	Useful Lives	Cost	Accumulated Amortization	Net Book Value ⁽¹⁾
Client-related	4-10 years	\$ 63,165	\$ (57,342)	\$ 5,823
Technology	2-10 years	67,142	(58,902)	8,240
Other	1-5 years	5,361	(5,361)	—
		<u>\$ 135,668</u>	<u>\$ (121,605)</u>	<u>\$ 14,063</u>

⁽¹⁾ Included in other long-term assets.

Amortization of intangible assets was:

<i>(in thousands)</i>	2022	2021	2020
Cost of revenue	\$ 2,723	\$ 2,516	\$ 2,487
Selling and marketing	1,370	1,471	1,483
	<u>\$ 4,093</u>	<u>\$ 3,987</u>	<u>\$ 3,970</u>

Future estimated intangible assets amortization:

<i>(in thousands)</i>	December 31, 2022
2023	\$ 3,924
2024	3,153
2025	2,610
2026	874
2027	327
	<u>\$ 10,888</u>

8. SEGMENT INFORMATION

Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision-maker (“CODM”) in deciding how to allocate resources and assess performance.

The Company derives substantially all of its revenue from the sale and support of one group of similar products and services – software that provides case management, business process management, and real-time decisioning solutions to improve customer engagement and operational excellence in the enterprise applications market. To assess performance, the Company’s CODM, the Chief Executive Officer, reviews financial information on a consolidated basis. Therefore, the Company determined it has one operating segment and one reporting unit.

Long-lived assets related to the Company’s U.S. and international operations were:

<i>(Dollars in thousands)</i>	December 31, 2022		December 31, 2021	
U.S.	\$ 50,445	92 %	\$ 20,548	77 %
International	4,611	8 %	6,289	23 %
	<u>\$ 55,056</u>	<u>100 %</u>	<u>\$ 26,837</u>	<u>100 %</u>

9. OTHER ASSETS AND LIABILITIES

Other current assets

<i>(in thousands)</i>	December 31, 2022	December 31, 2021
Income tax receivables	\$ 25,354	\$ 25,691
Contract assets	17,546	12,530
Other	37,488	29,787
	<u>\$ 80,388</u>	<u>\$ 68,008</u>

Other long-term assets

<i>(in thousands)</i>	December 31, 2022	December 31, 2021
Deferred income taxes	\$ 4,795	\$ 180,656
Deferred commissions	130,195	135,911
Right of use assets	76,114	87,521
Capped call transactions	2,582	59,964
Property and equipment	55,056	26,837
Intangible assets	10,888	14,063
Contract assets	16,470	10,643
Other	37,889	26,006
	<u>\$ 333,989</u>	<u>\$ 541,601</u>

Other current liabilities

<i>(in thousands)</i>	December 31, 2022	December 31, 2021
Operating lease liabilities	\$ 14,976	\$ 6,989
Dividends payable	2,474	2,454
	<u>\$ 17,450</u>	<u>\$ 9,443</u>

Other long-term liabilities

(in thousands)	December 31, 2022	December 31, 2021
Deferred revenue	\$ 3,552	\$ 5,655
Other	11,576	7,844
	<u>\$ 15,128</u>	<u>\$ 13,499</u>

10. RESTRUCTURING

During the fourth quarter of 2022, management committed to a restructuring plan aligned with the Company's target organization go-to-market strategy and commitment to be a Rule of 40 managed company. The plan resulted in a restructuring expense of \$21.7 million in 2022, primarily associated with severance and benefits for impacted employees and expenses incurred as a result of the closure of the Company's Salem, New Hampshire office.

As of December 31, 2022, the Company's employee severance and related benefits restructuring accrual was \$18.6 million and is included in accrued compensation and related expenses.

11. LEASES

Corporate headquarters

In February 2021, the Company agreed to accelerate its exit from its previous corporate headquarters to October 1, 2021, in exchange for a one-time payment from its landlord of \$18 million, which was amortized over the remaining lease term. The exit accelerated depreciation on the related leasehold improvements and reduced the Company's future lease liabilities by \$21.1 million and right of use assets by \$20.3 million. On March 31, 2021, the Company leased office space at One Main Street, Cambridge, Massachusetts, to serve as its corporate headquarters. The 4.5 year lease includes a base rent of \$2 million per year.

Waltham office

On July 6, 2021, the Company entered into an office space lease for 131 thousand square feet in Waltham, Massachusetts. The lease term of 11 years began on August 1, 2021. The annual rent equals the base rent plus a portion of building operating costs and real estate taxes. Rent first became payable on August 1, 2022. Base rent for the first year is approximately \$6 million and will increase by 3% annually. In addition, the Company received an improvement allowance from the landlord of \$11.8 million. This lease increased the Company's lease liabilities and lease-related right of use assets by \$42.1 million on August 1, 2021.

Expense

(in thousands)	2022	2021	2020
Fixed lease costs ⁽¹⁾	\$ 20,186	\$ (1,694)	\$ 20,235
Short-term lease costs	3,356	2,244	1,669
Variable lease costs	3,894	4,480	4,470
	<u>\$ 27,436</u>	<u>\$ 5,030</u>	<u>\$ 26,374</u>

(1) The lower fixed lease costs in 2021 was due to the modification of the corporate headquarters lease.

Right of use assets and lease liabilities

(in thousands)	December 31, 2022	December 31, 2021
Right of use assets ⁽¹⁾	\$ 76,114	\$ 87,521
Operating lease liabilities ⁽²⁾	\$ 14,976	\$ 6,989
Long-term operating lease liabilities	\$ 79,152	\$ 87,818

(1) Represents the Company's right to use the leased asset during the lease term. Included in other long-term assets.

(2) Included in other current liabilities.

The weighted-average remaining lease term and discount rate for the Company's leases were:

	December 31, 2022	December 31, 2021
Weighted-average remaining lease term	7.5 years	7.7 years
Weighted-average discount rate ⁽¹⁾	4.1 %	4.4 %

(1) The rates implicit in most of the Company's leases are not readily determinable. Therefore, the Company uses its incremental borrowing rate as the discount rate when measuring operating lease liabilities. The incremental borrowing rate represents an estimate of the interest rate the Company would incur to borrow an amount equal to the lease payments on a collateralized basis over the lease term in a similar economic environment.

Maturities of lease liabilities:

<i>(in thousands)</i>	December 31, 2022
2023	\$ 18,476
2024	17,101
2025	14,444
2026	10,860
2027	9,814
Thereafter	39,265
Total lease payments	109,960
Less: imputed interest ⁽¹⁾	(15,832)
	<u>\$ 94,128</u>

(1) Lease liabilities are measured at the present value of the remaining lease payments using a discount rate determined at lease commencement unless the discount rate is updated due to a lease reassessment event.

Cash flow information ⁽¹⁾⁽²⁾

<i>(in thousands)</i>	2022	2021
Cash paid for operating leases, net of tenant improvement allowances	\$ 7,690	\$ 18,428
Right of use assets recognized for new leases and amendments (non-cash)	\$ 4,733	\$ 55,068

(1) In 2022 and 2021, the Company received tenant improvement allowances of \$8.8 million and \$3.0 million, respectively, as part of the lease of the Company's new corporate headquarters in Waltham, Massachusetts.

(2) In 2021, the Company received \$18 million as a one-time payment for the Company's accelerated exit from its then corporate headquarters in Cambridge, Massachusetts. This payment has been excluded from the above table.

12. DEBT

Convertible senior notes and capped calls

Convertible senior notes

In February 2020, the Company issued Convertible Senior Notes (the "Notes") with an aggregate principal of \$600 million, due March 1, 2025, in a private placement. No principal payments are due before maturity. The Notes accrue interest at an annual rate of 0.75%, payable semi-annually in arrears on March 1 and September 1, beginning on September 1, 2020.

Conversion rights

The conversion rate is 7.4045 shares of common stock per \$1,000 principal amount of the Notes, representing an initial conversion price of \$135.05 per share of common stock. The Company will settle conversions by paying or delivering cash, shares of its common stock, or a combination of cash and shares of its common stock, at the Company's election, based on the applicable conversion rate. The conversion rate will be adjusted upon certain events, including spin-offs, tender offers, exchange offers, and certain stockholder distributions.

Before September 1, 2024, noteholders may convert their Notes in the following circumstances:

- During any calendar quarter beginning after June 30, 2020 (and only during such calendar quarter), if the last reported sale price per share of the Company's common stock exceeds 130% of the conversion price for each of at least 20 trading days (whether or not consecutive) during the 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter.
- During the five consecutive business days immediately after any five consecutive trading day period (the "Measurement Period"), if the trading price per \$1,000 principal amount of Notes for each trading day of the Measurement Period was less than 98% of the product of the last reported sale price per share of common stock on such trading day and the conversion rate on such trading day.
- Upon certain corporate events or distributions or if the Company calls any Notes for redemption, noteholders may convert before the close of business on the business day immediately before the related redemption date (or, if the Company fails to pay the redemption price in full on the redemption date, until the Company pays the redemption price).

Beginning on September 1, 2024, noteholders may convert their Notes at any time at their election.

As of December 31, 2022, the Notes were not eligible for conversion.

Repurchase rights

On or after March 1, 2023 and on or before the 40th scheduled trading day immediately before the maturity date, the Company may redeem for cash all or part of the Notes at a repurchase price equal to 100% of the principal amount, plus accrued and unpaid interest, if the last reported sale price of the Company's common stock exceeded 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which the Company provides a redemption notice.

If certain corporate events that constitute a “Fundamental Change” occur, each noteholder will have the right to require the Company to repurchase for cash all of such noteholder’s Notes, or any portion of the principal thereof that is equal to \$1,000 or a multiple of \$1,000, at a repurchase price equal to 100% of the principal amount thereof, plus accrued and unpaid interest. A Fundamental Change relates to mergers, changes in control of the Company, liquidation/dissolution of the Company, or the delisting of the Company’s common stock.

Carrying value of the Notes:

<i>(in thousands)</i>	December 31, 2022	December 31, 2021
Principal	\$ 600,000	\$ 600,000
Unamortized issuance costs	(6,391)	(9,278)
Convertible senior notes, net	<u>\$ 593,609</u>	<u>\$ 590,722</u>

Interest expense related to the Notes:

<i>(in thousands)</i>	2022	2021
Contractual interest expense (0.75% coupon)	\$ 4,500	\$ 4,500
Amortization of issuance costs	2,888	2,977
	<u>\$ 7,388</u>	<u>\$ 7,477</u>

The effective interest rate for the Notes:

	2022	2021
Weighted-average effective interest rate	1.2 %	1.3 %

Future payments of principal and contractual interest:

<i>(in thousands)</i>	December 31, 2022		
	Principal	Interest	Total
2023	\$ —	\$ 4,500	\$ 4,500
2024	—	4,500	4,500
2025	600,000	2,250	602,250
	<u>\$ 600,000</u>	<u>\$ 11,250</u>	<u>\$ 611,250</u>

Capped call transactions

In February 2020, the Company entered into privately negotiated capped call transactions (the “Capped Call Transactions”) with certain financial institutions. The Capped Call Transactions cover 4.4 million shares (representing the number of shares for which the Notes are initially convertible) of the Company’s common stock. The Capped Call Transactions are expected to reduce common stock dilution and/or offset any potential cash payments the Company must make, other than for principal and interest, upon conversion of the Notes, with such reduction and/or offset subject to a cap of \$196.44. The cap price of the Capped Call Transactions is subject to adjustment upon specified extraordinary events affecting the Company, including mergers and tender offers.

The Capped Call Transactions are accounted for as derivative instruments and do not qualify for the Company’s own equity scope exception in ASC 815 since, in some cases of early settlement, the settlement value of the Capped Call Transactions, calculated following the governing documents, may not represent a fair value measurement. The Capped Call Transactions are classified as other long-term assets and remeasured to fair value at the end of each reporting period, resulting in a non-operating gain or loss.

Change in capped call transactions:

<i>(in thousands)</i>	2022	2021
January 1,	\$ 59,964	\$ 83,597
Fair value adjustment	(57,382)	(23,633)
December 31,	<u>\$ 2,582</u>	<u>\$ 59,964</u>

Credit facility

In November 2019, and as since amended, the Company entered into a five-year \$100 million senior secured revolving credit agreement (the “Credit Facility”) with PNC Bank, National Association. The Company may use borrowings for general corporate purposes and to finance working capital needs. Subject to specific conditions, the Credit Facility allows the Company to increase the aggregate commitment to \$200 million. The commitments expire on November 4, 2024, and any outstanding loans will be payable on such date. The Credit Facility, as amended, contains customary covenants, including, but not limited to, those relating to additional indebtedness, liens, asset divestitures, and affiliate transactions.

The Company is required to comply with financial covenants, including:

- Beginning with the fiscal quarter that ended March 31, 2022 and ending with the fiscal quarter ended December 31, 2022, Pegasystems Inc. must maintain at least \$200 million in cash, investments, and availability under the Revolving Credit Loan.

- Beginning with the fiscal quarter ending March 31, 2023, a maximum net consolidated leverage ratio of 3.5 to 1.0 (with a step-up for certain acquisitions) and a minimum consolidated interest coverage ratio of 3.5 to 1.0.

As of December 31, 2022 and December 31, 2021, the Company had no outstanding cash borrowings under the Credit Facility.

As of December 31, 2022, the Company had \$27.3 million in outstanding letters of credit which reduce the available borrowing capacity under the Credit Facility.

13. STOCKHOLDERS' EQUITY

Preferred stock

The Company has 1 million authorized shares of preferred stock, \$0.01 par value per share, of which none were issued and outstanding as of December 31, 2022.

The Board of Directors has the authority to issue the shares of preferred stock in one or more series, to establish the number of shares to be included in each series, and to determine the designation, powers, preferences, and rights of the shares of each series and the qualifications, limitations, or restrictions thereof, without any further vote or action by the stockholders. The issuance of preferred stock could decrease the earnings and assets available for distribution to holders of common stock and may have the effect of delaying, deferring, or defeating a change in control of the Company. The Company had not issued any shares of preferred stock through December 31, 2022.

Common stock

The Company has 200 million authorized shares of common stock, \$0.01 par value per share, of which 82.4 million were issued and outstanding as of December 31, 2022.

Dividends declared

	2022		2021		2020	
Dividends declared (per share)	\$	0.12	\$	0.12	\$	0.12
Dividend payments to stockholders (in thousands)	\$	9,834	\$	9,761	\$	9,628

The Company paid a quarterly cash dividend of \$0.03 per share in 2022, 2021, and 2020. In the future, the Board of Directors may terminate or modify the dividend program without prior notice.

Stock repurchases

<i>(in thousands)</i>	2022		2021		2020	
	Shares	Amount	Shares	Amount	Shares	Amount
January 1,		\$ 22,583		\$ 37,726		\$ 45,484
Authorizations ⁽¹⁾		60,000		38,467		20,516
Repurchases ⁽²⁾	(280)	(24,508)	(432)	(53,610)	(278)	(28,274)
December 31,		\$ 58,075		\$ 22,583		\$ 37,726

(1) On June 2, 2022, the Company announced that the Board of Directors extended the current stock repurchase program's expiration date to June 30, 2023 and increased the remaining stock repurchase authority to \$60 million.

(2) Purchases under this program have been made on the open market.

14. FAIR VALUE MEASUREMENTS

Assets and liabilities measured at fair value on a recurring basis

The Company records its cash equivalents, marketable securities, Capped Call Transactions, and venture investments at fair value on a recurring basis. Fair value is an exit price, representing the amount that would be received from the sale of an asset or paid to transfer a liability in an orderly transaction between market participants based on assumptions that market participants would use in pricing an asset or liability.

As a basis for classifying the fair value measurements, a three-tier fair value hierarchy, which classifies the fair value measurements based on the inputs used in measuring fair value, was established as follows:

- Level 1 - observable inputs such as quoted prices in active markets for identical assets or liabilities;
- Level 2 - significant other inputs that are observable either directly or indirectly; and
- Level 3 - significant unobservable inputs on which there is little or no market data, which require the Company to develop its own assumptions.

This hierarchy requires the Company to use observable market data, when available, and minimize unobservable inputs when determining fair value.

The fair value of the Capped Call Transactions at the end of each reporting period is determined using a Black-Scholes option-pricing model. The valuation model uses various market-based inputs, including stock price, remaining contractual term, expected volatility, risk-free interest rate, and expected dividend yield. The Company applies judgment when determining expected volatility. The Company considers the underlying equity security's historical and implied volatility levels. The Company's venture investments are recorded at fair value based on multiple valuation methods, including observable public companies and transaction prices and unobservable inputs, including the volatility, rights, and obligations of the securities the Company holds.

The Company's assets and liabilities measured at fair value on a recurring basis:

<i>(in thousands)</i>	December 31, 2022				December 31, 2021			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Cash equivalents	\$ 2,526	\$ —	\$ —	\$ 2,526	\$ 3,216	\$ —	\$ —	\$ 3,216
Marketable securities	\$ —	\$ 152,167	\$ —	\$ 152,167	\$ —	\$ 202,814	\$ —	\$ 202,814
Capped Call Transactions ⁽¹⁾⁽²⁾	\$ —	\$ 2,582	\$ —	\$ 2,582	\$ —	\$ 59,964	\$ —	\$ 59,964
Venture investments ⁽¹⁾⁽³⁾	\$ —	\$ —	\$ 13,069	\$ 13,069	\$ —	\$ —	\$ 7,648	\$ 7,648

(1) Included in other long-term assets.

(2) For additional information, see "Note 12. Debt".

(3) Investments in privately held companies.

Change in venture investments:

<i>(in thousands)</i>	2022	2021
January 1,	\$ 7,648	\$ 8,345
New investments	1,400	500
Sales of investments	(4,020)	(2,449)
Changes in foreign exchange rates	(450)	(68)
Changes in fair value:		
included in other income	5,989	100
included in other comprehensive income	2,502	1,220
December 31,	\$ 13,069	\$ 7,648

The carrying value of certain other financial instruments, including receivables and accounts payable, approximates fair value due to these items' relatively short maturity.

Fair value of the Notes

The Notes' fair value (including the conversion feature embedded in the Notes) was \$521.1 million as of December 31, 2022 and \$642.0 million as of December 31, 2021. The fair value was determined based on the Notes' quoted price in an over-the-counter market on the last trading day of the reporting period and classified within Level 2 in the fair value hierarchy. For additional information, see "Note 12. Debt".

Credit risk

In addition to receivables, the Company is potentially subject to concentrations of credit risk from the Company's cash, cash equivalents, and marketable securities. The Company's cash and cash equivalents are generally held with large, diverse financial institutions worldwide to reduce the Company's credit risk exposure. Investment policies have been implemented that limit purchases of marketable debt securities to investment-grade securities.

15. REVENUE

Geographic revenue

(Dollars in thousands)

	2022		2021		2020	
U.S.	\$ 763,558	57 %	\$ 690,133	57 %	\$ 613,844	61 %
Other Americas	102,980	8 %	61,339	5 %	49,441	5 %
United Kingdom ("U.K.")	115,793	9 %	117,580	10 %	91,517	9 %
Europe (excluding U.K.), Middle East, and Africa	194,563	15 %	198,080	16 %	156,056	15 %
Asia-Pacific	140,951	11 %	144,521	12 %	106,659	10 %
	<u>\$ 1,317,845</u>	<u>100 %</u>	<u>\$ 1,211,653</u>	<u>100 %</u>	<u>\$ 1,017,517</u>	<u>100 %</u>

Revenue streams

(in thousands)

	2022		2021		2020	
Perpetual license	\$ 19,293		\$ 32,172		\$ 28,558	
Subscription license	366,063		336,248		266,352	
Revenue recognized at a point in time	385,356		368,420		294,910	
Maintenance	317,564		320,257		296,709	
Pega Cloud	384,271		300,966		208,268	
Consulting	230,654		222,010		217,630	
Revenue recognized over time	932,489		843,233		722,607	
	<u>\$ 1,317,845</u>		<u>\$ 1,211,653</u>		<u>\$ 1,017,517</u>	

(in thousands)

	2022		2021		2020	
Pega Cloud	\$ 384,271		\$ 300,966		\$ 208,268	
Maintenance	317,564		320,257		296,709	
Subscription services	701,835		621,223		504,977	
Subscription license	366,063		336,248		266,352	
Subscription	1,067,898		957,471		771,329	
Perpetual license	19,293		32,172		28,558	
Consulting	230,654		222,010		217,630	
	<u>\$ 1,317,845</u>		<u>\$ 1,211,653</u>		<u>\$ 1,017,517</u>	

Remaining performance obligations ("Backlog")

Expected future revenue from existing non-cancellable contracts:

As of December 31, 2022:

	Subscription services					Total	
	Maintenance	Pega Cloud	Subscription license	Perpetual license	Consulting		
1 year or less	\$ 242,073	\$ 379,648	\$ 60,668	\$ 5,310	\$ 32,374	\$ 720,073	53 %
1-2 years	66,207	246,195	3,803	2,253	6,371	324,829	24 %
2-3 years	26,746	143,901	1,707	—	1,647	174,001	13 %
Greater than 3 years	15,602	115,944	5,283	—	—	136,829	10 %
	<u>\$ 350,628</u>	<u>\$ 885,688</u>	<u>\$ 71,461</u>	<u>\$ 7,563</u>	<u>\$ 40,392</u>	<u>\$ 1,355,732</u>	<u>100 %</u>

As of December 31, 2021:

	Subscription services					Total	
	Maintenance	Pega Cloud	Subscription license	Perpetual license	Consulting		
1 year or less	\$ 234,917	\$ 330,426	\$ 153,467	\$ 10,952	\$ 41,411	\$ 771,173	58 %
1-2 years	65,502	220,231	14,968	4,505	8,917	314,123	23 %
2-3 years	38,432	124,969	1,955	2,252	5,512	173,120	13 %
Greater than 3 years	28,157	55,937	1,765	—	619	86,478	6 %
	<u>\$ 367,008</u>	<u>\$ 731,563</u>	<u>\$ 172,155</u>	<u>\$ 17,709</u>	<u>\$ 56,459</u>	<u>\$ 1,344,894</u>	<u>100 %</u>

16. STOCK-BASED COMPENSATION

<i>(in thousands)</i>	2022	2021	2020
Cost of revenue	\$ 26,400	\$ 21,822	\$ 20,796
Selling and marketing	46,769	54,182	46,283
Research and development	29,266	25,413	22,885
General and administrative	19,775	14,530	13,104
	<u>\$ 122,210</u>	<u>\$ 115,947</u>	<u>\$ 103,068</u>
Income tax benefit	\$ (1,881)	\$ (23,410)	\$ (20,464)

The Company periodically grants employees stock options and restricted stock units (“RSUs”) and non-employee Directors common stock and stock options.

Most of the Company’s stock-based compensation arrangements vest over five years, with 20% vesting after one year and 80% vesting in equal quarterly installments over the remaining four years. The Company’s stock options have a term of ten years. The Company recognizes stock-based compensation using the accelerated attribution method, treating each vesting tranche as an individual grant. The stock-based compensation expense recognized during a period is based on the value of the awards that are expected to vest. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Ultimately, the Company recognizes the actual expense over the vesting period only for the shares that vest.

Employees may elect to receive 50% of the employee’s target incentive compensation under the Company’s Corporate Incentive Compensation Plan (the “CICP”) in the form of RSUs instead of cash. If elected by an employee, the equity amount is equal in value on the grant date to 50% of the employee’s target incentive opportunity, based on the employee’s base salary. The number of RSUs granted is determined by dividing 50% of the employee’s target incentive opportunity by 85% of the closing price of the Company’s common stock on the grant date, less the present value of expected dividends during the vesting period. If elected, the award vests 100% on the following year’s CICP payout date. Vesting is conditioned upon the performance conditions of the CICP and on continued employment; if threshold funding does not occur, the RSUs will not vest. The Company considers vesting probable on the grant date and recognizes the associated stock-based compensation expense over the requisite service period beginning on the grant date and ending on the vesting date.

The Company grants awards that allow for the settlement of vested stock options and RSUs on a net share basis (“net settled awards”). With net settled awards, the employee does not surrender any cash or shares upon exercise. Instead, the Company withholds the number of shares to cover the exercise price (in the case of stock options) and the minimum statutory tax withholding obligations (in the case of stock options and RSUs) from the shares that would otherwise be issued upon exercise or settlement. The exercise of stock options and settlement of RSUs on a net share basis results in fewer shares being issued by the Company.

Stock-based compensation plans

2004 Long-Term Incentive Plan (as amended and restated)

In 2004, the Company adopted the 2004 Long-Term Incentive Plan (as amended and restated, the “2004 Plan”) to provide employees, non-employee Directors, and consultants with opportunities to purchase stock through incentive and non-qualified stock options. Subsequent amendments to the plan increased the number of shares authorized for issuance under the plan to 36 million, extended the term of the plan to 2030, and limited annual compensation to any non-employee Director to \$0.5 million.

As of December 31, 2022, 17.3 million shares were subject to outstanding options and stock-based awards under the 2004 Plan.

2006 Employee Stock Purchase Plan

In 2006, the Company adopted the 2006 Employee Stock Purchase Plan (the “2006 ESPP”) under which employees may purchase up to an aggregate of one million shares of common stock, at a price equal to at least 85% of the fair market value of the Company’s common stock on the lesser of the commencement date or completion date for offerings under the plan, or such higher price as the Company’s Board of Directors may establish from time to time. In October 2012, the Company’s Board of Directors amended the 2006 ESPP to continue until no shares remain. Before January 1, 2021, the 2006 ESPP was non-compensatory as the Company’s Board of Directors set the purchase price at 95% of the fair market value on the completion date of the offering period. Commencing on January 1, 2021, the Company’s Board of Directors set the purchase price at 85% of the fair market value on the completion date of the offering period.

<i>(in thousands)</i>	2022
Compensation expense from 2006 ESPP	\$ 1,614

As of December 31, 2022, 0.8 million shares had been issued under the plan.

Shares issued and available for issuance

In 2022, the Company issued 1.0 million shares to its employees and directors under the Company's stock-based compensation plans.

As of December 31, 2022, there were 1.4 million shares available for issuance for future equity grants under the Company's stock plans, consisting of 1.2 million shares under the 2004 Plan and 0.2 million shares under the 2006 ESPP.

Grant activity

Stock options

The Company estimates the fair value of stock options using a Black-Scholes option-pricing model. Key inputs used to estimate the fair value of stock options include the exercise price of the award, expected term of the option, expected volatility of the Company's common stock over the option's expected term, risk-free interest rate over the option's expected term, and the Company's expected annual dividend yield. The exercise price for stock options is greater than or equal to the shares' fair market value at the grant date.

The following table summarizes the Company's fair value assumptions for stock options:

	2022	2021	2020
Weighted-average grant-date fair value	\$ 17.49	\$ 37.74	\$ 24.16
Assumptions used in the Black-Scholes option-pricing model:			
Expected annual volatility ⁽¹⁾	42 %	35 %	31 %
Expected term in years ⁽²⁾	3.9	4.4	4.5
Risk-free interest rate ⁽³⁾	3.4 %	0.6 %	0.7 %
Expected annual dividend yield ⁽⁴⁾	0.1 %	0.2 %	0.2 %

(1) The expected annual volatility for each grant is determined based on the average of historic daily price changes of the Company's common stock over a period, which approximates the expected option term.

(2) The expected option term for each grant is determined based on the historical exercise behavior of employees and post-vesting employment termination behavior.

(3) The risk-free interest rate is based on the yield of U.S. Treasury securities with a commensurate maturity with the expected option term at the time of grant.

(4) The expected annual dividend yield is based on the weighted-average dividend yield assumptions used for options granted during the applicable period.

The following table summarizes the combined stock option activity under the Company's stock option plans for 2022:

	Shares (in thousands)	Weighted-average Exercise Price	Weighted-average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Options outstanding as of January 1, 2022	7,189	\$ 74.94		
Granted	9,725	50.35		
Exercised	(572)	25.17		
Forfeited	(1,153)	87.71		
Expired	(278)	82.83		
Options outstanding as of December 31, 2022	14,911	\$ 59.67		
Vested and expected to vest as of December 31, 2022	12,449	\$ 59.06	8.1	\$ 9,476
Exercisable as of December 31, 2022	3,901	\$ 64.76	5.3	\$ 8,056

The aggregate intrinsic value of stock options exercised (i.e., the difference between the market price at exercise and the price paid by the employee at exercise) in 2022, 2021, and 2020 was \$15.6 million, \$94.3 million, and \$126.8 million, respectively. The aggregate intrinsic value of stock options outstanding and exercisable as of December 31, 2022 is based on the difference between the closing price of the Company's stock of \$34.24 and the exercise price of the applicable stock options.

As of December 31, 2022, the Company had unrecognized stock-based compensation expense related to the unvested portion of stock options of \$101.6 million that is expected to be recognized as expense over a weighted-average period of 2.0 years.

RSUs

RSUs provide the recipient a right to receive a specified number of shares of the Company's common stock upon vesting. The Company values its RSUs at the fair value of its common stock on the grant date, which is the closing price of its common stock on the grant date less the present value of expected dividends during the vesting period, as the recipient is not entitled to dividends during the requisite service period.

The weighted-average grant-date fair value for RSUs granted in 2022, 2021, and 2020 was \$74.50, \$129.03, and \$93.68, respectively.

The following table summarizes the combined RSU activity for all grants, including the CICIP, under the 2004 Plan for 2022:

	Shares (in thousands)		Weighted- Average Grant-Date Fair Value		Aggregate Intrinsic Value (in thousands)
Nonvested as of January 1, 2022	2,054	\$	99.36		
Granted	1,571		74.50		
Vested	(795)		93.72		
Forfeited	(479)		95.13		
Nonvested as of December 31, 2022	2,351	\$	85.52	\$	80,497
Expected to vest as of December 31, 2022	1,716	\$	85.17	\$	58,772

The fair value of RSUs vested in 2022, 2021, and 2020 was \$50.3 million, \$122.5 million, and \$108.4 million, respectively. The aggregate intrinsic value of RSUs outstanding and expected to vest as of December 31, 2022 is based on the closing price of the Company's stock of \$34.24 as of December 31, 2022.

As of December 31, 2022, the Company had \$65.5 million of unrecognized stock-based compensation expense related to all unvested RSUs that is expected to be recognized as expense over a weighted-average period of 2.0 years.

Common stock

In 2022, the Company granted 0.01 million shares of common stock to Directors with a weighted-average grant-date fair value of \$42.41 per share.

17. EMPLOYEE BENEFIT PLANS

The Company sponsors defined contribution plans for qualifying employees, including a 401(k) plan in the United States to which the Company makes discretionary matching contributions.

Employee benefit plan expenses:

<i>(in thousands)</i>	2022	2021	2020
U.S. 401(k) Plan	\$ 8,994	\$ 8,879	\$ 8,109
International plans	21,141	20,780	16,132
	<u>\$ 30,135</u>	<u>\$ 29,659</u>	<u>\$ 24,241</u>

18. INCOME TAXES

The components of (loss) before provision for (benefit from) income taxes are:

<i>(in thousands)</i>	2022	2021	2020
Domestic	\$ (185,820)	\$ (125,947)	\$ (59,281)
Foreign	24,023	(6,040)	(65,608)
	<u>\$ (161,797)</u>	<u>\$ (131,987)</u>	<u>\$ (124,889)</u>

The components of provision for (benefit from) income taxes are:

<i>(in thousands)</i>	2022	2021	2020
Current:			
Federal	\$ 3,920	\$ 1,921	\$ (11,251)
State	775	363	399
Foreign	10,200	4,105	7,113
Total current provision for (benefit from)	<u>14,895</u>	<u>6,389</u>	<u>(3,739)</u>
Deferred:			
Federal	149,028	(42,214)	(34,573)
State	20,704	(9,413)	(8,119)
Foreign	(842)	(23,709)	(17,085)
Total deferred provision (benefit)	<u>168,890</u>	<u>(75,336)</u>	<u>(59,777)</u>
	<u>\$ 183,785</u>	<u>\$ (68,947)</u>	<u>\$ (63,516)</u>

A reconciliation of the U.S federal statutory tax rate and the Company's effective tax rate:

<i>(in thousands)</i>	2022	2021	2020
U.S. federal income taxes at statutory rates	\$ (33,977)	\$ (27,717)	\$ (26,227)
Valuation allowance	188,258	(469)	(5,881)
State income taxes, net of federal benefit and tax credits	(2,433)	(7,217)	(6,994)
Permanent differences	11,561	541	1,773
Federal research and experimentation credits	(5,012)	(6,380)	(5,716)
Tax effects of foreign activities	3,770	3,599	3,050
GILTI, FDII, and BEAT	16,390	—	—
Provision to return adjustments	(6,317)	(2,016)	3,416
Non-deductible compensation	4,769	5,464	1,806
Expiration of statutes and changes in estimates	5,673	(2,250)	55
Excess tax benefits related to stock-based compensation	1,563	(20,697)	(25,797)
CARES Act	—	—	(10,576)
Impact of change in tax law	(793)	(11,811)	7,489
Other	333	6	86
	<u>\$ 183,785</u>	<u>\$ (68,947)</u>	<u>\$ (63,516)</u>

Deferred income taxes

Significant components of net deferred tax assets and liabilities are:

<i>(in thousands)</i>	December 31,	
	2022	2021
Deferred tax assets:		
Net operating loss carryforwards	\$ 109,286	\$ 133,164
Accruals and reserves	32,467	38,526
Interest expense carryforward	208	7,759
Software revenue	1,828	336
Convertible senior notes	5,794	8,362
Depreciation	3,698	3,764
Tax credit carryforwards	39,122	40,590
Research and development capitalization	38,425	—
Other	622	1,015
Total deferred tax assets	<u>231,450</u>	<u>233,516</u>
Valuation allowances	(212,808)	(25,855)
Total net deferred tax assets	<u>18,642</u>	<u>207,661</u>
Deferred tax liabilities:		
Capped call transactions	(644)	(14,961)
Convertible senior notes	—	—
Software revenue	—	—
Intangibles	(14,280)	(12,044)
Total deferred tax liabilities	<u>(14,924)</u>	<u>(27,005)</u>
	<u>\$ 3,718</u>	<u>\$ 180,656</u>

The Company recognizes deferred tax assets to the extent that it believes that these assets are more likely than not to be realized. Future realization of deferred tax assets ultimately depends on sufficient taxable income within the available carryback or carryforward periods. The Company's deferred tax valuation allowance requires significant judgment and has uncertainties, including assumptions about future taxable income based on historical and projected information. On a quarterly basis, the Company reassesses the need for a valuation allowance on its existing net deferred tax assets by tax-paying jurisdiction, weighing positive and negative evidence to assess its recoverability. In making such a determination, the Company considers all available and objectively verifiable negative and positive evidence, including future reversals of existing taxable temporary differences, committed contractual backlog ("Backlog"), projected future taxable income inclusive of the impact of enacted legislation, tax-planning strategies, and results of recent operations. The weight given to the potential effect of negative and positive evidence is commensurate with the extent to which it can be objectively verified.

As of June 30, 2022, the Company's Backlog balance was not sufficient to recover the Company's net deferred tax assets. The Backlog balance and other unsettled circumstances, impacting the Company's operations, reduced the Backlog's weight as objectively verifiable positive evidence to generate sufficient taxable income to recover its net deferred tax assets. These unsettled circumstances include growing and extended geopolitical turmoil, increasing inflation, and an uncertain global economic outlook.

As of June 30, 2022, the combination of the above factors caused the Company to conclude there is not sufficient objectively verifiable positive evidence to support that it is more likely than not the Company will generate sufficient future taxable income to recover the Company's U.S. and U.K. net deferred tax assets.

The Company intends to maintain a full valuation allowance on its U.S and U.K deferred tax assets until there is sufficient evidence to support the realization of these deferred tax assets. Accordingly, the Company recorded a valuation allowance of \$188.3 million in income tax expense in 2022.

As of December 31, 2022, the Company's net operating losses and credit carryforwards are:

<i>(in thousands)</i>	Federal	State
Net operating losses ⁽¹⁾	\$ 147,294	\$ 10,807
Net operating losses due to acquisitions ⁽¹⁾	\$ 27,442	\$ 2,849
Credit carryforwards ⁽²⁾	\$ 29,080	\$ 1,686
Credit carryforwards due to acquisitions	\$ 640	\$ 60

(1) Excludes federal and state net operating losses of \$19.8 million and \$0.8 million, respectively, from prior acquisitions that the Company expects will expire unutilized.

(2) Excludes federal and state tax credits of \$0.1 million and \$9.2 million, respectively, that the Company expects will expire unutilized.

Carryforward losses and credits expire between 2023 and 2040, except for the 2020 and 2021 federal net operating loss of \$119.9 million and \$1.2 million of state credits, which both have unlimited carryforward periods.

The Company's India subsidiary is primarily located in Special Economic Zones ("SEZs") and is entitled to a tax holiday in India. The tax holiday reduces or eliminates income tax in India. The tax holiday in the Hyderabad SEZ is expected to expire in 2023. The tax holiday in the Bengaluru SEZ is expected to expire in 2027.

Uncertain tax benefits

A rollforward of the Company's gross unrecognized tax benefits is:

<i>(in thousands)</i>	2022	2021	2020
Balance as of January 1,	\$ 17,584	\$ 23,801	\$ 23,271
Additions for tax positions related to the current year	1,706	653	653
Additions for tax positions of prior years	728	—	962
Reductions for tax positions of prior years	(272)	(6,870)	(1,085)
Balance as of December 31,	\$ 19,746	\$ 17,584	\$ 23,801

As of December 31, 2022, the Company had \$19.7 million of total unrecognized tax benefits, which would decrease the Company's effective tax rate if recognized.

Tax examinations

The Company files federal and state income tax returns in the U.S. and various foreign jurisdictions. In the ordinary course of business, the Company and its subsidiaries are examined by various tax authorities, including the Internal Revenue Service in the U.S. As of December 31, 2022, the Company's U.S. federal tax returns for the years 2015 through 2018 were under examination by the Internal Revenue Service. In addition, certain foreign jurisdictions are auditing the Company's income tax returns for periods ranging from 2013 through 2020. The Company does not expect the results of these audits to have a material effect on the Company's financial condition, results of operations, or cash flows. With few exceptions, the statute of limitations remains open in all jurisdictions for all tax years since 2016 to the present.

19. (LOSS) PER SHARE

Basic (loss) per share is calculated using the weighted-average number of common shares outstanding during the period. Diluted (loss) per share is calculated using the weighted-average number of common shares outstanding during the period, plus the dilutive effect of outstanding stock options, RSUs, and convertible senior notes.

Calculation of (loss) per share:

<i>(in thousands, except per share amounts)</i>	2022	2021	2020
Net (loss)	\$ (345,582)	\$ (63,040)	\$ (61,373)
Weighted-average common shares outstanding	81,947	81,387	80,336
(Loss) per share, basic	\$ (4.22)	\$ (0.77)	\$ (0.76)
Net (loss)	\$ (345,582)	\$ (63,040)	\$ (61,373)
Weighted-average common shares outstanding, assuming dilution ⁽¹⁾⁽²⁾⁽³⁾	81,947	81,387	80,336
(Loss) per share, diluted	\$ (4.22)	\$ (0.77)	\$ (0.76)
Outstanding anti-dilutive stock options and RSUs ⁽⁴⁾	3,367	5,862	6,278

(1) In periods of loss, all dilutive securities are excluded as their inclusion would be anti-dilutive.

- (2) The shares underlying the conversion options in the Company's Notes are included using the if-converted method, if dilutive in the period. If the outstanding conversion options were fully exercised, the Company would issue an additional approximately 4.4 million shares.
- (3) The Company's Capped Call Transactions represent the equivalent of approximately 4.4 million shares of the Company's common stock (representing the number of shares for which the Notes are initially convertible). The Capped Call Transactions are expected to reduce common stock dilution and/or offset any potential cash payments the Company must make, other than for principal and interest, upon conversion of the Notes, with such reduction and/or offset subject to a cap of \$196.44. The Capped Call Transactions are excluded from weighted-average common shares outstanding, assuming dilution, in all periods as their effect would be anti-dilutive.
- (4) Outstanding stock options and RSUs that were anti-dilutive under the treasury stock method in the period were excluded from the computation of diluted (loss) per share. These awards may be dilutive in the future.

20. COMMITMENTS AND CONTINGENCIES

Commitments

For additional information, see "Note 11. Leases".

Legal Proceedings

In addition to the matters below, the Company is or may become involved in a variety of claims, demands, suits, investigations, and proceedings that arise from time to time relating to matters incidental to the ordinary course of the Company's business, including actions concerning contracts, intellectual property, employment, benefits, and securities matters. Regardless of the outcome, legal disputes can have a material effect on the Company because of defense and settlement costs, diversion of management resources, and other factors.

In addition, as the Company is a party to ongoing litigation, it is at least reasonably possible that the Company's estimates will change in the near term, and the effect may be material.

The Company had no accrued losses for litigation as of December 31, 2022 and December 31, 2021.

Pegasystems Inc. v. Appian Corp. & Business Process Management Inc.

On July 3, 2019, the Company filed suit in Massachusetts federal court against Appian Corp. ("Appian") and Business Process Management, Inc. ("BPM") relating to a BPM "Market Report" that Appian had used to promote itself against the Company. *Pegasystems Inc. v. Appian Corp. & Business Process Management Inc.*, No. 1:19-cv-11461 (D. Mass). As previously indicated in the Company's Current Report on Form 8-K filed on November 10, 2022 with the SEC, on November 9, 2022, the Company entered into a confidential settlement agreement with Appian resolving the litigation, and the parties filed a Stipulation of Dismissal with Prejudice dismissing all claims and counterclaims in this litigation. The Company will not contain disclosure regarding this litigation in future filings it makes with the SEC.

Appian Corp. v. Pegasystems Inc. & Youyong Zou

As previously reported, the Company is a defendant in litigation brought by Appian in the Circuit Court of Fairfax County, Virginia (the "Court") titled *Appian Corp. v. Pegasystems Inc. & Youyong Zou*, No. 2020-07216 (Fairfax Cty. Ct.). On May 9, 2022, the jury rendered its verdict finding that the Company had misappropriated one or more of Appian's trade secrets, that the Company had violated the Virginia Computer Crimes Act, and that the trade secret misappropriation was willful and malicious. The jury awarded damages of \$2,036,860,045 for trade secret misappropriation and \$1.00 for violating the Virginia Computer Crimes Act. On September 15, 2022, the circuit court of Fairfax County entered judgment of \$2,060,479,287, consisting of the damages previously awarded by the jury plus attorneys' fees and costs, and stating that the judgment is subject to post-judgment interest at a rate of 6.0% per annum, from the date of the jury verdict (May 9, 2022) as to the amount of the jury verdict and from September 15, 2022 as to the amount of the award of attorneys' fees and costs. On September 15, 2022, the Company filed a notice of appeal from the judgment. On September 29, 2022, the circuit court of Fairfax County approved a \$25,000,000 letter of credit obtained by the Company to secure the judgment and entered an order suspending the judgment during the pendency of the Company's appeal. Appellate briefing is currently in process. Although it is not possible to predict timing, this appeals process could potentially take years to complete. The Company continues to believe that it did not misappropriate any alleged trade secrets and that its sales of the Company's products at issue were not caused by, or the result of, any alleged misappropriation of trade secrets. The Company is unable to reasonably estimate possible damages because of, among other things, uncertainty as to the outcome of appellate proceedings and/or any potential new trial resulting from the appellate proceedings.

City of Fort Lauderdale Police and Firefighters' Retirement System, Individually and on Behalf of All Others Similarly Situated v. Pegasystems Inc., Alan Trefler, and Kenneth Stillwell

On May 19, 2022, a lawsuit was filed against the Company, the Company's chief executive officer and the Company's chief operating and financial officer in the United States District Court for the Eastern District of Virginia Alexandria Division, captioned *City of Fort Lauderdale Police and Firefighters' Retirement System, Individually and on Behalf of All Others Similarly Situated v. Pegasystems Inc., Alan Trefler, and Kenneth Stillwell* (Case 1:22-cv-00578-LMB-IDD). The complaint generally alleges, among other things, that the defendants violated Section 10(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") and Rule 10b-5 promulgated thereunder and that the individual defendants violated Section 20(a) of the Exchange Act, in each case by allegedly making materially false and/or misleading statements, as well as allegedly failing to disclose material adverse facts about the Company's business, operations, and prospects, which caused the Company's securities to trade at artificially inflated prices. The complaint seeks unspecified damages on behalf of a class of purchasers of the Company's securities between May 29, 2020 and May 9, 2022. The litigation has since been transferred to the United States District Court for the District of Massachusetts (Case 1:22-cv-11220-WGY), and lead plaintiff class representatives—Central Pennsylvania Teamsters Pension Fund - Defined Benefit Plan, Central Pennsylvania Teamsters Pension Fund - Retirement Income Plan 1987, and Construction Industry Laborers Pension Fund—have been appointed. On October 18, 2022, a consolidated amended complaint was filed that does not add any new parties or legal claims, is based upon the same general factual allegations as the original complaint, and now seeks unspecified damages on behalf of a class of purchasers of the Company's securities between June 16, 2020 and May 9, 2022. The Company believes the claims brought against the defendants are without merit and intends to defend against these claims vigorously. The Company is unable to reasonably estimate possible damages or a range of possible damages in this matter given the stage of the lawsuit, the Company's belief that the claims are without merit, and there being no specified quantum of damages sought in the complaint.

Mary Larkin, derivatively on behalf of nominal defendant Pegasystems Inc. v. Peter Gyenes, Richard Jones, Christopher Lafond, Dianne Ledingham, Sharon Rowlands, Alan Trefler, Larry Weber, and Kenneth Stillwell, defendants, and Pegasystems Inc., nominal defendant

On November 21, 2022, a lawsuit was filed against the members of the Company's board of directors, the Company's chief operating and financial officer and the Company in the United States District Court for the District of Massachusetts, captioned *Mary Larkin, derivatively on behalf of nominal defendant Pegasystems Inc. v. Peter Gyenes, Richard Jones, Christopher Lafond, Dianne Ledingham, Sharon Rowlands, Alan Trefler, Larry Weber, and Kenneth Stillwell, defendants, and Pegasystems Inc., nominal defendant* (Case 1:22-cv-11985). The complaint generally alleges the defendants sold shares of the Company while in possession of material nonpublic information relating to (i) the litigation brought by Appian in the Circuit Court of Fairfax County, Virginia, described above, and (ii) alleged misconduct by Company employees alleged in that litigation. The Company believes the claims brought against the defendants are without merit and intends to defend against these claims vigorously. The Company is unable to reasonably estimate possible damages or a range of possible damages in this matter given the stage of the lawsuit, the Company's belief that the claims are without merit, and there being no specified quantum of damages sought in the complaint.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of disclosure controls and procedures

Our management, with the participation of our Chief Executive Officer (“CEO”) and Chief Financial Officer (“CFO”), evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act) as of December 31, 2022. In designing and evaluating our disclosure controls and procedures, our management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and our management necessarily applied its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Based on this evaluation, our CEO and CFO concluded that our disclosure controls and procedures were effective as of December 31, 2022.

Management’s report on and changes in internal control over financial reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act. Under the supervision and with the participation of our management, including our CEO and CFO, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2022 based on the framework in the updated *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”) on May 14, 2013.

Based on this evaluation, management has concluded that (i) our internal control over financial reporting was effective as of December 31, 2022 and (ii) no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act) occurred during the quarter ended December 31, 2022 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Deloitte & Touche LLP, our independent registered public accounting firm which also audited our consolidated financial statements, has issued an attestation report on our internal control over financial reporting, which is included in Item 8 “Financial Statements and Supplementary Data”.

ITEM 9B. OTHER INFORMATION

None.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Except as set forth below, information required by this item is incorporated herein by reference from the information contained in our proxy statement for our 2023 annual stockholders meeting (the “2023 proxy statement”) under the headings Executive Compensation, Election of Directors, Corporate Governance, Executive Officers, and Delinquent Section 16(a) Reports, which will be filed with the Securities and Exchange Commission within 120 days after the close of the fiscal year.

We have adopted a written code of conduct that applies to our Board of Directors and employees, including our principal executive officer, principal financial officer, principal accounting officer, and persons performing similar functions. A copy of our code of conduct can be found on our website, www.pegacom. We intend to satisfy the disclosure requirements under Item 5.05 of Form 8-K and the applicable NASDAQ Global Select Market rules by posting such information on our website.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated herein by reference from the information contained in the 2023 proxy statement under the headings “Director Compensation”, “Compensation Discussion and Analysis”, and “Executive Compensation” and is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item is incorporated herein by reference from the information contained in the 2023 proxy statement under the headings “Executive Compensation”, “Equity Compensation Plan Information”, and “Security Ownership of Certain Beneficial Owners and Management”, and is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated herein by reference from the information contained in the 2023 proxy statement under the headings “Certain Relationships and Related Transactions” and “Determination of Independence” and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item is incorporated herein by reference from the information contained in the 2023 proxy statement under the heading “Independent Registered Public Accounting Firm Fees and Services” and is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) The following are filed as part of this Annual Report:

(1) Financial Statements

The following consolidated financial statements are included in Item 8:

	Page
Report of Independent Registered Public Accounting Firm	36
Consolidated Balance Sheets as of December 31, 2022 and 2021	38
Consolidated Statements of Operations for the years ended December 31, 2022, 2021, and 2020	39
Consolidated Statements of Comprehensive (Loss) for the years ended December 31, 2022, 2021, and 2020	40
Consolidated Statements of Stockholders' Equity for the years ended December 31, 2022, 2021, and 2020	41
Consolidated Statements of Cash Flows for the years ended December 31, 2022, 2021, and 2020	42

(b) Exhibits

Exhibit No.	Description	Incorporation by Reference			Filed Herewith
		Form	Location	Filing Date	
3.1	Restated Articles of Organization of the Registrant and Amendments thereto	10-Q	3.1	11/4/14	
3.2	Amended and Restated Bylaws of Pegasystems Inc	8-K	3.2	6/15/20	
4.1	Specimen Certificate Representing the Common Stock	S-1	4.1	6/19/96	
4.2	Indenture, dated as of February 24, 2020, between Pegasystems Inc. and U.S. Bank National Association, as trustee	8-K	4.1	2/24/20	
4.3	Form of certificate representing the 0.75% Convertible Senior Notes due 2025	8-K	Exhibit A to 4.1	2/24/20	
4.4	Description of Common Stock	10-K	4.2	2/12/20	
10.1	2004 Long-Term Incentive Plan (as amended and restated)++	8-K	10.1	6/24/20	
10.2	Restricted Stock Unit Sub-Plan of the Registrant's 2004 Long-Term Incentive Plan for French Participants++	DEF 14A	Appendix B to 2016 Proxy Statement	4/18/16	
10.3	2006 Employee Stock Purchase Plan, as amended on October 29, 2020++	10-K	10.3	2/17/21	
10.4	Form of Employee Stock Option Agreement, as amended++	10-Q	10.3	5/10/17	
10.5	Form of Global Stock Option Agreement++	10-K	10.5	2/17/21	
10.6	Form of Restricted Stock Unit Agreement, as amended++	10-Q	10.4	5/10/17	
10.7	Form of Global Restricted Stock Unit Agreement++	10-K	10.7	2/17/21	
10.8	Form of Non-Employee Director Stock Option Agreement++	10-Q	10.2	10/29/04	
10.9	Form of Director Indemnification Agreement++	8-K	99.1	4/11/05	
10.10	Offer Letter between the Registrant and Douglas I. Kra dated October 19, 2004++	10-K	10.20	2/17/04	
10.11	Offer Letter, dated April 27, 2020, between Pegasystems Inc. and Hayden Stafford++	10-Q	10.3	7/28/20	
10.12	Offer Letter between the Registrant and Kenneth Stillwell dated June 1, 2016++	8-K	99.1	6/14/16	
10.13	Compensation program for non-employee members of the Registrant's Board of Directors, effective August 5, 2019++	8-K	Item 1.01	8/9/19	
10.14	2021 Section 16 Officers/FLT Member Corporate Incentive Compensation Plan++	8-K	99.1	2/8/21	
10.15	2022 Section 16 Officers/FLT Member Corporate Incentive Compensation Plan++	8-K	99.1	2/7/22	
10.16	Credit Agreement dated as of November 5, 2019 with PNC Bank, National Association	10-Q	10.1	11/7/19	
10.17	Amendment to Loan Documents, dated February 18, 2020, between Pegasystems Inc. and PNC Bank, National Association	8-K	10.3	2/24/20	
10.18	Amendment 2 to Loan Documents, dated July 22, 2020, between Pegasystems Inc. and PNC Bank, National Association	10-Q	10.2	7/28/20	
10.19	Amendment to Loan Documents, dated as of September 30, 2020, between Pegasystems Inc. and PNC Bank, National Association	10-Q	10.3	10/28/20	
10.20	Fourth Amendment to Loan Documents, dated as of March 31, 2022, between Pegasystems Inc. and PNC Bank, National Association	10-Q	10.1	3/31/22	
10.21	Fifth Amendment to Loan Documents, dated as of July 25, 2022, between Pegasystems Inc. and PNC Bank, National Association	10-Q	10.1	7/27/22	
10.22	Form of Side Letter to Base Call Option Transaction	10-Q	10.1	10/28/20	
10.23	Form of Side Letter to Additional Call Option Transaction	10-Q	10.2	10/28/20	
10.24	Form of Confirmation of Base Call Option Transaction	8-K	10.1	2/24/20	
10.25	Form of Confirmation of Additional Call Option Transaction	8-K	10.2	2/24/20	
10.26	Sublease, dated March 31, 2021 for Office Space at One Main Street, Cambridge, MA	10-Q	10.1	7/28/21	
10.27	Lease between Pegasystems Inc. and 275 Wyman LLC**	8-K	10.1	7/9/21	
21.1	Subsidiaries of the Registrant				X
23.1	Consent of Independent Registered Public Accounting Firm—Deloitte & Touche LLP				X
31.1	Certification pursuant to Exchange Act Rules 13a-14 and 15d-14 of the Chief Executive Officer				X
31.2	Certification pursuant to Exchange Act Rules 13a-14 and 15d-14 of the Chief Financial Officer				X
32	Certification pursuant to 18 U.S.C. Section 1350 of the Chief Executive Officer and the Chief Financial Officer				X
101.INS	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.				X
101.SCH	Inline XBRL Taxonomy Extension Schema Document.				X
101.CAL	Inline XBRL Taxonomy Calculation Linkbase Document.				X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.				X
101.LAB	Inline XBRL Taxonomy Label Linkbase Document.				X
101.PRE	Inline XBRL Taxonomy Presentation Linkbase Document.				X
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)				X

++ Management contracts and compensatory plan or arrangements required to be filed pursuant to Item 15(b) of Form 10-K.

** Certain portions of this exhibit are considered confidential and have been omitted as allowed under SEC rules and regulations

(c) Financial Statement Schedules

All financial statement schedules are omitted because the required information is not present or not present in sufficient amounts to require submission of the schedule or because the information is reflected in the consolidated financial statements or notes thereto.

ITEM 16. FORM 10-K SUMMARY

Omitted at Registrant's option.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: February 15, 2023

Pegasystems Inc.

By: _____

/s/ KENNETH STILLWELL

Kenneth Stillwell
Chief Operating Officer and Chief Financial Officer
(Principal Financial Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this Annual Report on Form 10-K has been signed below on February 15, 2023 by the following persons on behalf of the Registrant and in the capacities indicated.

Signature	Title
_____ /s/ ALAN TREFLER Alan Trefler	Chairman and Chief Executive Officer (Principal Executive Officer)
_____ /s/ KENNETH STILLWELL Kenneth Stillwell	Chief Operating Officer and Chief Financial Officer (Principal Financial Officer)
_____ /s/ EFSTATHIOS KOUNINIS Efstathios Kouninis	Chief Accounting Officer, Vice President of Finance, and Treasurer (Principal Accounting Officer)
_____ /s/ PETER GYENES Peter Gyenes	Director
_____ /s/ RICHARD JONES Richard Jones	Director
_____ /s/ CHRISTOPHER LAFOND Christopher Lafond	Director
_____ /s/ DIANNE LEDINGHAM Dianne Ledingham	Director
_____ /s/ SHARON ROWLANDS Sharon Rowlands	Director
_____ /s/ LARRY WEBER Larry Weber	Director

SUBSIDIARIES OF PEGASYSTEMS INC*

Name of Subsidiary	State or Jurisdiction of Entity
Pegasystems BV	Netherlands
Pegasystems France	France
Pegasystems GmbH	Germany
Pegasystems Limited	United Kingdom
Pegasystems PTY Limited	Australia
Pegasystems Software Limited sp. z.o.o.	Poland
Pegasystems Worldwide India Private Limited	India

* Omits subsidiaries, which, considered in the aggregate, would not constitute a significant subsidiary.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statements Nos. 333-09305, 333-89707, 333-53746, 333-104788, 333-116660, 333-135596, 333-166287, 333-166544, 333-176810, 333-213953, and 333-239889 on Form S-8 of our report dated February 15, 2023, relating to the financial statements of Pegasystems Inc. and the effectiveness of Pegasystems Inc.'s internal control over financial reporting, appearing in this Annual Report on Form 10-K for the year ended December 31, 2022.

/s/ Deloitte & Touche LLP

Boston, Massachusetts

February 15, 2023

CERTIFICATION

I, Alan Trefler, certify that:

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

Dated: February 15, 2023

/s/ ALAN TREFLER

Alan Trefler
Chairman and Chief Executive Officer
(Principal Executive Officer)

CERTIFICATION

I, Kenneth Stillwell, certify that:

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

Dated: February 15, 2023

/s/ KENNETH STILLWELL

Kenneth Stillwell
Chief Operating Officer and Chief Financial Officer
(Principal Financial Officer)

**CERTIFICATION PURSUANT TO SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Pegasystems Inc. (the “Company”) on Form 10-K for the year ended December 31, 2022 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), Alan Trefler, Chairman and Chief Executive Officer of Pegasystems Inc., and Kenneth Stillwell, Chief Operating Officer and Chief Financial Officer of Pegasystems Inc., each certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

Dated: February 15, 2023

/s/ ALAN TREFLER

Alan Trefler
Chairman and Chief Executive Officer
(Principal Executive Officer)

/s/ KENNETH STILLWELL

Kenneth Stillwell
Chief Operating Officer and Chief Financial Officer
(Principal Financial Officer)