PEGASYSTEMS INC
Form 10-K
February 20, 2019

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

FORM 10-K

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT of 1934
For the fiscal year ended December 31, 2018
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	04-2787865
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
One Rogers Street, Cambridge, MA	02142-1209
(Address of principal executive offices)	(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	Name of Each Exchange on Which Registered
Common Stock, $0.01 par value per share	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 x 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 x
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 x 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 x No ¨
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ¨

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
x	¨	¨	¨	¨

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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ¨ No x

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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 $54.80, on June 29, 2018 was approximately $2.1 billion.

There were 78,442,648 shares of the Registrant's common stock, $0.01 par value per share, outstanding on February 14, 2019.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's definitive proxy statement related to its 2019 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", contains or incorporates forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, Section 21E of the Securities Exchange Act of 1934 and the Private Securities Litigation Reform Act of 1995. We claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995 for all forward-looking statements.

These forward-looking statements are based on current expectations, estimates, forecasts, and projections about the industry and markets in which we operate, and management's beliefs and assumptions. In addition, other written or oral statements that constitute forward-looking statements may be made by us or on our behalf. Words such as "expect," "anticipate," "intend," "plan," "believe," "could," "estimate," "may," "target," "strategy," "is intended to," "project," "guidanc or variations of such words and similar expressions are intended to identify such forward-looking statements.

They include, among other things, statements regarding:

- 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 under license and cloud arrangements;
- our expectations as to the amount of revenue we will recognize in future periods from existing client contracts;
- the expected benefits to our existing and potential clients of our product and service offerings;
- the growth of our business and revenues and our expectations about the factors that influence our success and trends in our business;
- our expectation that revenue will continue to shift in favor of our subscription offerings, particularly cloud arrangements;
- our pipeline of potential future client agreements;
- our expectations regarding the impact of recent accounting pronouncements on our consolidated financial statements;
- our expectation that our net deferred tax assets will be realized in the foreseeable future, that we have adequately provided under U.S. generally accepted accounting principles for uncertain tax benefits, and that the undistributed earnings of our international subsidiaries are considered permanently reinvested; and
- the exposure to foreign currency exchange rates and continued realization of gains or losses with respect to our foreign currency exposures.

Factors that could cause our actual results to differ from those expressed in forward-looking statements include, but are not limited to, those identified in "Item 1A. Risk Factors" of this Annual Report.

Investors are cautioned not to place undue reliance on such forward-looking statements and there are no assurances that the results contained in such statements will be achieved. Although new information, future events, or risks may cause actual results to differ materially from future results expressed or implied by such forward-looking statements, except as required by applicable law, we do not undertake and specifically disclaim any obligation to publicly update or revise these forward-looking statements whether as the result of new information, future events, or otherwise.

ITEM 1. BUSINESS

Our Business

We develop, market, license, and support enterprise software applications that help organizations transform the way they engage with their customers and process and complete work across their enterprise. We license our no-code Pega Platform™ for rapid application development to clients that wish to build and extend their own business applications. Our cloud-architected portfolio of customer engagement and digital process automation applications leverages artificial intelligence ("AI"), case management, and robotic automation technology, built on our unified no-code Pega Platform, empowering businesses to quickly design, extend, and scale their enterprise applications to meet strategic business needs.

To grow our business, we intend to:

- grow market share by developing and delivering market-leading applications for marketing, sales, service, and operations that can work together seamlessly with maximum differentiation and minimal customization;
- execute new-market growth initiatives, further expanding sales coverage within the Global 3000; and
- continue to scale our digital platform and invest in awareness marketing to support the way today's clients want to buy products and services.

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

- successfully 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
- successfully incorporate acquired technologies into our applications and unified Pega Platform.

Our Products

Pega Infinity™, the latest version of our platform, helps connect enterprises to their customers in real-time across channels, streamline business operations, and adapt to meet changing requirements.

Our applications and 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");

- Robotic Process Automation ("RPA");
- Business Rules Management Systems ("BRMS");
- Dynamic Case Management ("DCM");
- Decision Management, including predictive and adaptive analytics;
- No-code and low-code application development platforms, including Mobile Application Development Platforms ("MADP"); and
- Vertical-Specific Software ("VSS") market of industry solutions and packaged applications.

Customer engagement

Our omni-channel 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 engine, which can predict a customer's behavior and recommend the "next-best-action" to take across channels in real-time.

- Pega Marketing™ is designed to enable enterprises to improve customer acquisition and experiences across inbound, outbound, and paid media channels. It incorporates AI in the form of predictive and machine-learning analytics, as well as 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.
- Pega Sales Automation™ automates and manages the entire sales process, from prospecting to product fulfillment. It allows enterprises to capture best practices, and leverages AI to guide sales teams through the sales and customer onboarding processes.
- Pega Customer Service™ is designed to anticipate customer needs, connect customers to the right people and systems, and automate or intelligently guide customer interactions, to rapidly and continuously evolve the customer service experience and to 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, omni-channel self-service, AI-powered virtual assistants, and industry-specific processes and data models.

Digital process automation

We offer industry-specific software applications built on the Pega Platform. These applications provide businesses with robust capabilities to automate industry-specific business processes. As they are built on the Pega Platform, these applications deliver flexibility beyond traditional, "off-the-shelf" products. Our applications allow our clients to offer differentiated service and value to their customers. The Pega Platform empowers organizations to implement new processes quickly, refine customer experiences, bring new offerings to market, and provide customized or specialized automated processing.

Our Capabilities

We drive better business outcomes in two ways:

- Making decisions: delivering real-time customer engagement, powered by real-time, omni-channel AI
- Getting work done: making customer and employee-facing processes more efficient through end-to-end automation and robotics

Real-time, omni-channel AI

AI has been around for many years, in many forms, yet only in the past decade have businesses started using its practical applications, fueled by the new abundance of data to power decisions and ever-increasing customer expectations. Our customer engagement and other applications built on the Pega Platform leverage predictive and adaptive analytics to deliver more personalized customer experiences and maximize business objectives. The Pega Customer Decision Hub, a centralized, always-on "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.

End-to-end robotic automation

We bring together both human-assisted robotic desktop automation and unattended robotic process automation with our unified DPA and case management capabilities. This gives our platform and applications the ability to automate both customer-facing and back-office operational processes from "end-to-end", connecting across organizational and system silos to seamlessly connect customers and employees to successful customer experiences.

Journey-centric rapid delivery

Our customer engagement and DPA solutions are designed to improve targeted customer outcomes, quickly and 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.

Software That Writes Your Software®
Our approach bypasses the error-prone and time-consuming process of manually translating requirements into code. Users design software in no-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. The Pega Platform is standards-based and can leverage a client's existing technology to create new business applications that cross technology silos and bridge the front and back-office.
Unified future-proof platform
We offer a unified DPA platform, combining robotics, process automation, and case management together in a unified architecture. We build in powerful decision analytics, designed to allow our clients to automate any process while working faster and smarter. Our no-code architecture is designed to empower organizations to scale across all dimensions of their business, including product lines, departments, and geographies, by reusing components and avoiding the traditional method of deploying multiple customer engagement and DPA instances that lead to even more silos and disjointed customer experiences.
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.
The Pega Platform and applications are deployable on other cloud architectures, including client or partner-managed clouds. This cloud choice 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
Our Global Client Success group provides guidance to our clients on how to maximize their investment in our technology and realize the business outcomes they are targeting. This includes building implementation expertise and creating awareness of product features and capabilities.
Global Service Assurance
Our Global Service Assurance group 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 regarding technical resource logistics, and increase clients' confidence in our technology and client service.
Global Client Support
Our Global Client Support group oversees technical support of our products and Pega Cloud. Support services include managing the online support community, 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 our ability to train a large number of partners and clients to implement our technology.
We offer both instructor-led and online training to our employees, clients, and partners We have also partnered with universities to offer our courseware as part of the student curriculum to expand our ecosystem.
Our Partners
We collaborate with global systems integrators and technology consulting firms that provide consulting services to our clients. Strategic partnerships with these firms are important to our sales efforts, because they influence buying decisions, help us to identify sales opportunities, and complement our software with their domain expertise and services capabilities. These partners may deliver strategic business planning, consulting, project management, and implementation services to our clients.
Currently, our partners include well-respected major firms, such as Accenture PLC, Atos SE, Capgemini SA, Cognizant Technology Solutions Corporation, EY, Infosys Limited, PwC, Tata Consultancy Services Limited, Tech

Mahindra Limited, Virtusa Corporation, and Wipro Limited.

Our Markets

Target Clients

Our target clients are Global 3000 organizations and government agencies that require applications to differentiate themselves in the markets they serve. Our applications achieve and facilitate differentiation by increasing business agility, driving growth, improving productivity, attracting and retaining customers, and reducing risk. We deliver applications tailored to our clients' specific industry needs.

Our clients represent many industries, including:

- Financial services - Financial services organizations rely on software to market, onboard, cross-sell, retain, and service their customers, as well as automate the operations that support these customer interactions. Our customer service, sales, new account onboarding, Know Your Customer ("KYC"), marketing, collections, and dispute management applications allow clients to be responsive to changing business requirements.
- Healthcare - Healthcare organizations seek software that integrates their front and back-offices and helps them deliver personalized care and customer service while reducing costs, automating processes, and increasing operational efficiency. Our applications allow healthcare clients to address the sales, service, operations, financial, administrative, and regulatory requirements of healthcare consumerism and reform.
- Manufacturing and high tech - Manufacturers worldwide are transforming their businesses to better engage customers and suppliers, as well as to directly manage product performance throughout the product lifecycle. Our manufacturing applications address customer service and field service, manage warranties, recalls, repairs, returns, improve the performance of direct sales forces, and extend existing enterprise resource planning system capabilities.
- Communications and media - Communications and media organizations need to address high levels of customer churn, growing pressure to increase revenue, and an ability to respond quickly to changing market conditions. Our applications enable organizations to reshape the way they engage with customers and increase customer lifetime value throughout the customer lifecycle by delivering omni-channel, personalized customer experiences. Our applications are designed to solve the most critical business issues from acquiring more customers at higher margin, increasing cross-sell/up-sell, improving the efficiency and effectiveness of customer service, and streamlining sales and quoting.
- Insurance - Insurance companies, whether competing globally or nationally, need software to automate the key activities of distribution management, quoting, underwriting, claims, and policy servicing. Insurers are also becoming increasingly sensitive to ways to improve customer service and the overall customer experience. Our applications for insurance carriers are designed to help increase business value by delivering customer-focused experiences and personalized interactions that help drive higher sales, lower expense ratios, and mitigate risk.
- Government - Government agencies need to modernize legacy systems and processes to meet the growing demands for improved constituent service, lower costs, reduced fraud, and greater levels of transparency. Our applications deliver advanced capabilities to help streamline operations and optimize service delivery through an agile, omni-channel approach.
- Consumer services - Organizations that provide services to a range of consumers, in industries such as transportation, utilities, consumer-focused internet companies, retail, hospitality, and entertainment. Our marketing, customer service, and sales applications allow these organizations to personalize their customer engagement to acquire more customers, drive revenue through cross-sell/up-sell, and increase service efficiency while increasing customer satisfaction.
- Life sciences - Life sciences organizations are looking for solutions to improve customer engagement, as well as increase efficiencies and transparency across the product development life-cycle. Our customer engagement, clinical, and pharmacovigilance applications are designed to deliver customer engagement, safety and risk management, and regulatory transparency.

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. See "Item 1A. Risk Factors" of this Annual Report for additional information.

We encounter competition from:

- Customer engagement, including CRM application vendors;
- DPA, including BPM vendors, no-code and low-code application development platforms, and service-oriented architecture middleware vendors;
- Case management vendors;

- Decision management, data science and AI 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;

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- Co-browsing software providers;
- Social listening, text analytics, and natural language processing vendors;
- Professional service 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.

Competitors vary in size, scope, and breadth of the products and services they offer and include some of the largest companies in the world, such as Salesforce.com, Microsoft Corporation, Oracle Corporation, SAP SE, and International Business Machines Corporation ("IBM").

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

We believe we are competitively differentiated as 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 our competitors. In addition, our applications, built on the Pega Platform, provide the same level of flexibility and ability to adapt to our clients' needs as our 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, more extensive geographical presence, and greater name recognition than we do. 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.

Intellectual Property

We rely primarily on a combination of copyright, patent, trademark, and trade secrets laws, as well as confidentiality and intellectual property agreements to protect our proprietary rights. 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. We also control access to and ownership of software, services, documentation, and other proprietary information to protect our proprietary rights.

Sales and Marketing

We sell our software and services primarily through a direct sales force. 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® 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. Our consulting employees, business partners, and other third parties also conduct joint and separate marketing campaigns that generate sales leads for us.

Research and Development

Our research and development organization is responsible for product architecture, core technology development, product testing, and quality

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assurance. Our product development priority is to continue expanding the capabilities of our technology. We intend to maintain and extend the support of our existing applications, and we may choose to invest in additional strategic applications which incorporate the latest business innovations. We also intend to maintain and extend the support of popular hardware platforms, operating systems, databases, and connectivity options to facilitate easy and rapid deployment in diverse IT infrastructures. Our goal with all products is to enhance product capabilities, ease of implementation, long-term flexibility, and the ability to provide improved client service.

Employees

As of January 31, 2019, we had 4,650 employees worldwide, of which 1,919 were based in North America, 960 were based in Europe, and 1,771 were based in Asia-Pacific.

Backlog

As of December 31, 2018, we expected to recognize $631 million in revenue in future periods from backlog on existing contracts. We must fulfill certain conditions related to these agreements prior to recognizing revenue, and there can be no assurance when, if ever, we will be able to satisfy all such conditions.

See "Remaining Performance Obligations" in Item 7 of this Annual Report for additional information.

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.pega.com and our investor relations website is located at www.pega.com/about/investors.

Available Information

We make available our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, and 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 Securities and Exchange Commission (“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, and any amendments to our Code of Conduct, are also 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. Other events that we do not currently anticipate or that we currently deem immaterial may also affect our results of operations, cash flows, and financial condition.

Risks Related to Our Business and Industry

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

We currently intend to grow our business by pursuing strategic initiatives. Key elements of our strategy include growing our market share by developing and delivering robust applications that can work together seamlessly with maximum differentiation and minimal customization, offering versatility in our 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 be able to achieve one or more of our key initiatives. Our success depends on our ability to appropriately manage our expenses as we 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 on these actions, our business may not grow as we anticipated, and our operating results and financial condition could be adversely affected.

We depend on key personnel and must be able to 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 majority stockholder. The loss of key personnel could be disruptive to our operations and adversely affect financial performance. We do not have any significant key-person life insurance on any officers or employees and do not plan to obtain any. Our success will depend in large part on the ability to attract and retain qualified personnel, and rapidly replace and develop 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, and there can be no assurance 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.

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

A change in the size or volume of license and cloud arrangements, or a change in the mix between perpetual licenses, term licenses, and cloud arrangements can cause our revenues and cash flows to fluctuate materially between periods. Should a client choose to enter into a cloud arrangement revenue and cash flows are typically recognized and received over the service period of the cloud arrangement. In contrast with a perpetual or term license the revenue is typically recognized upfront when the license rights become effective.

Factors which may influence the predictability of our license and cloud revenue include:

- changes in clients' budgets and decision-making processes that could affect both the timing and size of transactions;
- deferral of license revenue to future periods due to the timing of the execution of an agreement or our ability to deliver the products or services;
- changes in our business model; and/or
- our ability to execute on 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 in a given period, our financial performance is likely to be adversely affected because only a small portion of our expenses vary with revenue. Other factors which may cause our operating results to vary considerably 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 of license and 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 cloud offerings. Our clients also typically purchase maintenance on our perpetual and term licenses. As a result, an increase in the number of license and cloud arrangements is likely to increase demand for consulting, training, and maintenance related to our offerings. Given that the number of our license and cloud arrangements has been increasing, 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 products. However, if we and our partners are unable to provide sufficient high-quality consulting, training, or maintenance resources to our clients, our clients may not realize sufficient business value from our offerings to justify follow-on sales, which could impact our future financial performance. In addition, the investments required to meet the increased demand for our consulting services could strain our ability to deliver our consulting engagements at desired levels of profitability, thereby impacting our overall profitability and financial results.

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

In recent periods, an increasing percentage of our revenue has been derived from our cloud offerings. Our clients have no obligation to renew their cloud subscriptions, although historically most have elected to do so. If our retention rate for those clients were to decrease, our business, operating results, and financial condition could be materially and adversely affected.

We are investing heavily in sales and marketing, research and development, and support resources in anticipation of continued growth in license and cloud arrangements, and we may experience decreased profitability or losses if we do not continue to increase the value of our license and cloud arrangements to balance our growth in expenses.

We have been expanding our sales and marketing capacity to meet increasing demand for our software and to broaden our market coverage by hiring additional sales and marketing personnel. We anticipate that we will need to provide our clients with more maintenance support because of this increase in demand and have been hiring additional personnel in this area. We continue to invest 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 because of these increased fixed costs. Conversely, if we are unable to hire 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 face risks from operations and clients based outside of the U.S.

We market our products and services to clients based outside of the U.S., which represent an average of 44% of our total revenue over the last three fiscal years. We have established offices in the Americas, Europe, Asia, and Australia. We believe that growth will necessitate expanded international operations, resulting in increased managerial attention and costs. We anticipate hiring additional personnel to accommodate increased international market 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 and adversely affected.

Additional risks inherent in our international business activities generally 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, and 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;
- economic and political uncertainty around the world, such as the U.K.'s referendum in which voters approved an exit from the European Union (EU), commonly referred to as "Brexit";
- 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 accounting, internal control, 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 rely on certain 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 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 products 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 we do, 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.

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

Because a significant portion of our business is conducted outside the U.S., we face exposure to adverse 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 used in the past, but do not currently use foreign currency forward contracts to hedge our exposure to changes in foreign currency exchange rates associated with our foreign currency denominated cash, accounts receivable, and intercompany receivables and payables held by our U.S. parent company and its U.K. subsidiary. We may enter into hedging contracts again in the future if we believe it is appropriate.

Our realized gain or loss with respect to foreign currency fluctuations will generally 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 into forward contracts to offset these exposures, and other factors. All of 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 cloud arrangements.

We derive a substantial portion of our consulting revenue from implementations of new licenses and 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 adversely affect our consulting revenue.

We frequently enter into a series of license or cloud arrangements that are each focused 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 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 a number of reasons, including the performance of our products, the quality of the services and support provided by us and our partners, 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. This could lower the total value of all transactions and adversely affect our financial performance.

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

Technical developments, client requirements, programming languages, and industry standards change frequently in the markets in which we operate. 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 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 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 difficulties in the integration of 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 adversely affect future financial performance.

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

We compete in the CRM, including marketing, sales, and customer service, DPA, including BPM, case management, decision management, robotic automation, co-browsing, social engagement, and mobile application development platform software markets, as well as in markets for the vertical applications we provide (e.g. Pega KYC™ for Financial Services, Pega Underwriting™ for Insurance). These markets are intensely competitive, rapidly changing, and highly fragmented, as current competitors expand their product offerings and new companies enter the market.

We encounter significant competition from other technology vendors, as well as 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. Competition for market share and pressure to reduce prices and make sales concessions are likely to increase. Many of our competitors, such as IBM, Oracle Corporation, Microsoft Corporation, SAP SE, and Salesforce.com, 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 to 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. There can be no assurance that we will be able to compete successfully against current or future competitors or that the competitive pressures faced by us will not materially adversely affect our business, operating results, and financial condition. See "Competition" in Item 1 of this Annual Report for additional information.

The continued uncertainties in the global economy may negatively impact our sales to, and the collection of receivables from, our clients.

Our sales to, and our collection of receivables from, our clients may be impacted by adverse changes in global economic conditions. The U.S. and other key international economies have experienced cyclical downturns from time to time, during which economic activity has been impacted by falling demand for goods and services, restricted credit, poor liquidity, reduced corporate profitability, volatility in credit, equity, and foreign exchange markets, bankruptcies, and economic uncertainty. These changes in global economic conditions could impact the ability and willingness of our clients to make investments in technology, which in turn may delay or reduce the purchases of our software and services. These factors could also impact the ability and willingness of these clients to pay their trade obligations and 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. The financial uncertainties facing many of our clients and the industries in which they operate could negatively impact our business, operating results, and financial condition.

We have historically sold to the financial services, healthcare, insurance, and communications markets, and rapid changes or consolidation in these markets could affect the level of demand for our products.

We have historically derived a significant portion of our revenue from clients in the financial services, healthcare, insurance, and communications markets, and sales to these markets are important for our future growth. Competitive pressures, industry consolidation, decreasing operating margins, regulatory changes, and privacy concerns affect the financial condition of our clients and their willingness to buy. In addition, clients' purchasing patterns in these industries for large technology projects are somewhat discretionary. The financial services and insurance markets continue to undergo intense domestic and international consolidation, and consolidation has increased in the healthcare and communications markets. Consolidation may interrupt normal buying behaviors and increase the volatility of our operating results. In recent years, several of our clients have merged or consolidated, and we expect this to continue in the future. Future mergers or consolidations may cause a decline in revenues and adversely affect our future financial performance. All of these factors affect the level of demand for our products from clients in these industries, and could adversely affect our business, operating results, and financial condition.

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 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 us or our third-party service providers could diminish the quality of our user experience resulting in contractual liability, claims by clients and other third parties, damage to our reputation, loss of current and potential clients, and harm to our operating results and financial condition.

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

Our cloud offering provides Pega Platform environments that are provisioned, monitored, and maintained for individual clients to create and deploy Pega-based applications using an Internet-based infrastructure. These services involve the storage and transmission of clients' data and other confidential information. Security breaches could expose us and our clients to a risk of loss or misuse of this information. Any security breach could result in a loss of confidence in the security of our services, damage our reputation, disrupt our business, lead to legal liability, and negatively impact our future sales. High-profile security breaches at other companies have increased in recent years, and 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 pose threats to our clients and to our IT structure.

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 error, human error, technical flaws in our products, or otherwise. The techniques used to obtain unauthorized access or to sabotage systems change frequently and generally are not recognized until launched against a target. While we have invested in the protection of our data and systems and of our clients' data to reduce these risks, there can be no assurance that our efforts will prevent breaches. We carry data breach insurance coverage to mitigate the financial impact of a breach, though this may prove insufficient in the event of a breach.

Our cloud offering involves the hosting of clients' 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 we employ a shared security model with our clients and our third-party technology providers. 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 cloud offering or lead to requirements to provide our products or services in configurations that may increase the cost of serving such markets.

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

Despite quality testing prior to its 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 could delay the development or release of new products or new versions of our software. Additionally, the detection and correction of 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, and/or warranty claims as well as 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. There is a risk that a court might interpret these terms in a limited way or could hold part or all of these terms to be 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 Government Regulation and Intellectual Property

The formal notification by the U.K. of its intention to withdraw from the EU (commonly referred to as "Brexit") could have a material impact on our business, including our relationships with existing and future clients, suppliers, and employees, which could have an adverse effect on our financial results and operations.

Pursuant to the U.K.'s referendum in June 2016, in which a majority voted in favor of the U.K.'s exit from the EU, the British government is negotiating the future terms of the U.K.'s relationship with the EU. The final terms of the U.K.'s relationship with the EU after exit are not currently known. We have material operations in the U.K. and larger EU. The ultimate effects, or perceived effects, of the U.K.'s decision could potentially disrupt the markets we serve and the tax jurisdictions in which we operate. In addition, Brexit could lead to legal uncertainty as the U.K. determines which EU laws to replace or replicate.

We are subject to increasingly complex U.S. and foreign laws and regulations, requiring costly compliance measures, and 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 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 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 for the purpose of obtaining or retaining business. Similar laws and regulations exist in many other countries throughout the world in which we do or intend to do business. Data privacy laws and regulations in Europe, Australia, Latin America and elsewhere are undergoing rapid transformation toward increased restrictions.

In April 2016, the European Parliament adopted the General Data Protection Regulation ("GDPR"). It became effective in May 2018. The GDPR extends the scope of European privacy laws to any entity which controls or processes personal data of EU 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. Complying with the GDPR and other emerging and changing requirements caused us to incur additional costs in fiscal year 2018 and may cause us to incur substantial additional costs or require us to change our business practices. Compliance also depends on how regulators choose to interpret and apply the new requirements. Moreover, non-compliance, or if regulators assert we have not complied, with GDPR could result in significant monetary penalties of up to the higher of 20 million Euro or 4% of annual worldwide revenue, private lawsuits, and damage to our reputation, which could have a material adverse effect on our business, operating results, and financial condition.

We have developed and implemented a compliance program based on what we believe are current best 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 we or our representatives 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 have an adverse effect on 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 potential loss of business, which could be significant.

We may have exposure to greater than anticipated tax liabilities.

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. Our determination of our tax liability is always subject to audit and review by applicable domestic and foreign tax authorities, and we are currently undergoing a number of inquiries, audits, and reviews by taxing authorities throughout the world. 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 to be insufficient.

In addition, our future income taxes could be adversely affected by a shift in our jurisdictional earning mix, by changes in the valuation of our deferred tax assets and liabilities, as a result of changes in tax laws, regulations, or accounting principles, as well as by certain discrete items.

In light of continuing fiscal challenges in many jurisdictions, various levels of government are increasingly focused on tax reform and other legislative action to increase tax revenue, including corporate income taxes. A number of 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 in the world, there are various tax reform efforts underway designed to ensure that corporate entities are taxed on a larger percentage of their earnings.

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

As of December 31, 2018, approximately $63.9 million of our cash and cash equivalents was held in our foreign subsidiaries. If we are unable to reinvest this cash outside of the U.S., we may have to repatriate some of our foreign cash to the U.S. which would increase our income tax liability. If it becomes necessary to repatriate these funds, we may be required to pay U.S. state and local taxes, as well as foreign taxes, upon repatriation. We consider the earnings of our foreign subsidiaries to be permanently reinvested and, as a result, U.S. state, U.S. local, and foreign taxes on such earnings have not been provided. It is impractical to estimate the amount of U.S. state, U.S. local, and foreign tax we would have to pay upon repatriation due to the complexity of the income tax laws and the effects of the Tax Reform Act and other factors.

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

We rely primarily on a combination of 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 assure 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. There can be no assurance that third parties, including clients, will not claim infringement by us with respect to current or future products. Although we attempt to limit the amount and type of our contractual liability for infringement 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 will increasingly be subject to infringement claims as the number of products and competitors in our industry segment grows and the functionality of products in different industry segments overlaps. Any such claims, with or without merit, could be time-consuming, result in costly litigation, cause product shipment and delivery delays, require us to enter into royalty or licensing agreements, or be precluded 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, which could have a material adverse effect upon our business, operating results, and financial condition.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our principal administrative, sales, marketing, support, and research and development operations are in Cambridge, Massachusetts and Hyderabad, India. We also maintain offices elsewhere in the Americas, Europe, and the Asia-Pacific. All our properties are currently leased. We expect to expand our facilities' capacities as our employee base grows. We believe we will be able to obtain such space on acceptable and commercially reasonable terms.

See "19. Commitments And Contingencies" in Item 8 of this Annual Report for additional information.

ITEM 3. LEGAL PROCEEDINGS

None.

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 14, 2019, we had approximately 24 stockholders of record and approximately 21,400 beneficial owners of our common stock.

Dividends

During 2018, 2017, and 2016, we paid quarterly cash dividends of $0.03 per share of common stock. It is our current intention to pay a quarterly cash dividend of $0.03 per share, however, the Board of Directors may terminate or modify this dividend program at any time without prior notice.

Issuer purchases of equity securities

The following table sets forth information regarding repurchases of our common stock during the three months ended December 31, 2018:

(in thousands, except per share amounts)	Total Number of Shares Purchased [(1) (2)]	Average Price Paid per Share [(1) (2)]	Total Number of Shares Purchased as Part of Publicly Announced Share Repurchase Program [(2)]	Approximate Dollar Value of Shares That May Yet Be Purchased at Period End Under Publicly Announced Share Repurchased Programs [(2)]
October 1, 2018 - October 31, 2018	146	$ 55.28	139	$ 24,077
November 1, 2018 - November 30, 2018	170	$ 52.78	144	$ 16,489
December 1, 2018 - December 31, 2018	272	$ 49.31	204	$ 6,620
Total	588	$ 51.79		

(1) We net settle most of our employee stock option exercises and restricted stock unit (“RSU”) vestings, which results in the withholding of shares to cover the option exercise price and the minimum statutory withholding tax obligations that we are required to pay in cash to the applicable taxing authorities on behalf of our employees. Shares withheld to cover the option exercise price and statutory tax withholding obligations under the net settlement provisions of the Company’s stock compensation awards have been included in the above table. See "Common Stock Repurchases" in Item 7 of this Annual Report for additional information.

(2) See "Stock Repurchase Program" in Item 7 of this Annual Report for additional information.

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, 2013 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.

	December 31,					
	2013	2014	2015	2016	2017	2018
Pegasystems Inc.	$100.00	$84.90	$112.97	$148.51	$194.97	$198.20
NASDAQ Composite	$100.00	$114.75	$122.74	$133.62	$173.22	$168.30
S&P NA Tech Software	$100.00	$113.88	$128.11	$136.06	$194.29	$218.85

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

(2) We paid total dividends of $0.12 per share during 2018, 2017, 2016, and 2015 and $0.09 per share in 2014. The dividends paid per share have been adjusted for the two-for-one common stock split effected in the form of a common stock dividend on April 1, 2014.

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ITEM 6. SELECTED FINANCIAL DATA

The selected financial data presented below has been derived from our audited consolidated financial statements. This data should be read in conjunction with "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Item 8. Financial Statements and Supplementary Data" of this Annual Report.

(in thousands, except per share amounts)	2018	2017	2016	2015	2014
Consolidated Statements of Operations Data [(1)] [(2)]:					
Revenue:					
Perpetual license	$109,863	$132,883	$145,053	$166,305	$136,154
Term license	178,256	206,411	152,231	109,283	96,182
Maintenance	263,875	242,320	218,635	202,802	186,239
Cloud	82,627	51,097	40,647	30,626	16,614
Consulting	256,960	255,756	205,663	173,679	154,815
Total revenue	$891,581	$888,467	$762,229	$682,695	$590,004
(Loss) income from operations	$(17,032)	$93,177	$50,644	$64,661	$51,539
Net income	$10,617	$98,548	$45,015	$36,322	$33,255
Earnings per share:					
Basic	$0.14	$1.27	$0.59	$0.47	$0.44
Diluted	$0.13	$1.19	$0.56	$0.46	$0.42
Cash dividends declared per common share	$0.12	$0.12	$0.12	$0.12	$0.105

	December 31,				
(in thousands)	2018	2017	2016	2015	2014
Consolidated Balance Sheet Data [(2)] [(3)]:					
Total cash, cash equivalents, and marketable securities	$207,423	$223,748	$133,761	$219,078	$211,216
Goodwill	$72,858	$72,952	$73,164	$46,776	$46,860
Total assets	$982,553	$1,012,753	$867,135	$627,758	$587,801
Total stockholders' equity	$621,531	$655,870	$548,940	$322,859	$294,705

[(1)] We elected to early adopt Accounting Standards Update ("ASU") 2016-09 "Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting" ("ASU 2016-09") in 2016, which requires us, among other things, to prospectively record excess tax benefits as a reduction of the provision for income taxes in the consolidated statement of operations, whereas they were previously recognized in equity.

[(2)] We retrospectively adopted ASU No. 2014-09, "Revenue from Contracts with Customers (Topic 606)" in 2018. As a result, we have adjusted balances for 2017 and 2016. We have not adjusted 2014 and 2015 for ASU 2014-09. See "2. Significant Accounting Policies" in Item 8 of this Annual Report for additional information.

[(3)] We retrospectively adopted ASU 2015-17 "Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes" in 2016. As a result, all net deferred income taxes assets are classified as long-term deferred income tax assets in the consolidated balance sheets for all periods presented. The amounts reclassified as of December 31, 2015 and 2014, were $12.4 million and $13 million, respectively.

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

BUSINESS OVERVIEW

We develop, market, license, and support enterprise software applications that help organizations transform the way they engage with their customers and process and complete work across their enterprise. We license our no-code Pega Platform™ for rapid application development to clients that wish to build and extend their own business applications. Our cloud-architected portfolio of customer engagement and digital process automation applications leverages artificial intelligence ("AI"), case management, and robotic automation technology, built on our unified no-code Pega Platform, empowering businesses to quickly design, extend, and scale their enterprise applications to meet strategic business needs.

Our target clients are Global 3000 organizations and government agencies that require applications to differentiate themselves in the markets they serve. Our applications achieve and facilitate differentiation by increasing business agility, driving growth, improving productivity, attracting and retaining customers, and reducing risk. We deliver applications tailored to our clients' specific industry needs.

Performance metrics

(Dollars in thousands, except per share amounts)	2018	2017	2016	Change 2018 vs. 2017	Change 2017 vs. 2016
Total revenue	$891,581	$888,467	$762,229	— %	17 %
Subscription [1]	$524,758	$499,828	$411,513	5 %	21 %
Net income	$10,617	$98,548	$45,015	(89)%	119%
Earnings per share, diluted	$0.13	$1.19	$0.56	(89)%	113%

[1] Subscription revenue reflects client arrangements (term license, cloud, and maintenance) which are subject to renewal.

Annual Contract Value ("ACV")[1]

The change in ACV measures the growth and predictability of future cash flows from committed term, cloud, and maintenance arrangements as of the end of the particular reporting period.

(Dollars in thousands)	December 31, 2018	December 31, 2017	Change	
Term and cloud ACV	$300,322	$215,122	$85,200	40%
Maintenance ACV	269,708	249,484	20,224	8 %
Total ACV	$570,030	$464,606	$105,424	23%

[1] ACV, as of a given date, is the sum of the following two components:

- the sum of the annual value of each term and cloud contract in effect on such date, with the annual value of a term or cloud contract being equal to the total value of the contract divided by the total number of years of the contract; and
- maintenance revenue reported for the quarter ended on such date, multiplied by four.

Remaining performance obligations

Revenue for the remaining performance obligations on existing contracts is expected to be recognized as follows:

(Dollars in thousands)	December 31, 2018 Perpetual license	Term license	Maintenance	Cloud	Consulting	Total	
1 year or less	$14,665	$72,378	$ 192,274	$103,354	$ 17,235	$399,906	63 %
1-2 years	2,343	10,355	10,436	80,214	2,810	106,158	17 %
2-3 years	1,661	1,414	3,644	61,906	940	69,565	11 %
Greater than 3 years	—	233	1,560	53,343	208	55,344	9 %
	$18,669	$84,380	$ 207,914	$298,817	$ 21,193	$630,973	100 %

RESULTS OF OPERATIONS

(Dollars in thousands)	2018	2017	2016	Change 2018 vs. 2017	2017 vs. 2016
Total revenue	$891,581	$888,467	$762,229	— %	17 %
Gross profit	$589,816	$608,794	$522,973	(3)%	16 %
(Loss) income from operations	$(17,032)	$93,177	$50,644	*	84 %
Net income	$10,617	$98,548	$45,015	(89)%	119%

* not meaningful

Revenue

(Dollars in thousands)	2018		2017		2016		Change 2018 vs. 2017	2017 vs. 2016
Term license	$178,256	20 %	$206,411	23 %	$152,231	20 %	(14)%	36 %
Cloud	82,627	9 %	51,097	6 %	40,647	5 %	62 %	26 %
Maintenance	263,875	30 %	242,320	27 %	218,635	29 %	9 %	11 %
Subscription (1)	524,758	59 %	499,828	56 %	411,513	54 %	5 %	21 %
Perpetual license	109,863	12 %	132,883	15 %	145,053	19 %	(17)%	(8)%
Consulting	256,960	29 %	255,756	29 %	205,663	27 %	— %	24 %
Total revenue	$891,581	100%	$888,467	100%	$762,229	100%	— %	17 %

(1) Subscription revenue reflects client arrangements (term license, cloud, and maintenance) which are subject to renewal.

We expect our revenue mix to continue to shift in favor of our cloud offerings, which could result in slower total revenue growth in the near term. Revenue from cloud arrangements is generally recognized over the service period, while revenue from license arrangements is generally recognized upfront when the license rights become effective.

Subscription revenue

The decrease in term license revenue in 2018, and increase in 2017, was primarily due to $35.3 million of revenue recognized in the three months ended March 31, 2017 from a large term license renewal. The increases in cloud revenue in 2018 and 2017 reflect the shift in client preferences to cloud arrangements from other types of arrangements. The increases in maintenance revenue in 2018 and 2017 were primarily due to the continued growth in the installed base of our software and strong renewal rates in excess of 90%.

Perpetual license

The decreases in perpetual license revenue in 2018 and 2017 reflect the shift in client preferences in favor of our cloud offerings and away from perpetual license arrangements.

Consulting

Consulting revenue is primarily related to new license implementations. See "Our consulting revenue is significantly dependent upon our consulting personnel implementing new license and cloud arrangements" in Item 1A of this Annual Report for additional information.

Consulting revenue was substantially consistent in 2018 with 2017 as a decrease in billable hours in 2018 from a large project which began in the second half of 2016 was offset by an increase in revenue from a large number of other projects. The increase in consulting revenue in the 2017 was primarily due to an increase in billable hours driven by the same large project which began in the second half of 2016.

Gross profit

(Dollars in thousands)	2018		2017		2016		Change 2018 vs. 2017	Change 2017 vs. 2016
Software license	$282,950	98 %	$334,209	99 %	$292,341	98 %	(15)%	14 %
Maintenance	239,310	91 %	214,415	88 %	193,130	88 %	12 %	11 %
Cloud	45,218	55 %	27,326	53 %	18,340	45 %	65 %	49 %
Consulting	22,338	9 %	32,844	13 %	19,162	9 %	(32)%	71 %
Total gross profit	$589,816	66 %	$608,794	69 %	$522,973			